

Kirtland AFB Bulk Fuels Facility Spill Status

New Mexico Environment Department

<http://www.nmenv.state.nm.us>

**Albuquerque-Bernalillo County Water Utility Authority
Governing Board**

November 28, 2012

Current Status

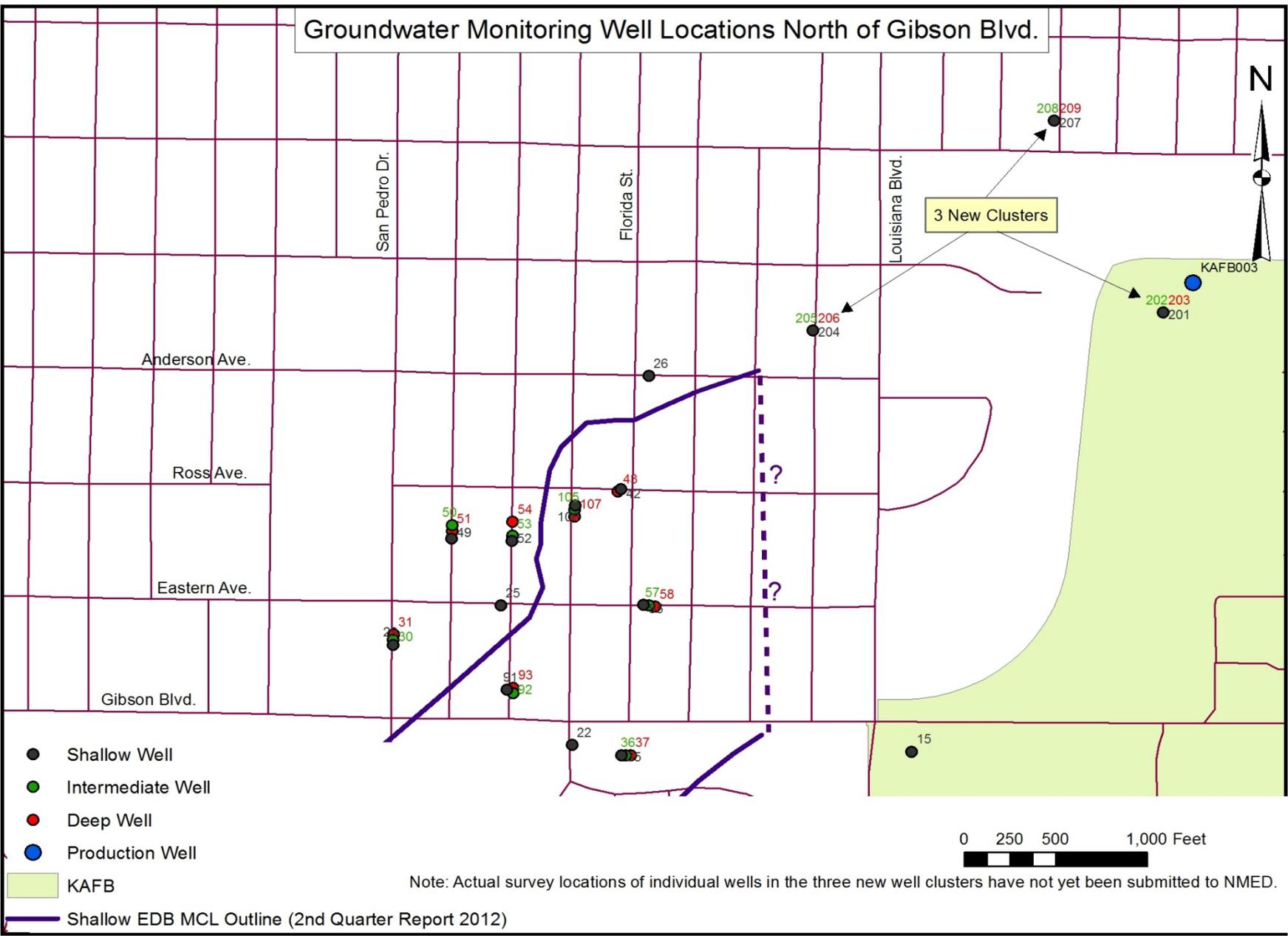
– Investigation phase

- Completed installation of 9 new monitoring wells (Oct. 2012)
 - To determine northeastern extent of EDB contamination
 - Wells developed and slug testing completed (Oct. 2012)
 - Installed dedicated pumps (Oct./Nov. 2012)
 - Analytical data collected by Kirtland AFB and NMED (Nov. 2012)
 - KAFB data to be provided December 26, 2012 (3rd Quarter Report)

– Interim measures

- Soil Vapor Extraction (SVE)
 - SVE system design submitted to NMED (Nov. 2012)
 - Construction of new SVE infrastructure
 - SVE operation to begin late December
 - Ongoing operations of older SVE ICE units
- In-well treatment of dissolved phase contamination

Groundwater Monitoring Well Locations North of Gibson Blvd.



Note: Actual survey locations of individual wells in the three new well clusters have not yet been submitted to NMED.

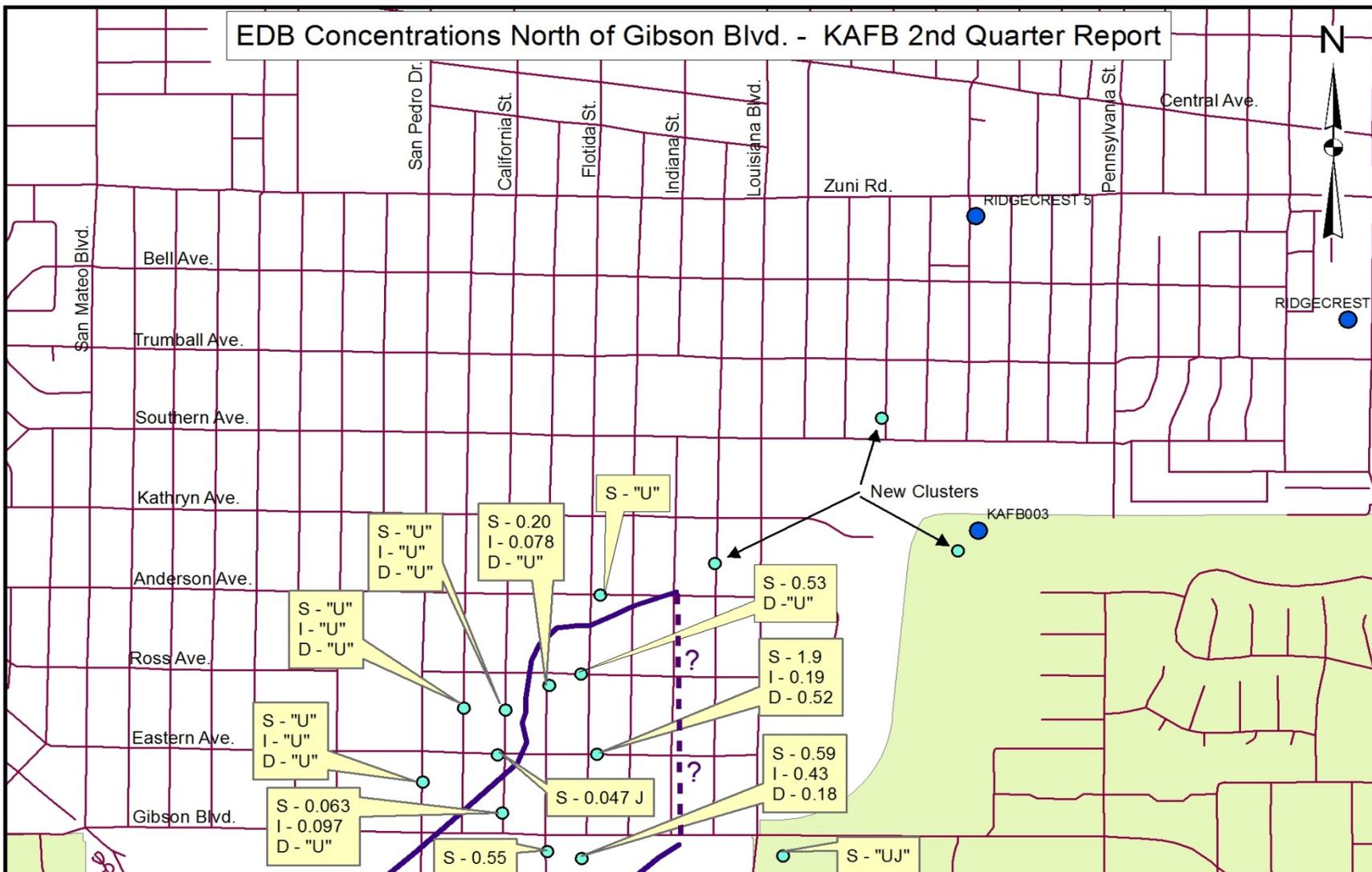
Shallow EDB MCL Outline (2nd Quarter Report 2012)

Water Quality Standards

(Required by Regulation and Imposed by Permit Condition)

- Ethylene Dibromide (EDB)
 - EPA Maximum Contaminant Level (MCL) 0.05 µg/L (ppb)
 - New Mexico WQCC Standard (WQCC) 0.10 µg/l
- Benzene
 - EPA MCL 5 µg/L
 - NM WQCC 10 µg/L
- Toluene
 - EPA MCL 1 mg/L (ppm)
 - NM WQCC 0.750 mg/L
- Xylenes (total)
 - EPA MCL 10 mg/L
 - NM WQCC 0.620 mg/L

EDB Concentrations North of Gibson Blvd. - KAFB 2nd Quarter Report

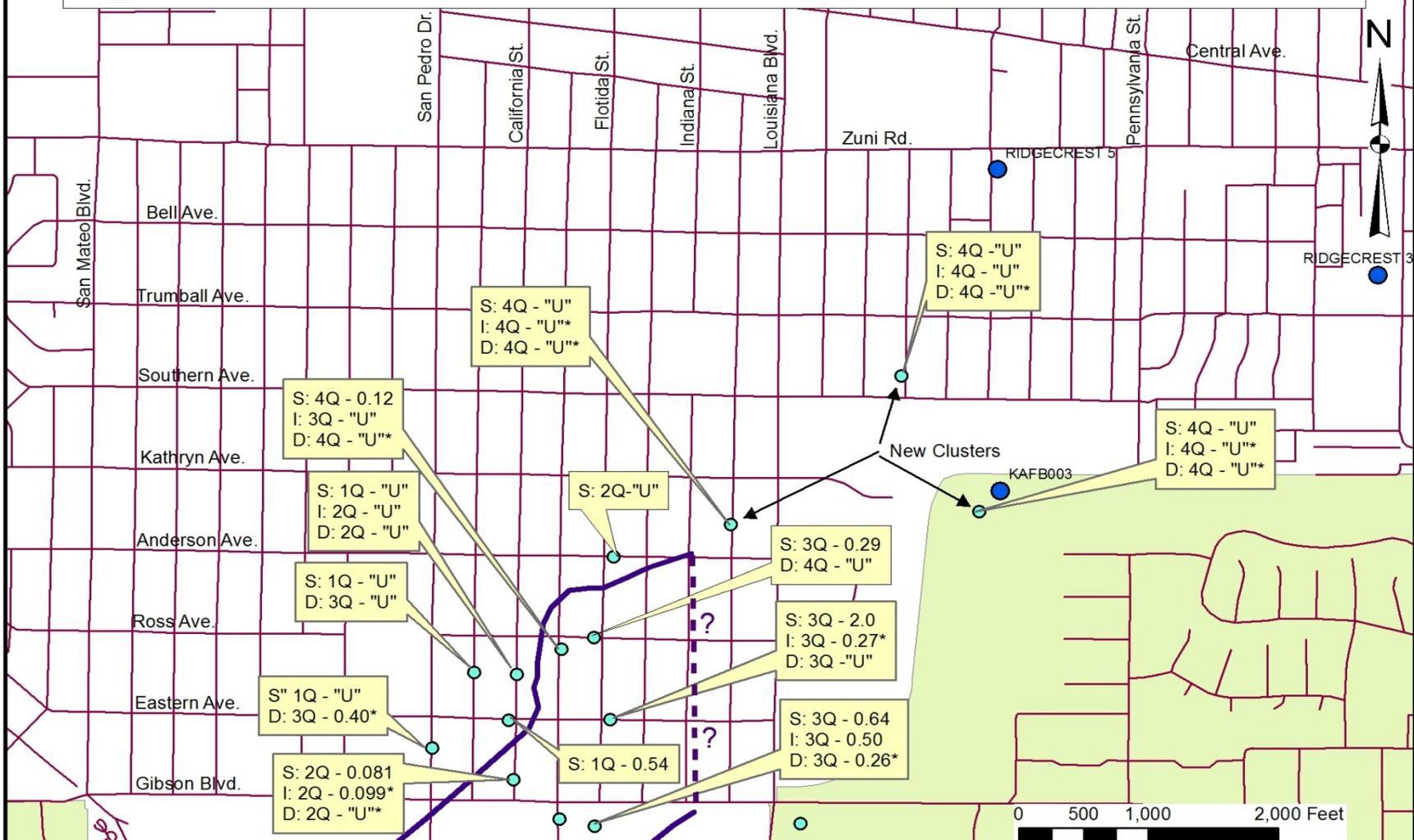


Note: Preliminary unvalidated data from 4th quarter for 8 of 9 new wells indicates non-detects for EDB.

EDB Concentration in ug/L
 "U" = analyte not detected
 "UJ" = analyte was tentatively not detected
 EDB Concentration Values from 2012 2nd Quarter Report

- Groundwater Monitoring Well(s) S = Shallow Well
I = Intermediate Well
D = Deep Well
- Production Well
- Shallow EDB MCL Outline (2nd Quarter Report 2012)
- KAFB

EDB Concentrations North of Gibson Blvd. - NMED Split Samples, 1st Through 4th Quarter 2012



1Q - First Quarter, 2012
 2Q - Second Quarter, 2012
 3Q - Third Quarter 2012
 4Q - Fourth Quarter 2012

EDB Concentration in ug/L
 "U" = analyte not detected
 EDB Concentration Values from latest
 NMED split samples, 1st through 4th quarters, 2012
 * - indicates bubbles observed during sampling

● Groundwater Monitoring Well(s) S = Shallow Well
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 ■ KAFB

EDB concentrations in wells north of Gibson Blvd. 2012

NMED Split Samples

Well	Interval	Quarter			
		4th	3rd	2nd	1st
25	s				0.54
26	s		u		
29	s				u
31	d		.40 b		
35	s		0.64		0.51
36	i		0.5	0.39 b	
37	d		.26 b		
42	s		0.29	0.57	1.7
43	d	u	u		.2 b
49	s				u
51	d		u		
52	s				u
53	i			u	
54	d			u	
55	s		2		0.47
57	i		.27 b		u

Notes:

Interval:

s - shallow well

i - intermediate well

d - deep well

b = bubbles observed during sampling

u = EDB not detected

values in ug/L

EDB concentrations in wells north of Gibson Blvd. 2012

NMED Split Samples

Well	Interval	Quarter		
		4th	3rd	2nd
58	d		u	0.58
91	s			0.081
92	i			0.099 b
93	d			ub
105	i	0.12	u	
106	s		u	u
107	d	ub	.10 b	
201	s	u		
202	i	ub		
203	d	ub		
204	s	u		
205	i	ub,ub		
206	d	ub,ub		
207	s	u		
208	i	u		
209	d	ub,ub		

Notes:

Interval:

s - shallow well

i - intermediate well

d - deep well

b = bubbles observed during sampling

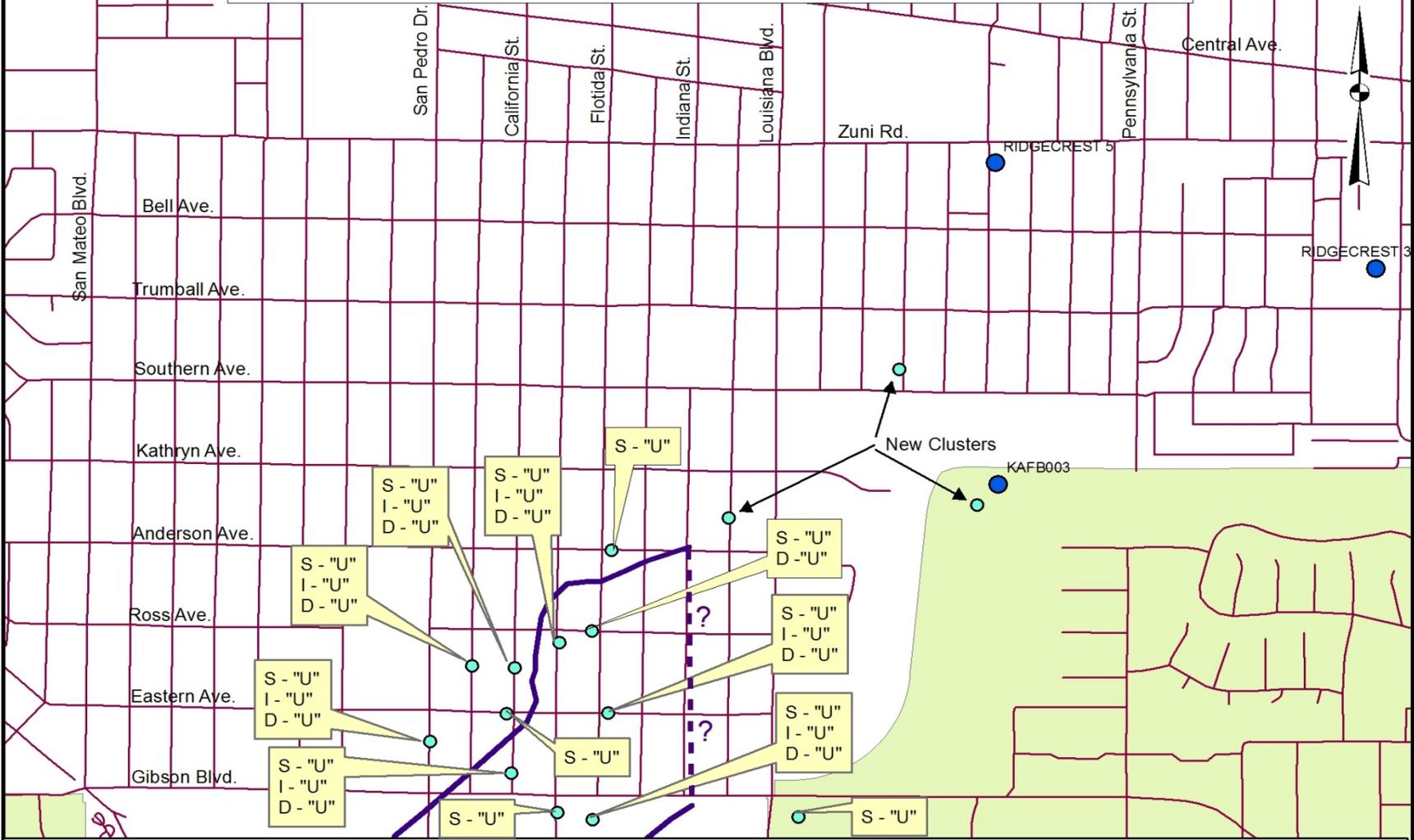
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values in ug/L

Gas Bubbles

- Found during groundwater sampling
- Possible causes
 - Natural causes -Exsolving gas (probably CO₂)
 - Man-Made causes – pump/ancillary tubing failures
 - Drilling Technique – Air entrapped in formation from ARCH drilling
 - Further develop formation
 - Reaction with preservative in VOA bottles
 - Ruled out – bubbles seen in tubing before sampling
- Test
 - Argon gas to run pumps and sample bubbles for laboratory analysis
 - CO₂ - natural condition
 - Argon - pump/tubing failure
 - Air - entrapped air in formation
 - Additional well development may be needed
 - Data of occurrences being developed by KAFB

PCE Concentrations North of Gibson Blvd. - KAFB 2nd Quarter Report

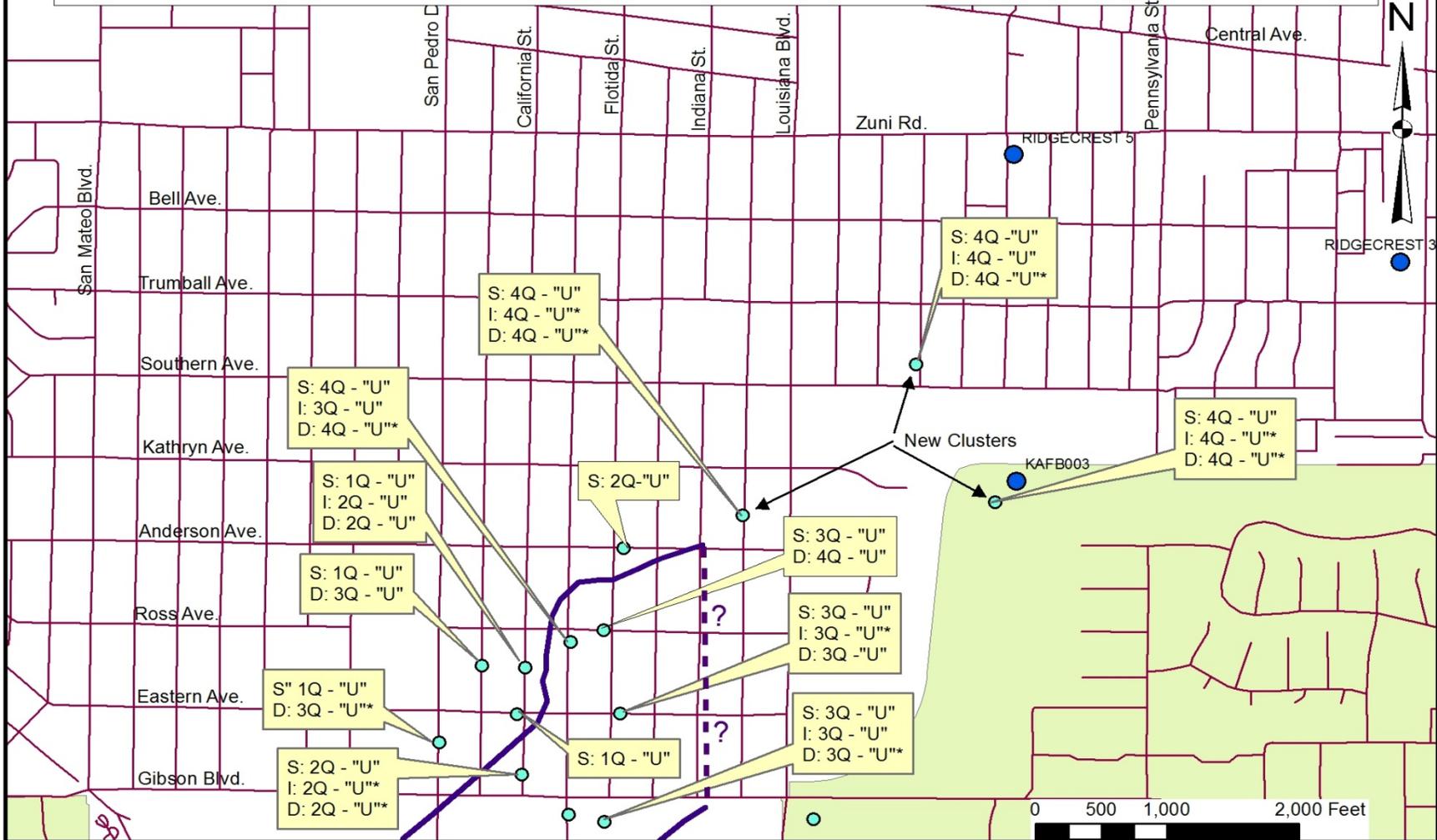


Note: Preliminary unvalidated data from 4th quarter for 8 of 9 new wells indicates non-detects for PCE.

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PCE Concentrations North of Gibson Blvd. - NMED Split Samples, 1st Through 4th Quarter 2012



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PCE Concentration in ug/L
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<http://www.nmenv.state.nm.us/HWB/kafbperm.htm>

<http://www.kirtland.af.mil/environment.asp>