

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

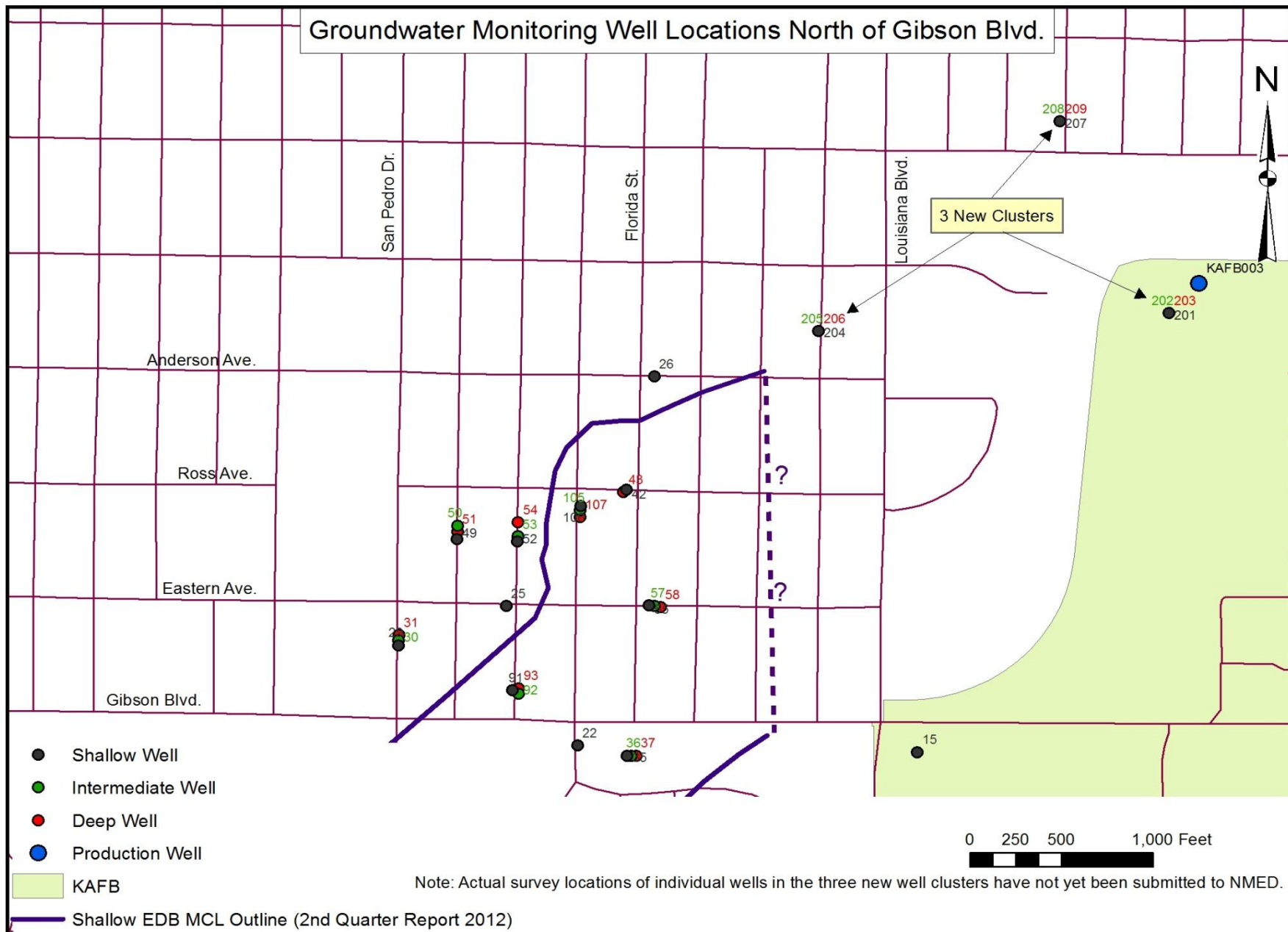
— Investigation phase

- 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.

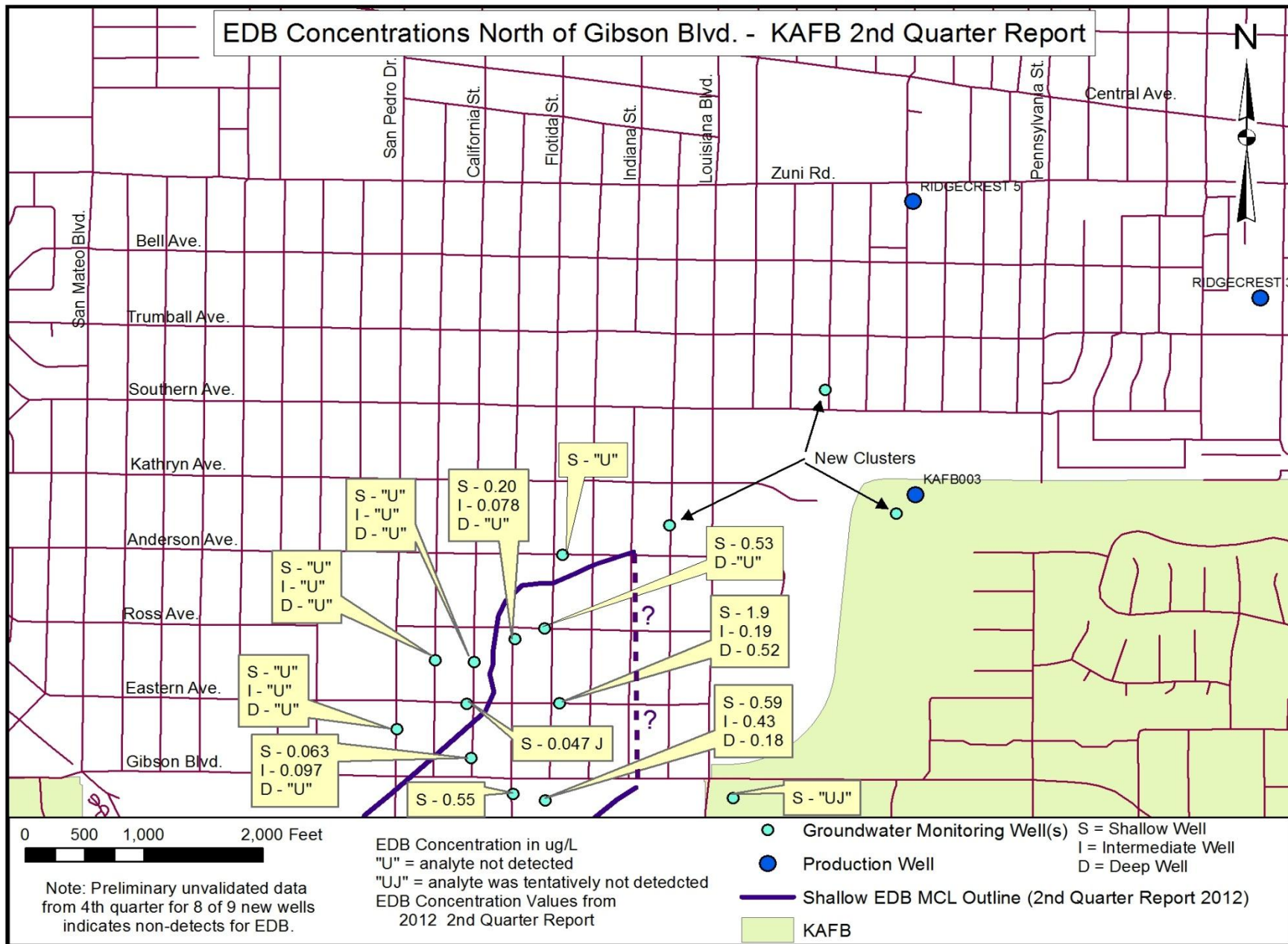


Water Quality Standards

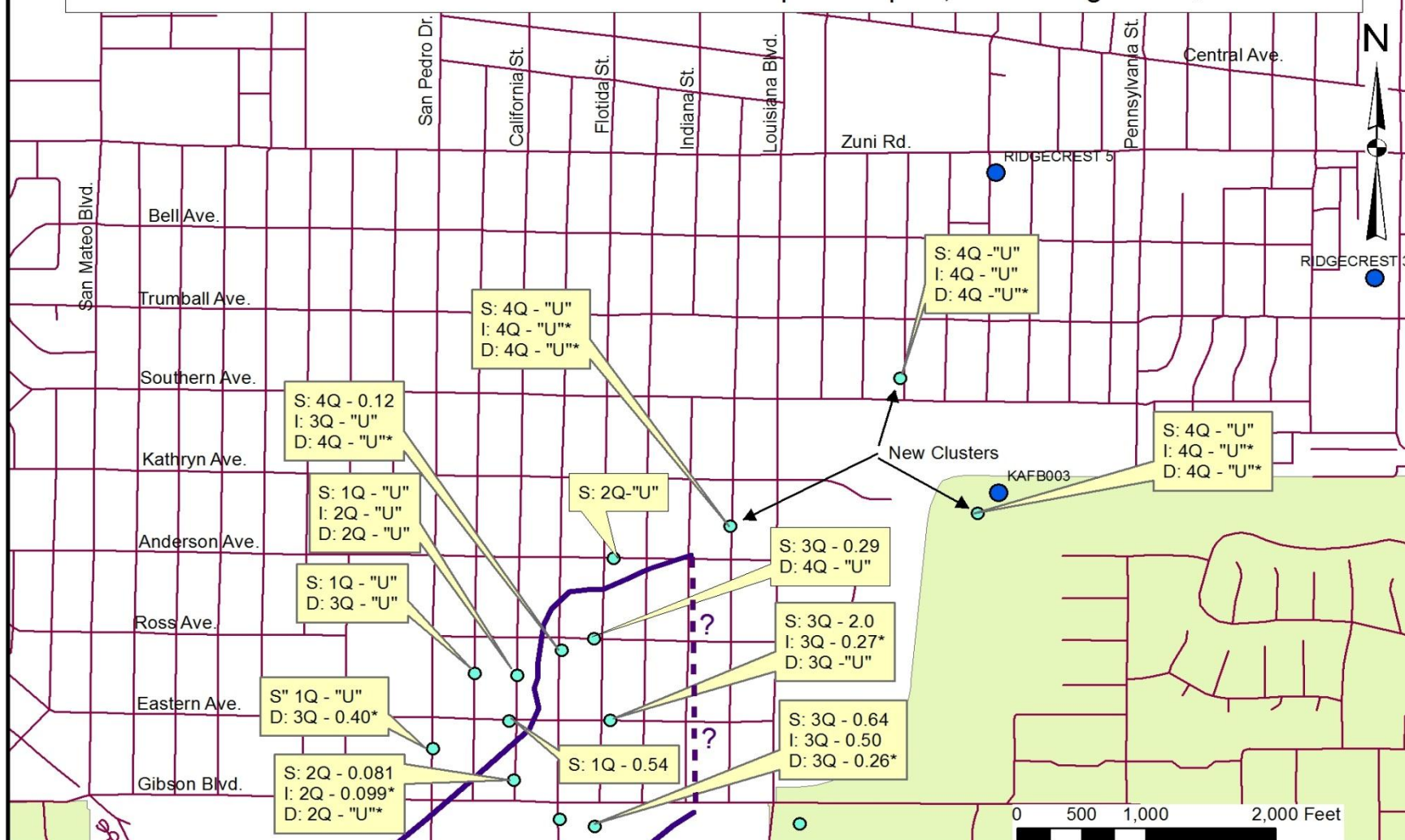
(Required by Regulation and Imposed by Permit Condition)

- 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



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)
● Production Well
— Shallow EDB MCL Outline (2nd Quarter Report 2012)
KAFB

S = Shallow Well
I = Intermediate Well
D = Deep Well

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

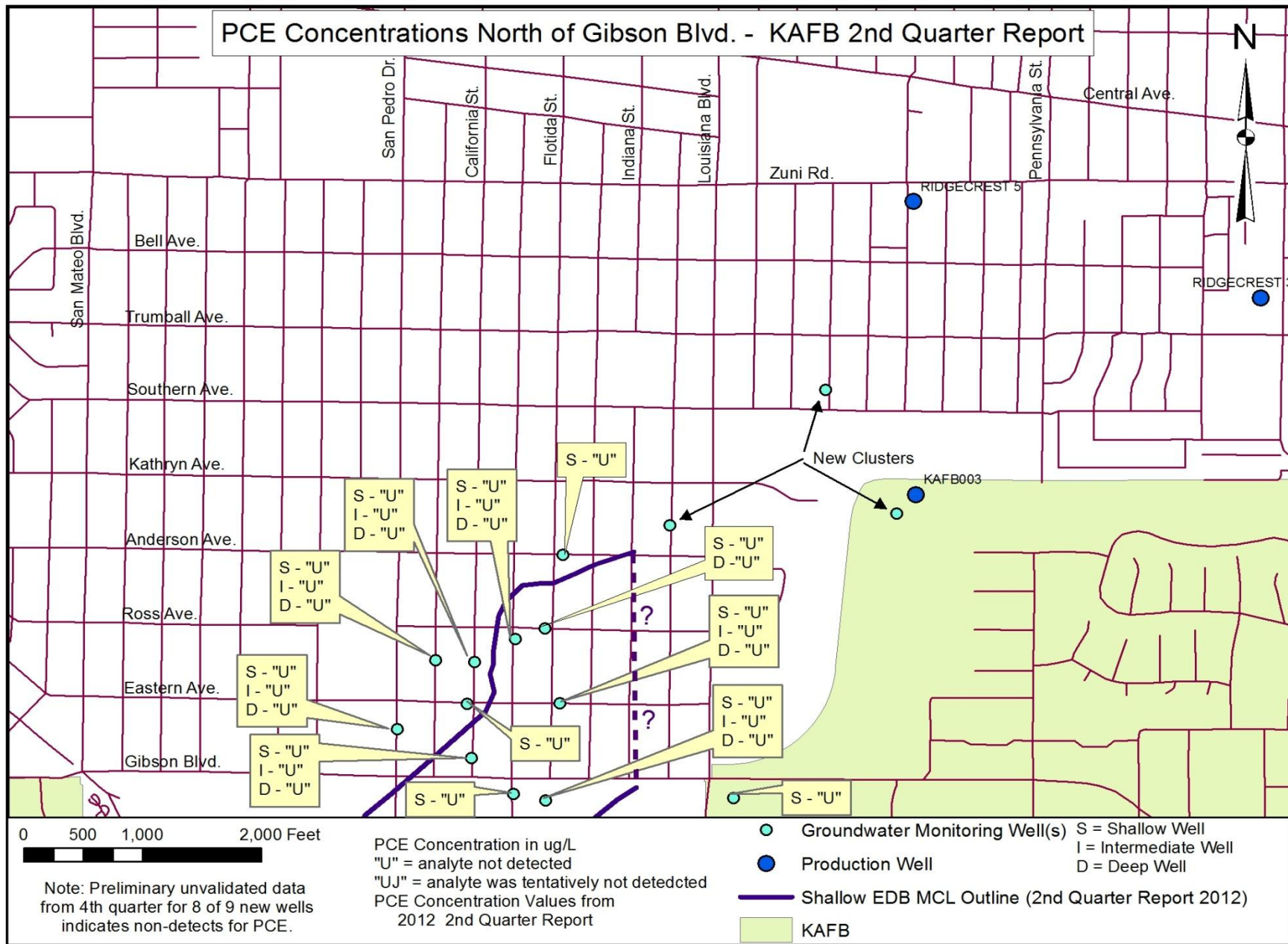
u = EDB not detected

values in ug/L

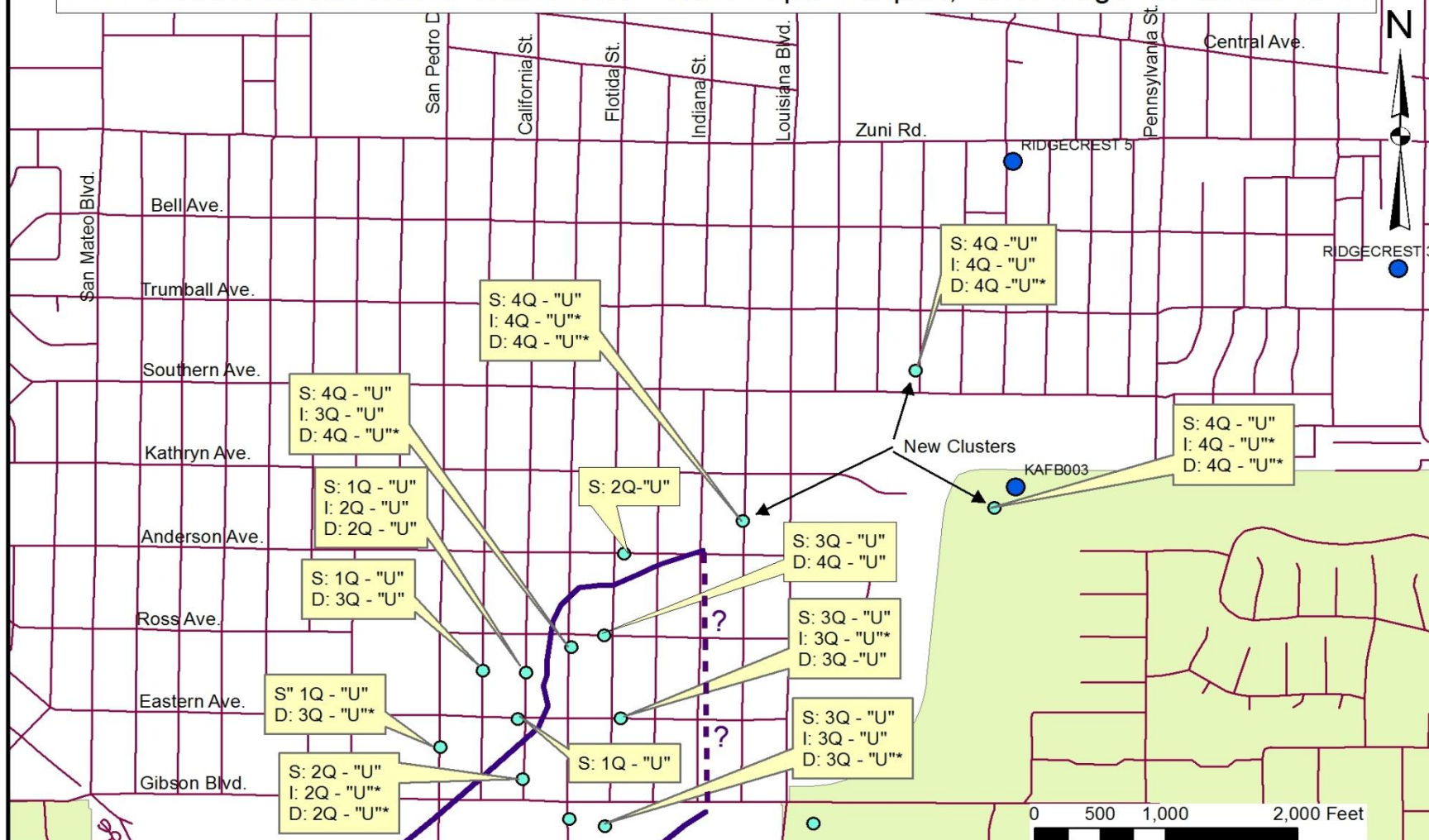
Gas Bubbles

- 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



PCE 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

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

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

Contact Information

Jim Davis, Director
Resource Protection Division
jim.davis@state.nm.us
(505) 827-1758

John E. Kieling, Chief
Hazardous Waste Bureau
john.kieling@state.nm.us
(505) 476-6035

<http://www.nmenv.state.nm.us/HWB/kafbperm.htm>

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