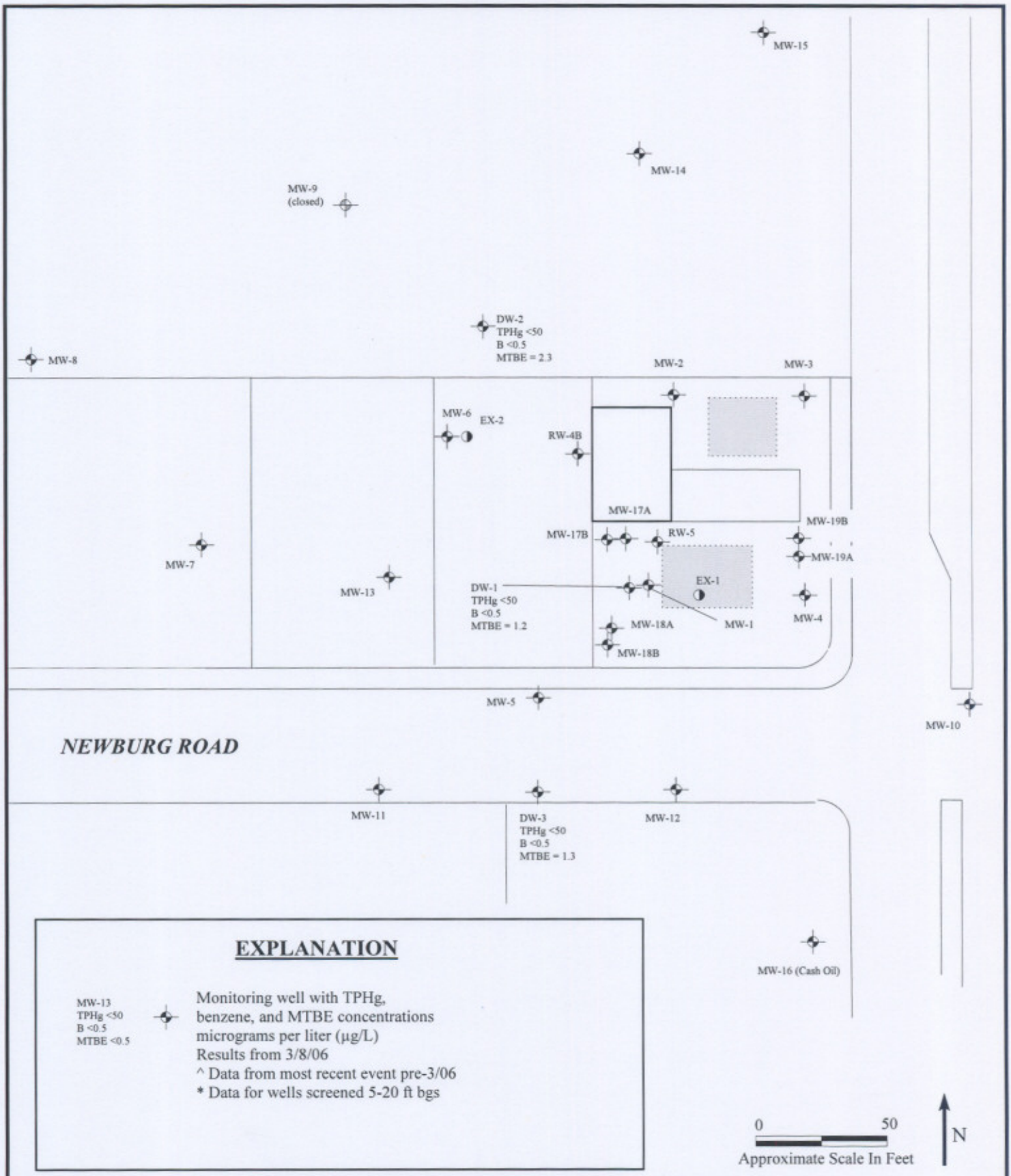
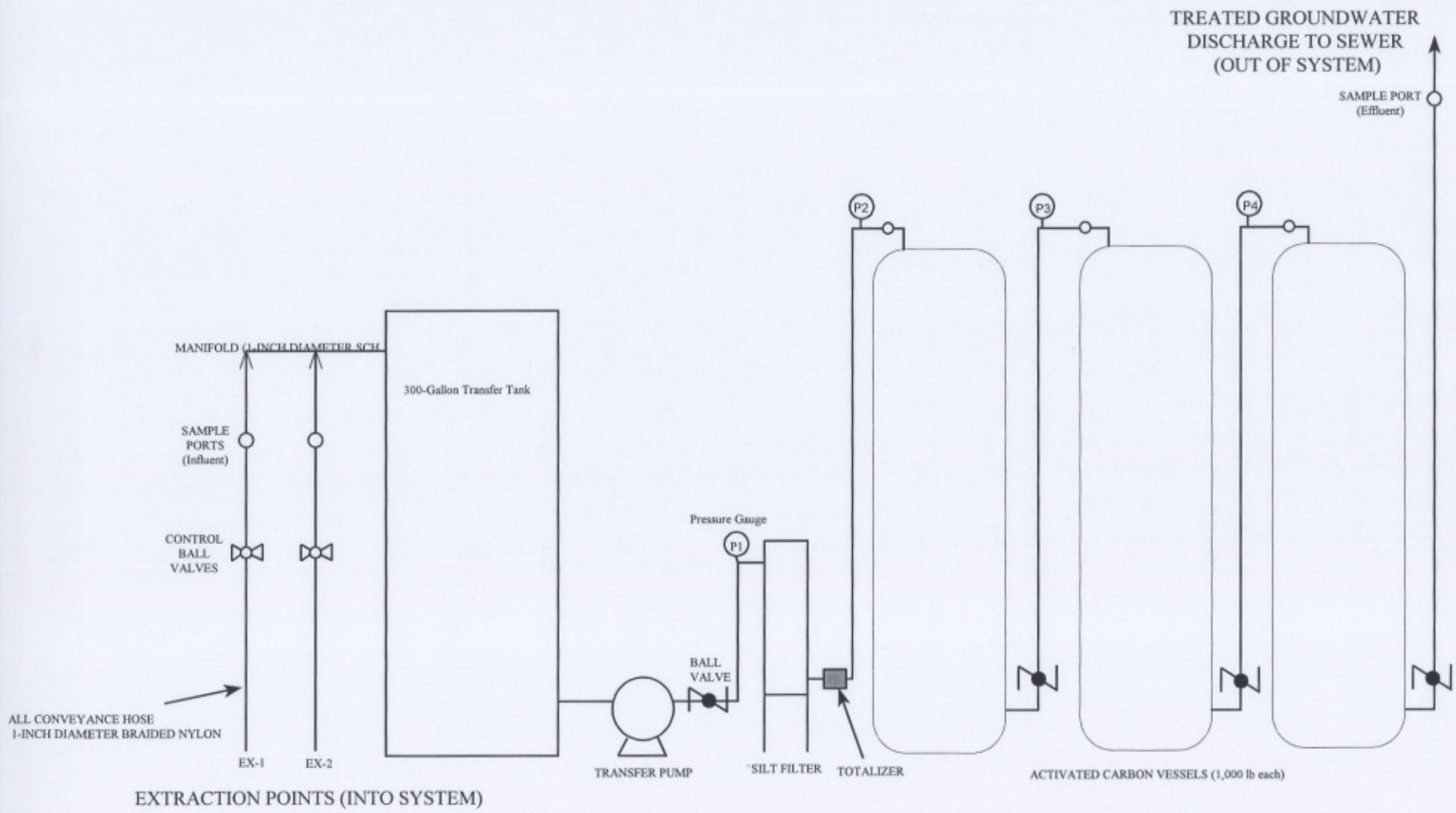


Groundwater Sample Data - C-Zone (~30-40 ft bgs)
3/8/06
Fortuna Beacon Petro Mart
390 South Fortuna Boulevard
Fortuna, California

BLUE ROCK ENVIRONMENTAL, INC.

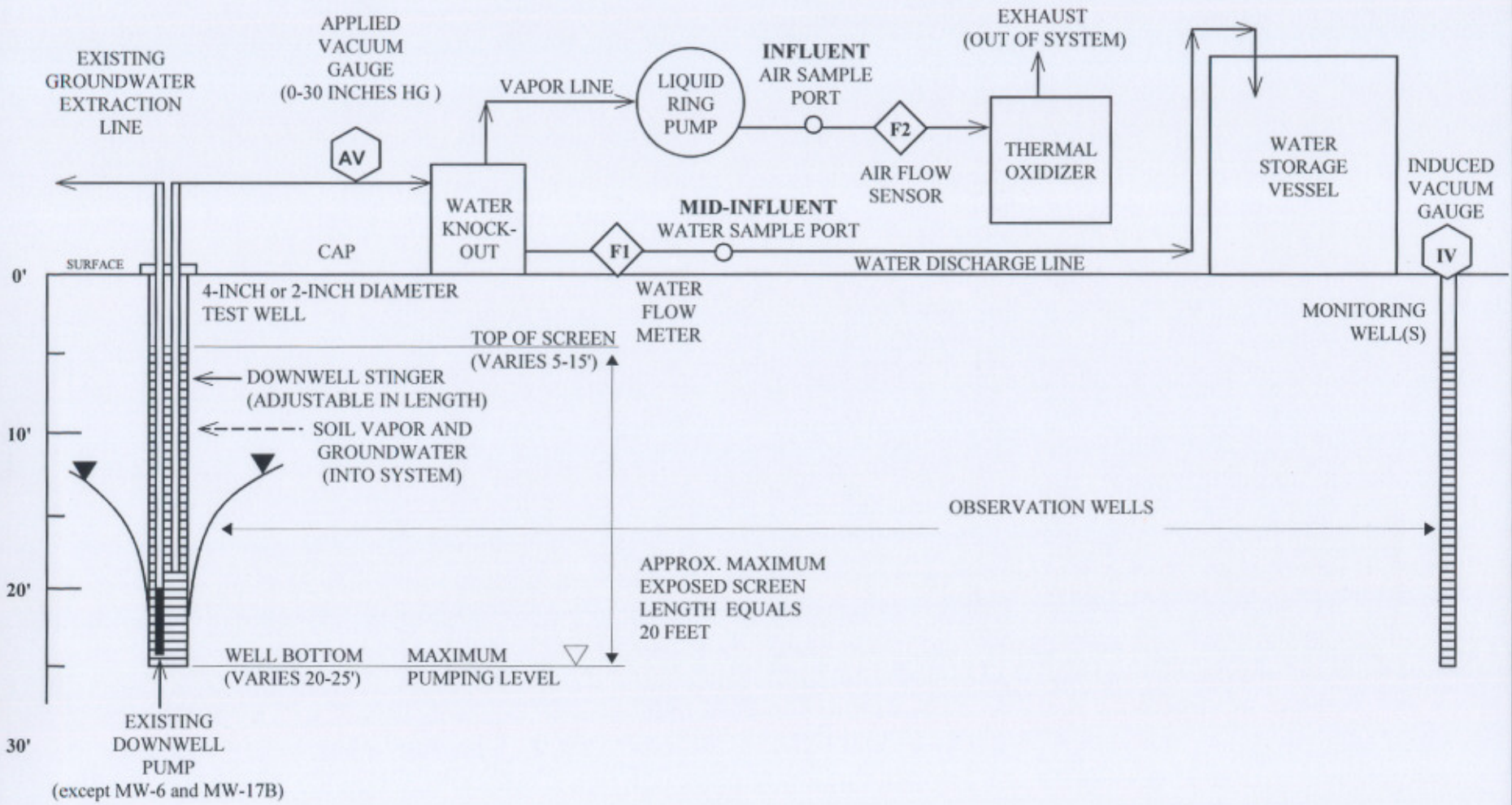
Project No.	Report Date	Figure
FNC-3	5/06	6c



Groundwater Extraction System Schematic
Former Beacon Petro Mart
390 South Fortuna Boulevard
Fotuna, California

BLUE ROCK
ENVIRONMENTAL, INC.

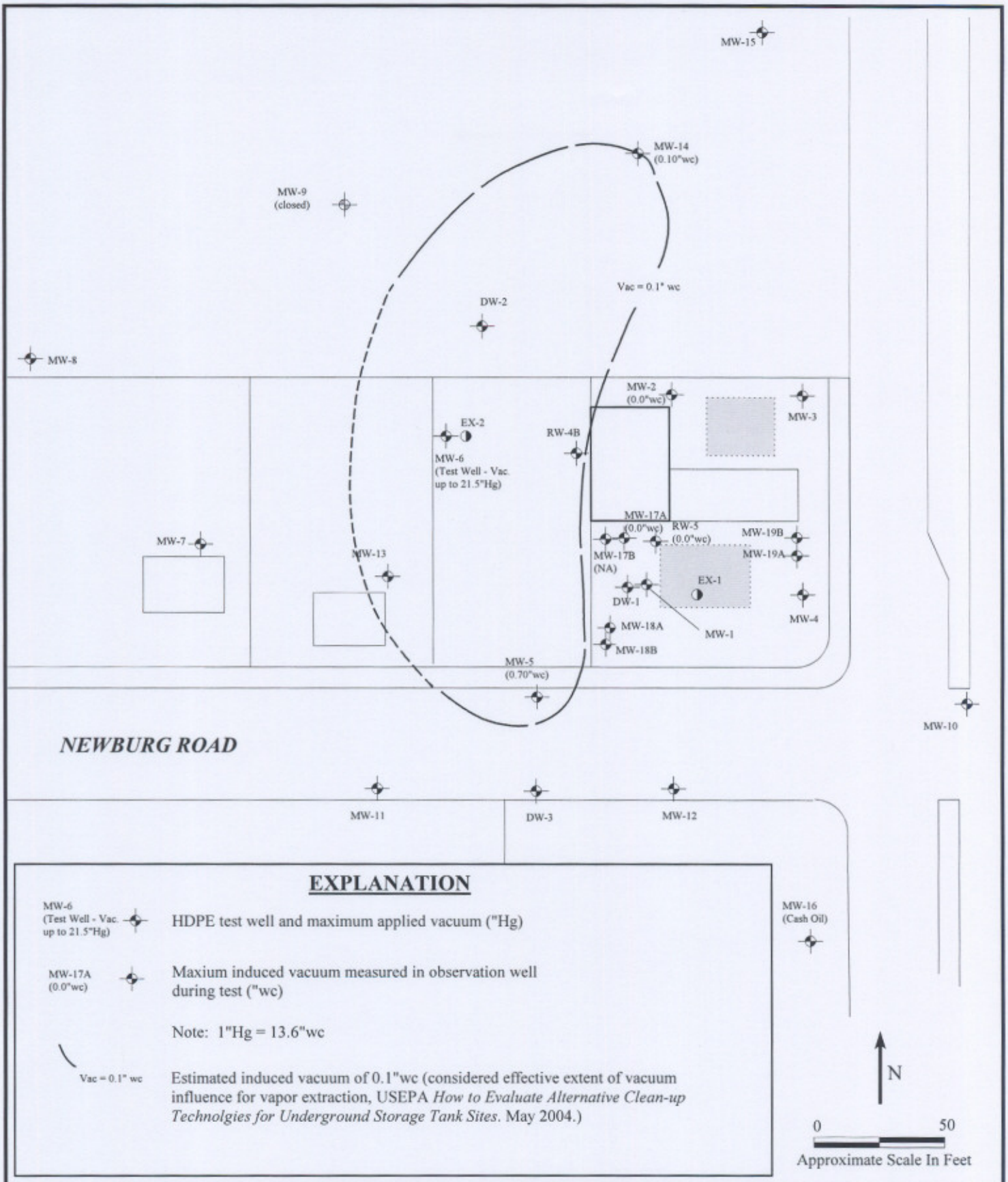
Project No.	Report Date	Figure
FNC-3	5/06	7



High-Vacuum Dual-Phase Extraction
Pilot Test Equipment Schematic
Fortuna Beacon Petro Mart
390 South Fortuna Blvd.
Fortuna, California

BLUE ROCK ENVIRONMENTAL, INC.

Project No.	Report Date	Figure
FNC-3	5/06	8



EXPLANATION

MW-6 (Test Well - Vac. up to 21.5"Hg) — HDPE test well and maximum applied vacuum ("Hg)

MW-17A (0.0"wc) — Maxium induced vacuum measured in observation well during test ("wc)

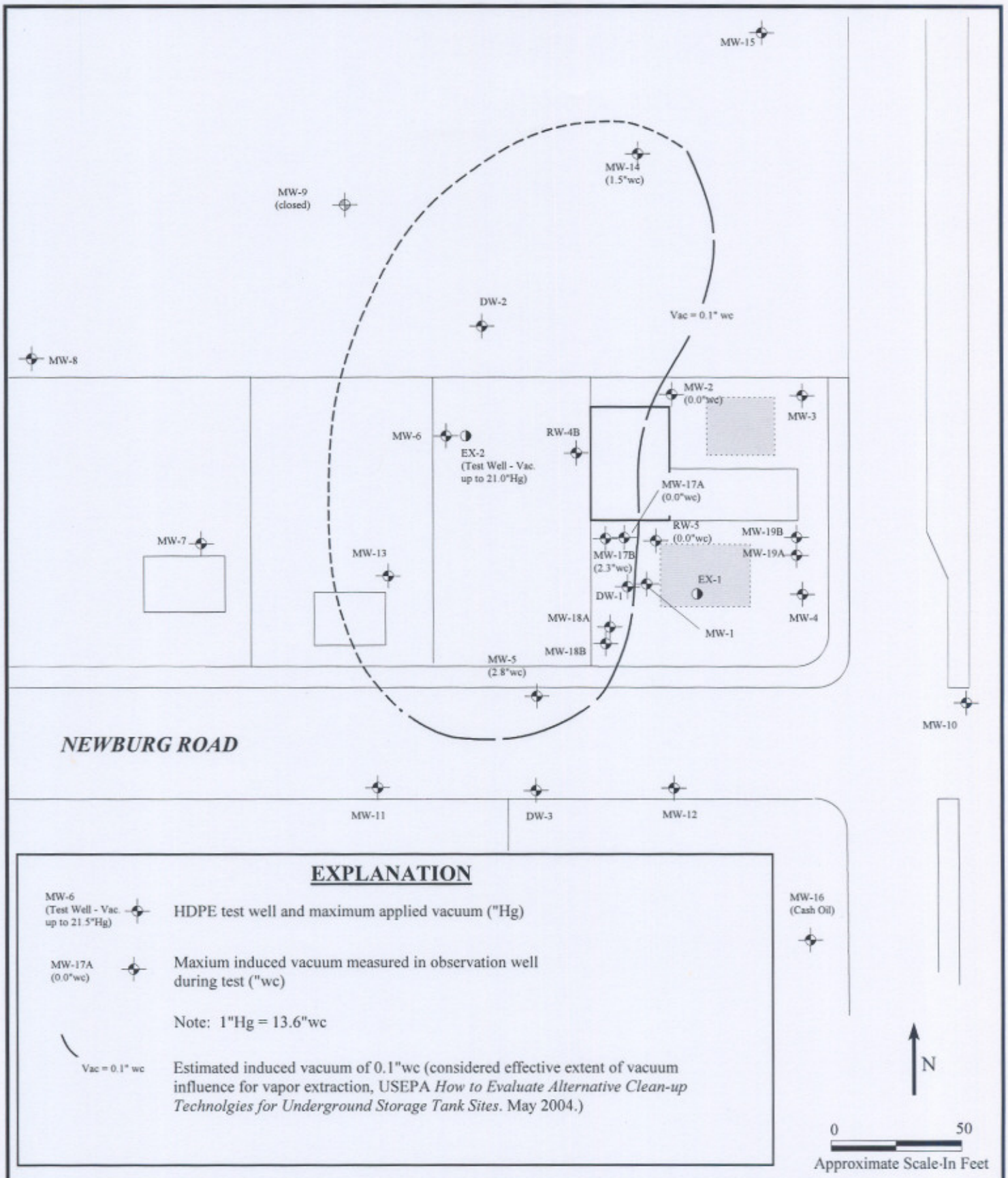
Note: 1"Hg = 13.6"wc

Vac = 0.1" wc — Estimated induced vacuum of 0.1"wc (considered effective extent of vacuum influence for vapor extraction, USEPA *How to Evaluate Alternative Clean-up Technolgies for Underground Storage Tank Sites*. May 2004.)

MW-6 HDPE Test Radius of Influence
Fortuna Beacon Petro Mart
390 South Fortuna Boulevard
Fortuna, California

BLUE ROCK ENVIRONMENTAL, INC.

Project No.	Report Date	Figure
FNC-3	5/06	9a



EXPLANATION

MW-6 (Test Well - Vac. up to 21.5"Hg) — HDPE test well and maximum applied vacuum ("Hg)

MW-17A (0.0"wc) — Maxium induced vacuum measured in observation well during test ("wc)

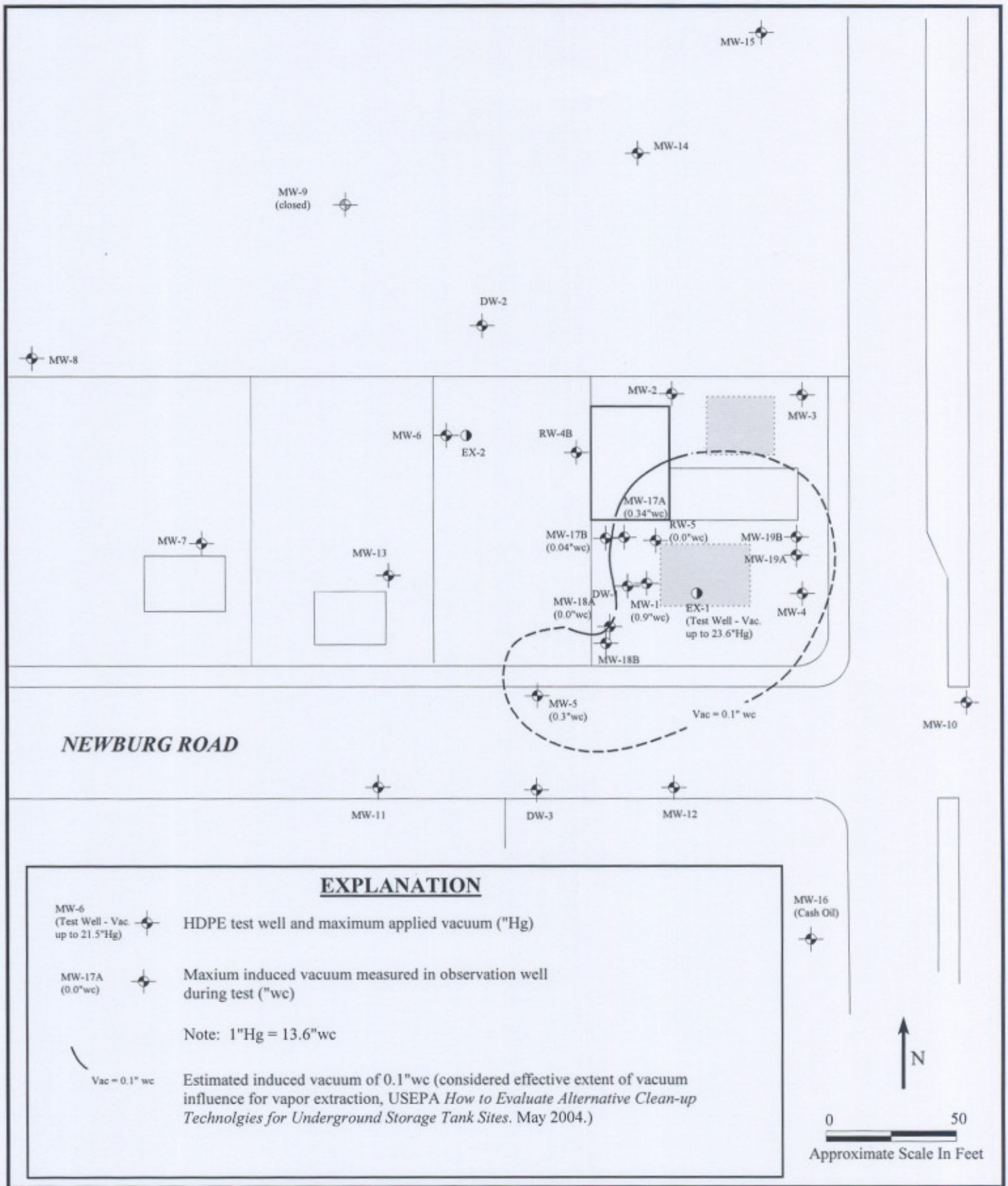
Note: 1"Hg = 13.6"wc

Vac = 0.1" wc — Estimated induced vacuum of 0.1"wc (considered effective extent of vacuum influence for vapor extraction, USEPA *How to Evaluate Alternative Clean-up Technolgies for Underground Storage Tank Sites*. May 2004.)

EX-2 HDPE Test Radius of Influence
Fortuna Beacon Petro Mart
390 South Fortuna Boulevard
Fortuna, California

BLUE ROCK ENVIRONMENTAL, INC.

Project No.	Report Date	Figure
FNC-3	5/06	9b



EXPLANATION

MW-6 (Test Well - Vac. up to 21.5"Hg) — HDPE test well and maximum applied vacuum ("Hg)

MW-17A (0.0"wc) — Maxium induced vacuum measured in observation well during test ("wc)

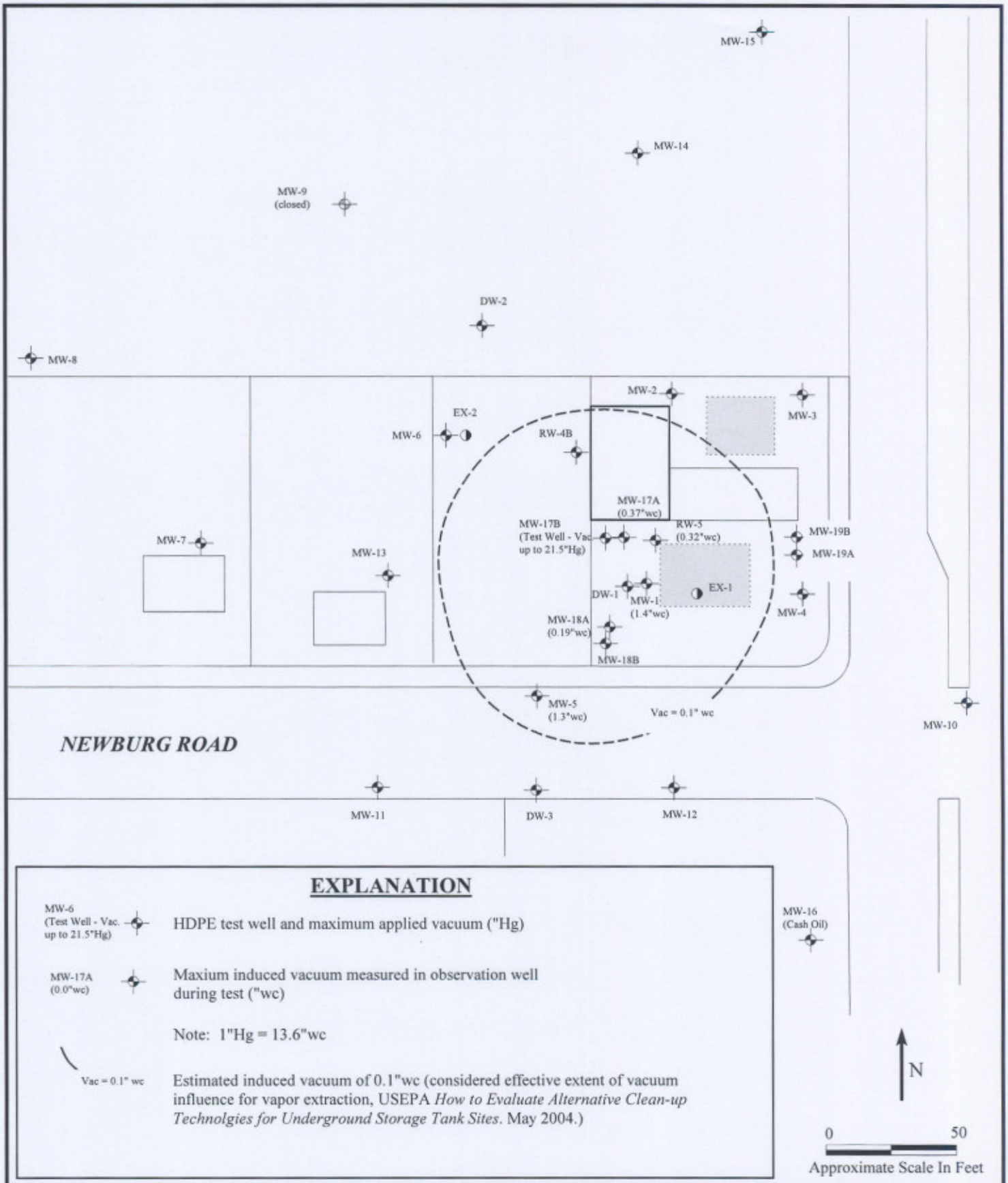
Note: 1"Hg = 13.6"wc

Vac = 0.1" wc — Estimated induced vacuum of 0.1"wc (considered effective extent of vacuum influence for vapor extraction, USEPA *How to Evaluate Alternative Clean-up Technolgies for Underground Storage Tank Sites*. May 2004.)

EX-1 HDPE Test Radius of Influence
Fortuna Beacon Petro Mart
390 South Fortuna Boulevard
Fortuna, California

BLUE ROCK ENVIRONMENTAL, INC.

Project No.	Report Date	Figure
FNC-3	5/06	9c



EXPLANATION

MW-6 (Test Well - Vac. up to 21.5"Hg) — HDPE test well and maximum applied vacuum ("Hg)

MW-17A (0.0"wc) — Maxium induced vacuum measured in observation well during test ("wc)

Note: 1"Hg = 13.6"wc

Vac = 0.1" wc — Estimated induced vacuum of 0.1"wc (considered effective extent of vacuum influence for vapor extraction, USEPA *How to Evaluate Alternative Clean-up Technolgies for Underground Storage Tank Sites*. May 2004.)

MW-17B HDPE Test Radius of Influence
Fortuna Beacon Petro Mart
390 South Fortuna Boulevard
Fortuna, California

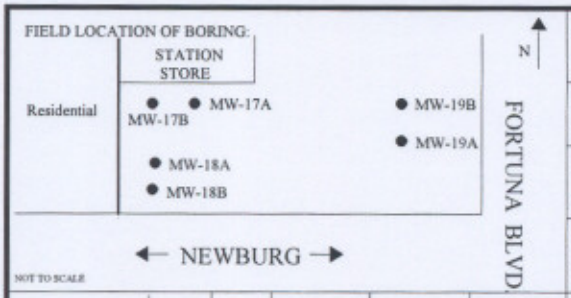
BLUE ROCK ENVIRONMENTAL, INC.

Project No.	Report Date	Figure
FNC-3	5/06	9d

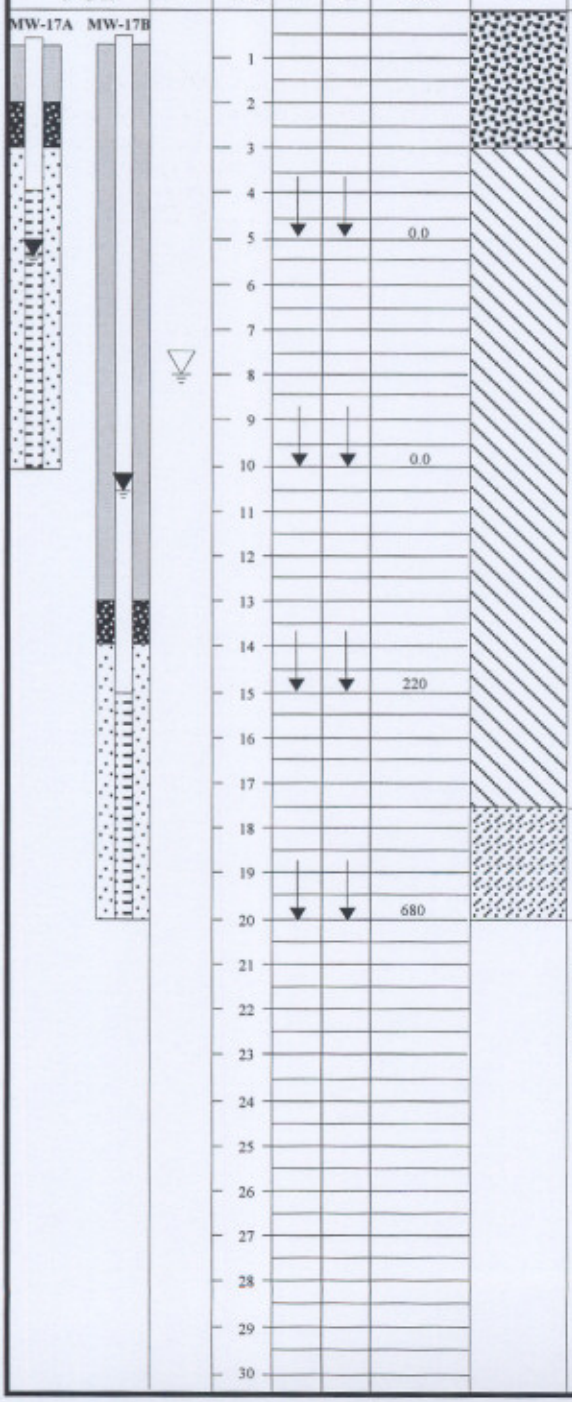
SOIL BORING LOG & WELL CONSTRUCTION: MW-17A and MW-17B

BLUE ROCK ENVIRONMENTAL, INC.

Project: FNC-3



DRILLING CONTRACTOR: Mitchell Drilling Env.	BORING DIAMETER: 8-inches each	CLIENT/LOCATION: Former Fortuna Beacon, 390 S. Fortuna Blvd, Fortuna, CA	
DRILL RIG OPERATOR: Rob Slagle	BORING DEPTHS: 10 and 20 feet	SCREEN SLOT SIZE: 0.010-inch	DRILLING DATE: 12/12/05
DRILL RIG TYPE: CME -75	WELL DEPTHS: 10 and 20 feet	WELL MATERIAL: Sch 40 PVC	FILTER PACK: #2/12 Sand
WELL SEAL / BOREHOLE FILL: Neat Cement over Hyrdated Bentonite		PLANNED USE: Monitoring	LOGGED BY: James Linderman
SAMPLING METHOD: California Mod. Split-Spoon		MONITORING INST: Thermo 0.99 FV	APPROVED BY: Brian Gwinn, PG
FIRST ENCOUNTERED WATER DEPTH: ~8 feet bgs		STATIC WATER DEPTH - DATE: 3/8/06: 17A = 5.36 ft bgs, 17B = 10.39 ft bgs	



GRAVEL FILL (GP).

Silty CLAY (CL); brown; moderate plasticity; gray and orange mottling; moist; slight odor.

Same as above with increasing moisture.

Same as above with increasing moisture.

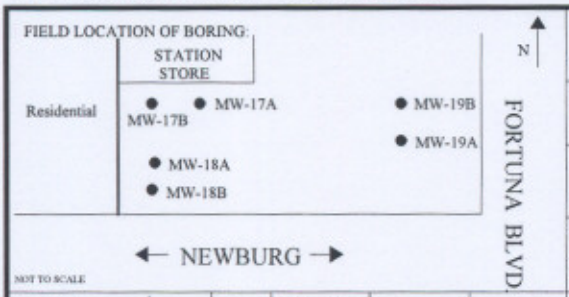
Silty SAND (SM); brown; poor-moderate grading; very fine grain sands; wet; HC odor.

Notes:
(1) MW-17A and MW-17B were installed in individual boreholes separated by 5 feet. MW-17A was screened from 4 to 10 feet due to base rock thickness.

SOIL BORING LOG & WELL CONSTRUCTION: MW-18A and MW-18B

BLUE ROCK ENVIRONMENTAL, INC.

Project: FNC-3



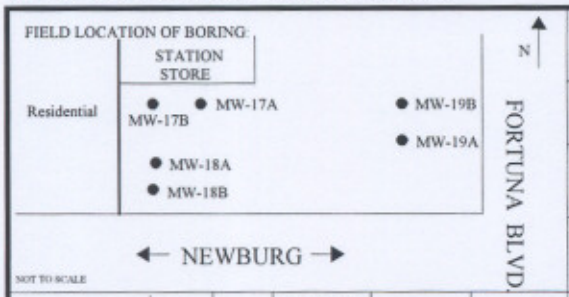
DRILLING CONTRACTOR: Mitchell Drilling Env.	BORING DIAMETER: 8-inches each	CLIENT/LOCATION: Former Fortuna Beacon, 390 S. Fortuna Blvd, Fortuna, CA	
DRILL RIG OPERATOR: Rob Slagle	BORING DEPTHS: 10 and 20 feet	SCREEN SLOT SIZE: 0.010-inch	DRILLING DATE: 12/12/05
DRILL RIG TYPE: CME -75	WELL DEPTHS: 10 and 20 feet	WELL MATERIAL: Sch 40 PVC	FILTER PACK: #2/12 Sand
WELL SEAL / BOREHOLE FILL: Neat Cement over Hyrdated Bentonite		PLANNED USE: Monitoring	LOGGED BY: James Linderman
SAMPLING METHOD: California Mod. Split-Spoon		MONITORING INST: Thermo 0.99 FV	APPROVED BY: Brian Gwinn, PG
FIRST ENCOUNTERED WATER DEPTH: ~12 feet bgs		STATIC WATER DEPTH - DATE: 3/8/06: 18A = 4.39 ft bgs, 18B = 8.70 ft bgs	

WELL CONSTRUCTION DETAIL	WATER LEVEL	DEPTH (FEET)	SAMPLING INTERVAL	SAMPLING RECOVERY	OVM READING (PPM)	GRAPHIC LOG OR USCS CODE	
MW-18A MW-18B		1					GRAVEL FILL (GP).
		2					
		3					
		4					Silty CLAY (CL); brown; moderate plasticity; gray and orange mottling; moist; HC odor.
		5	▼	▼	130		
		6					
		7					
		8					
		9					Same as above with increasing moisture.
		10	▼	▼	0.0		
		11					
	▽	12					
		13					
		14					Same as above with increasing moisture.
		15	▼	▼	0.0		
		16					
		17					
		18					Silty SAND (SM); brown; poor-moderate grading; very fine grain sands; moist to wet; HC odor.
		19					
		20	▼	▼	240		
		21					Notes: (1) MW-18A and MW-18B were installed in individual boreholes separated by 5 feet. MW-18A was screened from 4 to 10 feet due to base rock thickness.
		22					
		23					
		24					
		25					
		26					
		27					
		28					
		29					
		30					

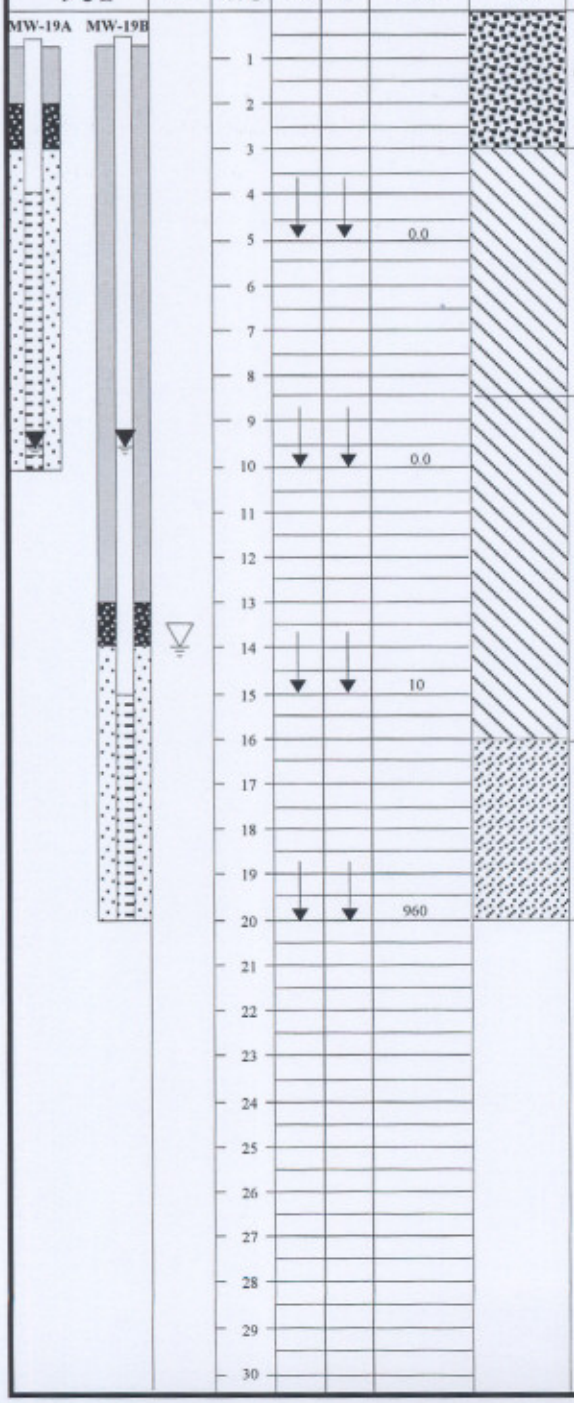
SOIL BORING LOG & WELL CONSTRUCTION: MW-19A and MW-19B

BLUE ROCK ENVIRONMENTAL, INC.

Project: FNC-3



DRILLING CONTRACTOR: Mitchell Drilling Env.	BORING DIAMETER: 8-inches each	CLIENT/LOCATION: Former Fortuna Beacon, 390 S. Fortuna Blvd, Fortuna, CA	
DRILL RIG OPERATOR: Rob Slagle	BORING DEPTHS: 10 and 20 feet	SCREEN SLOT SIZE: 0.010-inch	DRILLING DATE: 12/12/05
DRILL RIG TYPE: CME -75	WELL DEPTHS: 10 and 20 feet	WELL MATERIAL: Sch 40 PVC	FILTER PACK: #2/12 Sand
WELL SEAL / BOREHOLE FILL: Neat Cement over Hyrdated Bentonite		PLANNED USE: Monitoring	LOGGED BY: James Linderman
SAMPLING METHOD: California Mod. Split-Spoon		MONITORING INST: Thermo 0.99 FV	APPROVED BY: Brian Gwinn, PG
FIRST ENCOUNTERED WATER DEPTH: ~14 feet bgs		STATIC WATER DEPTH - DATE: 3/8/06: 19A = 9.34 ft bgs, 19B = 9.21 ft bgs	



GRAVEL FILL (GP).

Silty CLAY (CL); gray; moderate plasticity; moist; slight odor.

Silty CLAY (CL); brown; moderate plasticity; gray and orange mottling; moist; no odor.

Silty SAND (SM); brown; poor-moderate grading; very fine grain sands; moist to wet; slight odor.

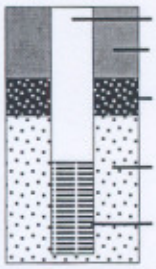
Notes:
(1) MW-19A and MW-19B were installed in individual boreholes separated by 5 feet. MW-19A was screened from 4 to 10 feet due to base rock thickness.

UNIFIED SOIL CLASSIFICATION SYSTEM - VISUAL CLASSIFICATION OF SOILS

(ASTM D-2488)

MAJOR DIVISIONS		GROUP SYMBOL	GROUP NAME	DESCRIPTION
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravel Well-graded gravel with sand	Well-graded gravels or gravel-sand mixtures, little or no fines.
		GP	Poorly-graded gravel Poorly-graded gravel with sand	Poorly-graded gravels or gravel sand mixture, little or no fines.
		GM	Silty gravel Silty gravel with sand	Silty gravels, gravel-sand-silt mixtures.
		GC	Clayey gravel Clayey gravel with sand	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS	SW	Well-graded sand Well-graded sand with gravel	Well-graded sands or gravelly sands, little or no fines.
		SP	Poorly-graded sand Poorly-graded sand with gravel	Poorly-graded sands or gravelly sands, little or no fines.
		SM	Silty sand Silty sand with gravel	Silty sands, sand-silt mixtures.
		SC	Clayey sand Clayey sand with gravel	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS	SILTS AND CLAYS	ML	Silt; Silt with sand; Silt with gravel Sandy silt; Sandy silt with gravel Gravelly silt; Gravelly silt with sand	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
		CL	Lean clay; Lean clay with sand; Lean clay with gravel Sandy lean clay; Sandy lean clay with gravel Gravelly lean clay; Gravelly lean clay with sand	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
	ELASTIC SILTS AND CLAYS	MH	Elastic silt; Elastic silt with sand; Elastic silt with gravel Sandy elastic silt; Sandy elastic silt with gravel Gravelly elastic silt; Gravelly elastic silt with sand	Inorganic silts, micaceous or diatamaceous fine sandy or silty soils, elastic silts.
		CH	Fat clay; Fat clay with sand; Fat clay with gravel Sandy fat clay; Sandy fat clay with gravel Gravelly fat clay; Gravelly fat clay with sand	Inorganic clays of high plasticity, fat clays.
HIGHLY ORGANIC SOILS		OL/OH	Organic soil; Organic soil with sand; Organic soil with gravel Sandy organic soil; Sandy organic soil with gravel Gravelly organic soil; Gravelly organic soil with sand	Organic silts and organic silt-clays of low plasticity. Organic clays of medium to high plasticity.
		Pt	Peat	Peat and other highly organic soils.

WELL CONSTRUCTION EXPLANTION



SOIL BORING NOTES:

Blow count represents the number of blows of a 140-lb hammer falling 30 inches per blow required to drive a sampler through the last 12 inches of an 18-inch penetration.

No warranty is provided as to the continuity of soil strata between borings. Logs represent the soil section observed at the boring location on the date of drilling only.

S = Sampler sank into medium under the weight of the hammer (no blow count)
P = Sampler was pushed into medium by drilling rig (no blow count)
NR = No Recovery

SANDS & GRAVELS	BLOWS/FT
VERY LOOSE	0 - 5
LOOSE	5 - 12
MED. DENSE	12 - 37
DENSE	37 - 62
VERY DENSE	OVER 62

SILTS & CLAYS	BLOWS/FT
SOFT	0 - 5
FIRM	5 - 10
STIFF	10 - 20
VERY STIFF	20 - 40
HARD	OVER 40

▼ Approximate stabilized water level

▽ Approximate first encountered water level

NOTE: all percentages of lithological composition presented on the soil boring logs are approximate. They represent the best estimates of a Blue Rock geologist based on visual inspection in the field.

SOIL BORING LOG AND WELL CONSTRUCTION DIAGRAM LEGEND

BLUE ROCK ENVIRONMENTAL, INC.

Calculation of Residual TPHg in Soil
Assuming contamination extends under dispenser islands
Fotuna Beacon Petro Mart
390 S. Fortuna Blvd., Fortuna, CA

TPHg mass (lbs) = ∑ TPHg con. x (unitless) * Vol. x (ft3) * p (soil denisty, assume 100 lbs/ft3)

where, Vol. x (ft3) = Area x (ft2)* Thickness x (ft)
TPHg con. x (mk/kg) = Average TPHg concentration for specific volume (see below)

5-foot depth interval (2.5 to 7.5 feet bgs)

TPHg >100 mg/kg

TPHg mass = Avg. TPHg con. * V * p

where, Avg. TPHg con. = Average TPHg concentration for this portion of plume ~526 mg/kg or 0.000526 unitless
V = Volume of affected media = area (planimeter from map 4,632 ft2 - 825 ft2 of EX-1 basin = 3,807 ft2) * thickness (5 ft) = 19,035 ft3
p = soil density (assumed to be 100 lbs/ft3)

	Avg. TPHg con. * (unitless)	V * (ft3)	p (lbs/ft3)
TPHg mass (lbs) =	0.000526	19,035	100
TPHg mass (lbs) =	**1,001**		

Calculation of TPHg Avg > 100 mg/kg

Sample	TPHg (mg/kg)
DW-1	320
MW-1	320
SW-5	130
NE-SW	630
E-SW	280
W-SW	1,000
MW-18B	1,000
Sample Avg	**526**

10-foot depth interval (7.5 to 12.5 feet bgs)

TPHg >100 mg/kg

TPHg mass = Avg. TPHg con. * V * p

where, Avg. TPHg con. = Average TPHg concentration for this portion of plume ~257 mg/kg or 0.000257 unitless
V = Volume of affected media = area (planimeter from map 5,559 ft2 - 825 ft2 of EX-1 basin = 4,734 ft2) * thickness (5 ft) = 23,670 ft3
p = soil density (assumed to be 100 lbs/ft3)

	Avg. TPHg con. * (unitless)	V * (ft3)	p (lbs/ft3)
TPHg mass (lbs) =	0.000257	23,670	100
TPHg mass (lbs) =	**608**		

Calculation of TPHg Avg > 100 mg/kg

Sample	TPHg (mg/kg)
SW-12	220
SW-2	420
SW-5	130
Sample Avg	**257**

15-foot depth interval (12.5 to 17.5 feet bgs)

TPHg >100 mg/kg

TPHg mass = Avg. TPHg con. * V * p

where, Avg. TPHg con. = Average TPHg concentration for this portion of plume ~300 mg/kg or 0.000300 unitless
V = Volume of affected media = area (planimeter from map 5,737 ft2 - 825 ft2 of EX-1 basin = 4,912 ft2) * thickness (5 ft) = 24,560 ft3
p = soil density (assumed to be 100 lbs/ft3)

	Avg. TPHg con. * (unitless)	V * (ft3)	p (lbs/ft3)
TPHg mass (lbs) =	0.0003	24,560	100
TPHg mass (lbs) =	**737**		

Calculation of TPHg Avg > 100 mg/kg

Sample	TPHg (mg/kg)
RW-4B	484
RW-5	115
Sample Avg	**300**

20-foot depth interval (17.5 to 22.5 feet bgs)

TPHg >100 mg/kg

TPHg mass = Avg. TPHg con. * V * p

where, Avg. TPHg con. = Average TPHg concentration for this portion of plume ~1,048 mg/kg or 0.0001048 unitless
V = Volume of affected media = area (planimeter from map 9,029 ft2 - 825 ft2 of EX-1 basin = 8,204 ft2) * thickness (5 ft) = 41,020 ft3
p = soil density (assumed to be 100 lbs/ft3)

	Avg. TPHg con. * (unitless)	V * (ft3)	p (lbs/ft3)
TPHg mass (lbs) =	0.001048	41,020	100
TPHg mass (lbs) =	**4,299**		

Calculation of TPHg Avg > 100 mg/kg

Sample	TPHg (mg/kg)
MW-17B	390
RW-5	2,280
DW-1	530
SW-3	990
Sample Avg	**1,048**

Total TPHg (lbs) =	**6,645**
Total TPHg (gals) =	**1,089**
Total Volume of TPHg Impacted Soil (i	**108,285**
Total Volume of TPHg Impacted Soil (i	**4,011**

DAILY FIELD REPORT

PAGE _____ OF _____

Project Number: FNC-3 **Date:** 1/20/06

Site Name: Fortuna Beacon **Field Personnel:** James Linderman

Site Address: 390 S. Fortuna Blvd. **Proj. Manager** Scott Ferriman

Scope of work Well Development

Drum Inventory Soil: Water: Free product:

Time	Description of Activities
	Leave office
	Arrive onsite

Additional Comments:

GAGING DATA/PURGE CALCULATIONS

Job No.: FNC-3 **Location:** 390 Fortuna Blvd. **Date:** 1/20/06 **Tech(s):** JL

WELL NO.	DIA. (in.)	DTB (ft.)	DTW (ft.)	ST (ft.)	CV (gal.)	PV (gal.)	SPH (ft.)	NOTES
MW-17A	2"	9.76	5.60	4.16	0.66	6.60	Sheen	Developed
MW-17B		18.20	11.29	6.91	1.10	11.00	Sheen	
MW-18A		9.77	4.48	5.29	0.84	8.40	0	
MW-18B		19.95	9.35	10.60	1.69	16.90	Sheen	
MW-19A		9.74	Dry					
MW-19B		19.92	9.77	10.15	1.62	16.20	Sheen	Developed

Explanation:

DIA. = Well Diameter
DTB = Depth to Bottom
DTW = Depth to Water
ST = Saturated Thickness (DTB-DTW)
CV = Casing Volume (ST x cf)
PV = Purge Volume (standard 3 x CV, well development 10 x CV)
SPH = Thickness of Separate Phase Hydrocarbons

Conversion Factors (cf):

2 in. dia. well cf = 0.16 gal./ft.
4 in. dia. well cf = 0.65 gal./ft.
6 in. dia. well cf = 1.44 gal./ft.

BLUE ROCK ENVIRONMENTAL, INC.

PURGING DATA

Job No.: FNC-3 **Location:** 390 Fortuna Blvd. **Date:** 1/20/06 **Tech:** JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-17A			---	---	---	Sample for: Develop
Calc. purge		0.25	382	56.9	6.44	TPHg TPHd 8260
volume		3.25	276	59.9	6.13	BTEX MTBE Metals
6.60		6.60	246	59.9	6.05	Purging Method:
						PVC bailer / Pump
	COMMENTS: color, turbidity, recharge, sheen					Sampling Method:
	clear / mod. / mod. / sheen / odor					Dedicated / Disposable bailer
						Sample at:

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-17B			---	---	---	Sample for: Develop
Calc. purge		0.25	658	59.8	8.60	TPHg TPHd 8260
volume		2.50	563	60.8	6.71	BTEX MTBE Metals
11.00		7.50	467	60.8	6.40	Purging Method:
		11.00	Dry @ 9 gallons			PVC bailer / Pump
	COMMENTS: color, turbidity, recharge, sheen					Sampling Method:
	Clear / heavy / mod. / sheen / odor					Dedicated / Disposable bailer
						Sample at:

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-18A			---	---	---	Sample for: Develop
Calc. purge		0.25	500	56.2	6.90	TPHg TPHd 8260
volume		4.50	224	57.1	6.40	BTEX MTBE Metals
8.40		8.40	172	57.2	6.18	Purging Method:
						PVC bailer / Pump
	COMMENTS: color, turbidity, recharge, sheen					Sampling Method:
	Clear / heavy / mod. / no sheen / no odor					Dedicated / Disposable bailer
						Sample at:

PURGING DATA

Job No.: FNC-3 **Location:** 390 Fortuna Blvd, **Date:** 1/20/06 **Tech:** J.L.

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-18B			---	---	---	Sample for: Develop
Calc. purge		0.25	331	59.3	6.31	TPHg TPHd 8260
volume		5.50	355	60.9	6.65	BTEX MTBE Metals
16.90		10.00	362	60.9	7.17	Purging Method:
		16.90	Dry @	14 gallons		PVC bailer / Pump
	COMMENTS: color, turbidity, recharge, sheen					Sampling Method:
	clear / heavy / mod. / sheen / odor					Dedicated / Disposable bailer
						Sample at:

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-19A			---	---	---	Sample for: Develop
Calc. purge						TPHg TPHd 8260
volume		Well	Dry	not		BTEX MTBE Metals
		Developed				Purging Method:
						PVC bailer / Pump
	COMMENTS: color, turbidity, recharge, sheen					Sampling Method:
						Dedicated / Disposable bailer
						Sample at:

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-19B			---	---	---	Sample for: Develop
Calc. purge		0.25	383	59.9	7.17	TPHg TPHd 8260
volume		4.50	386	61.1	6.12	BTEX MTBE Metals
16.20		8.00	375	61.0	6.15	Purging Method:
		12.00	364	61.0	7.17	PVC bailer / Pump
		16.20	355	61.9	7.17	
	COMMENTS: color, turbidity, recharge, sheen					Sampling Method:
	clear / heavy / mod. / sheen / odor					Dedicated / Disposable bailer
						Sample at:

DAILY FIELD REPORT

PAGE _____ OF _____

Project Number: FNC-3 **Date:** 3/8/06

Site Name: Fortuna Beacon **Field Personnel:** James Linderman

Site Address: 390 S. Fortuna Blvd, Fortuna CA **Proj. Manager** Scott Ferriman

Scope of work 1QT06 GWS

Drum Inventory Soil: Water: Free product:

Time	Description of Activities
	Leave office
	Arrive onsite

Additional Comments:

GAGING DATA/PURGE CALCULATIONS

Job No. FNC-3 **Location:** 390 S. Fortuna Blvd. **Date:** 3/8/06 **Tech(s):** JL

WELL NO.	DIA. (in.)	DTB (ft.)	DTW (ft.)	ST (ft.)	CV (gal.)	PV (gal.)	SPH (ft.)	NOTES
MW-1	4"	19.23	11.19	8.04	5.22	15.66	Sheen	
MW-2		19.76	5.01	14.75	9.58	28.74	0	
MW-3		19.62	7.31	12.31	8.00	24.00	0	
MW-4		19.82	10.00	9.82	6.38	19.14	Sheen	
MW-5		19.59	7.78	11.81	7.67	23.01	0	
MW-6		20.00	8.71	11.29	7.33	21.99	Sheen	
MW-7		19.88	6.65	13.23	8.59	25.77	0	
MW-11		19.79	7.63	12.16	7.90	23.70		
MW-12		20.00	10.00	10.00	5.00	15.00		
MW-13		19.47	2.98	16.49	10.71	32.13		
MW-14	2"	21.18	7.70	13.48	2.15	6.45		
MW-15		18.61	7.45	11.16	1.78	5.34		
MW-16		19.52	8.87	10.65	1.70	5.10		
DW-1		39.77	9.19	30.58	4.89	14.67		
DW-2		39.30	7.36	31.94	5.11	15.33		
DW-3		37.50	7.86	29.64	4.74	14.22		
RW-5	4"	20.00	5.64	14.36	9.33	27.99	Sheen	
MW-17A	2"	9.76	5.36	4.40	0.70	2.10	~~Sheen~~ 0	

Explanation:

DIA. = Well Diameter
DTB = Depth to Bottom
DTW = Depth to Water
ST = Saturated Thickness (DTB-DTW)
CV = Casing Volume (ST x cf)
PV = Purge Volume (standard 3 x CV, well development 10 x CV)
SPH = Thickness of Separate Phase Hydrocarbons

Conversion Factors (cf):

2 in. dia. well cf = 0.16 gal./ft.
4 in. dia. well cf = 0.65 gal./ft.
6 in. dia. well cf = 1.44 gal./ft.

BLUE ROCK ENVIRONMENTAL, INC.

GAGING DATA/PURGE CALCULATIONS

Job No.: FNC-3 **Location:** 390 S. Fortuna Blvd **Date:** 3/8/06 **Tech(s):** JL

WELL NO.	DIA. (in.)	DTB (ft.)	DTW (ft.)	ST (ft.)	CV (gal.)	PV (gal.)	SPH (ft.)	NOTES
MW-17B	2"	18.20	10.59	7.61	1.21	3.63	Sheen	
MW-18A	↓	9.77	4.39	5.38	0.86	2.58	0	
MW-18B	↓	19.95	8.70	11.25	1.80	5.40	Sheen	
MW-19A	↓	9.74	9.34	0.40	0.064	0.19	0	
MW-19B	↓	19.92	9.21	10.71	1.71	5.13	0	

Explanation:

DIA. = Well Diameter
DTB = Depth to Bottom
DTW = Depth to Water
ST = Saturated Thickness (DTB-DTW)
CV = Casing Volume (ST x cf)
PV = Purge Volume (standard 3 x CV, well development 10 x CV)
SPH = Thickness of Separate Phase Hydrocarbons

Conversion Factors (cf):

2 in. dia. well cf = 0.16 gal./ft.
4 in. dia. well cf = 0.65 gal./ft.
6 in. dia. well cf = 1.44 gal./ft.

BLUE ROCK ENVIRONMENTAL, INC.

PURGING DATA

SHEET 1 OF 8

Job No.: FNC-3 **Location:** 390 S. Fortuna Blvd **Date:** 3/8/06 **Tech:** JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-1			---	---	---
Calc. purge	15:25	1.00	219	58.8	6.33
volume	15:30	5.00	215	59.6	6.37
15.66	15:35	10.00	219	60.0	6.40
	15:40	15.65	well dry @ 12 gal.		

COMMENTS: color, turbidity, recharge, sheen

Clear/mod/poor/sheen/odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 15:45 3/8

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-2			---	---	---
Calc. purge	13:15	1.00	88	56.3	6.61
volume	13:20	5.00	83	56.9	5.90
28.74	13:25	15.00	78	56.6	5.87
	13:30	20.00	80	55.3	5.88
	13:35	28.00	77	56.0	5.84

COMMENTS: color, turbidity, recharge, sheen

clear/mod/good/no sheen/no odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 13:40 3/8

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-3			---	---	---
Calc. purge	14:10	1.00	186	57.1	6.32
volume	14:15	7.00	183	57.8	6.40
24.00	14:20	14.00	185	58.3	6.47
	14:25	24.00	well dry @ 14 gal.		

COMMENTS: color, turbidity, recharge, sheen

clear/mod/mod/no sheen/no odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 14:30 3/8

PURGING DATA

Job No.: FNC-3 **Location:** 390 S. Fortuna Blvd **Date:** 3/8/06 **Tech:** JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-4			---	---	---
Calc. purge	14:45	1.00	270	59.6	6.30
volume	14:50	5.00	264	60.6	6.29
19.4	14:55	10.00	267	61.0	6.33
	15:00	19.15	well dry @		14 gal.

COMMENTS: color, turbidity, recharge, sheen

clear / mod / mod / sheen / odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 15:05 3/8

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-5			---	---	---
Calc. purge	16:30	1.00	332	57.4	6.56
volume	16:35	5.00	334	58.3	6.63
23.01	16:40	10.00	333	57.7	6.73
	16:45	23.00	well dry @		20 gal.

COMMENTS: color, turbidity, recharge, sheen

clear / mod / mod / no sheen / odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 16:50 3/8

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-6			---	---	---
Calc. purge	9:20	1.00	58	54.5	6.28
volume	9:25	5.00	59	55.4	6.29
21.99	9:30	10.00	73	56.4	6.36
	9:35	22.00	well	not	Sampled

COMMENTS: color, turbidity, recharge, sheen

Clear / mod / mod / free prod. / heavy odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 9:40 3/8

no sample taken

PURGING DATA

Job No.: FNC-3 **Location:** 390 S. Fortuna Blvd **Date:** 3/8/06 **Tech:** JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-7			---	---	---
Calc. purge	7:55	1.00	101	54.8	6.38
volume	8:00	5.00	98	57.0	6.34
25.77	8:05	10.00	100	57.7	6.35
	8:10	25.75	111	58.0	6.34

COMMENTS: color, turbidity, recharge, sheen

clear / mod / mod / no sheen / no odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 8:15 3/8

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-11			---	---	---
Calc. purge	13:25	7.00	110	55.9	6.72
volume	13:30	14.00	130	58.1	6.69
23.70	13:35	21.00	well	dry @	15 gal.

COMMENTS: color, turbidity, recharge, sheen

clear / mod / Poor ~~low~~ / no sheen / slight odor

Sample for: ~~TPHg~~ ~~TPHd~~ 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 13:40 3/9

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-12			---	---	---
Calc. purge	13:45	5.00	64	53.1	7.25
volume	13:50	10.00	56	54.5	7.01
15.00	13:55	15.00	57	55.5	6.43

COMMENTS: color, turbidity, recharge, sheen

clear / mod / mod / slight sheen / odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 14:00 3/9

PURGING DATA

SHEET 4 OF 8

Job No.: FNC-3 **Location:** 390 S. Fortuna Blvd **Date:** 3/8/06 **Tech:** JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-13			---	---	---
Calc. purge	8:40	1.00	82	54.7	6.03
volume	8:45	5.00	80	55.2	5.97
32.13	8:50	10.00	78	55.1	5.89
	8:55	20.00	79	56.4	5.83
	9:00	32.00	78	55.5	5.89

COMMENTS: color, turbidity, recharge, sheen

clear / mod / good / no sheen / no odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 9:05 3/9

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-14			---	---	---
Calc. purge	12:30	0.25	314	61.5	6.14
volume	12:35	3.25	349	63.4	6.27
6.45	12:40	6.45	361	63.5	6.34

COMMENTS: color, turbidity, recharge, sheen

Clear / mod. / mod. / no sheen / no odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 12:45 3/8

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-15			---	---	---
Calc. purge	12:00	0.25	162	59.7	5.81
volume	12:05	2.75	172	60.9	5.79
5.34	12:10	5.35	189	61.3	5.82

COMMENTS: color, turbidity, recharge, sheen

Clear / mod. / mod. / no sheen / no odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 12:15 3/8

PURGING DATA

Job No.: FNC-3 **Location:** 390 S. Fortuna Blvd **Date:** 3/8/06 **Tech:** JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
DW-1			---	---	---
Calc. purge volume 14.67	10:20	0.25	233	58.1	6.95
	10:25	10.00	231	59.2	6.96
	10:30	15.00	233	59.1	6.52

COMMENTS: color, turbidity, recharge, sheen
clear / mod / mod / no sheen / no odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 10:40 3/9

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
DW-2			---	---	---
Calc. purge volume 15.33	12:50	0.25	276	60.5	7.35
	12:55	5.00	280	62.1	6.95
	13:00	10.00	280	62.2	6.91
	13:05	15.35	280	62.1	6.95

COMMENTS: color, turbidity, recharge, sheen
clear / mod / mod / no sheen / no odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 13:10 3/8

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
DW-3			---	---	---
Calc. purge volume 14.22	13:00	1.00	226	57.3	7.23
	13:05	5.00	233	53.2	7.08
	13:10	10.00	240	60.3	7.04
	13:15	14.50	well	dry @	12 gal.

COMMENTS: color, turbidity, recharge, sheen
clear / low / good / no sheen / no odor

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

Sampling Method: Dedicated / Disposable bailer

Sample at: 13:20 3/9

PURGING DATA

Job No.: FNC-3 **Location:** 390 S Fortuna Blvd **Date:** 3/8/06 **Tech:** JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
RW-5			---	---	---
Calc. purge	15:50	1.00	202	59.4	6.33
volume	15:55	9.00	205	59.8	6.39
27.99	16:00	18.00	205	60.5	6.43
	16:05	28.00	well dry @ 20 gal.		

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

COMMENTS: color, turbidity, recharge, sheen: Clear / mod / mod / sheen / odor

Sampling Method: Dedicated / Disposable bailer

Sample at: 16:10 3/8

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-17A			---	---	---
Calc. purge	10:55	1.00	129	57.7	6.24
volume	11:00	2.50	166	58.9	6.30
2.10	11:10	3.00	151	59.3	6.33

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

COMMENTS: color, turbidity, recharge, sheen: Clear / mod / mod / no sheen / odor

Sampling Method: Dedicated / Disposable bailer

Sample at: 11:15 3/9

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-17B			---	---	---
Calc. purge	11:20	1.00	244	59.3	6.62
volume	11:25	2.00	233	60.2	6.59
3.63	11:30	3.50	238	60.0	6.52

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

COMMENTS: color, turbidity, recharge, sheen: Clear / mod / mod / slight sheen / odor

Sampling Method: Dedicated / Disposable bailer

Sample at: 11:35 3/9

PURGING DATA

Job No.: FNC-3 **Location:** 390 S. Fortuna Blvd **Date:** 3/8/06 **Tech:** JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-18A			---	---	---
Calc. purge	11:40	1.00	163	55.0	7.17
volume	11:45	2.00	147	56.6	6.99
2.58	11:50	2.60	127	56.7	6.84

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

COMMENTS: color, turbidity, recharge, sheen
clear/mod/good/no sheen/no odor

Sampling Method: Dedicated / Disposable bailer

Sample at: ~~[illegible]~~ 11:55 3/9

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-18B			---	---	---
Calc. purge	12:00	0.25	237	58.3	6.68
volume	12:05	2.50	257	60.0	6.72
5.40	12:10	5.40	257	60.4	6.75

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

COMMENTS: color, turbidity, recharge, sheen
clear/mod/mod/sheen/odor

Sampling Method: Dedicated / Disposable bailer

Sample at: 12:15 3/9

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-19A			---	---	---
Calc. purge	12:20	0.10	797	57.8	6.59
volume	12:25	0.75	8.37	58.6	6.64
0.19	12:30	well	dry @ ≈ 1.0	gal.	

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

COMMENTS: color, turbidity, recharge, sheen
clear/mod/poor/no sheen/odor

Sampling Method: Dedicated / Disposable bailer

Sample at: 12:35 3/9

PURGING DATA

Job No.: FNC-3 **Location:** 390 S Fortuna Blvd **Date:** 3/8/06 **Tech:** J.L.

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
MW-19B			---	---	---
Calc. purge	12:40	0.25	277	58.6	6.48
volume	12:45	2.50	268	60.1	6.34
5.13	12:50	5.00	273	60.4	6.33

Sample for: ~~TPHg~~ TPHd 8260 ~~BTEX~~ ~~MTBE~~ Metals

Purging Method: PVC bailer / Pump

COMMENTS: color, turbidity, recharge, sheen

Clear/ mod/ mod/ no sheen/ odor

Sampling Method: Dedicated / Disposable bailer

Sample at: 12:55 3/9

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
			---	---	---
Calc. purge					
volume					

Sample for: TPHg TPHd 8260 BTEX MTBE Metals

Purging Method: PVC bailer / Pump

COMMENTS: color, turbidity, recharge, sheen

Sampling Method: Dedicated / Disposable bailer

Sample at:

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
			---	---	---
Calc. purge					
volume					

Sample for: TPHg TPHd 8260 BTEX MTBE Metals

Purging Method: PVC bailer / Pump

COMMENTS: color, turbidity, recharge, sheen

Sampling Method: Dedicated / Disposable bailer

Sample at:

FNC-3
FORTUNA BEACON
REMEDIATION SYSTEM O&M FORM

DATE	12/15/05
TECH.	SF

	ARRIVAL	DEPARTURE	
Time			
SYSTEM STATUS	EX-1 on	EX-1 on	(On/Off/Recharging)
Totalizer Gallons Reading	2,544,460		gallons
Water Samples (EX-1 INF, EX-2 INF, EFF-Main)			(Y/N)
EX-1 Status	on	"	(On/Off/Recharging)
EX-2 Status	recharging	"	(On/Off/Recharging)
EX-1 Pump Backpressure	16		PSI
EX-2 Pump Backpressure	N/A		PSI
Transfer Pump Backpressure	"		PSI

	CHECKED	EMPTIED
Water Filter	No	

Carbon Vessel	PSI	Leaking (y/n)
#1		
#2	7	N
#3	1	N

Remarks: 5 Soil Drums In Compound

FNC-3
FORTUNA BEACON
REMEDIATION SYSTEM O&M FORM

DATE	1-3-06
TECH.	James Linderman

Last 2,544,460

	ARRIVAL	DEPARTURE	
Time			
SYSTEM STATUS	OFF		(On/Off/Recharging)
Totalizer Gallons Reading	258383 [0]	258480 [0]	gallons
Water Samples (EX-1 INF, EX-2 INF, EFF-Main)	Yes		(Y/N)
EX-1 Status	off	on	(On/Off/Recharging)
EX-2 Status	off	on	(On/Off/Recharging)
EX-1 Pump Backpressure	18		PSI
EX-2 Pump Backpressure	15		PSI
Transfer Pump Backpressure	10		PSI

	CHECKED	EMPTIED
Water Filter		

Carbon Vessel	PSI	Leaking (y/n)
#1	N/A	no
#2	7	no
#3	0	no

Remarks:

Sample times →
Ex-1 10:35
Ex-2 10:45
Main 10:25

FNC-3
FORTUNA BEACON
REMEDIATION SYSTEM O&M FORM

DATE	1/18/06
TECH.	James Linderman

	ARRIVAL	DEPARTURE	
Time	9:40	10:05	
SYSTEM STATUS	Recharging	on	(On/Off/Recharging)
Totalizer Gallons Reading	269757 0	269781 0	gallons
Water Samples (EX-1 INF, EX-2 INF, EFF-Main)	NO	NO	(Y/N)
EX-1 Status	Rech.	on	(On/Off/Recharging)
EX-2 Status	Rech.	on	(On/Off/Recharging)
EX-1 Pump Backpressure	0	18	PSI
EX-2 Pump Backpressure	0	16	PSI
Transfer Pump Backpressure	0	15	PSI

	CHECKED	EMPTIED
Water Filter		

Carbon Vessel	PSI	Leaking (y/n)
#1	N/A	no
#2	12	no
#3	0	no

Remarks:

FNC-3
FORTUNA BEACON
REMEDIATION SYSTEM O&M FORM

DATE	1/19/06
TECH.	SF

	ARRIVAL	DEPARTURE	
Time			
SYSTEM STATUS	on		(On/Off/Recharging)
Totalizer Gallons Reading	2,710,680	—	gallons
Water Samples (EX-1 INF, EX-2 INF, EFF-Main)			(Y/N)
EX-1 Status	on		(On/Off/Recharging)
EX-2 Status	on		(On/Off/Recharging)
EX-1 Pump Backpressure	15		PSI
EX-2 Pump Backpressure	15		PSI
Transfer Pump Backpressure	11	#	PSI

	CHECKED	EMPTIED
Water Filter	✓	✓

Carbon Vessel	PSI	Leaking (y/n)
#1	16	N
#2	12	N
#3	0	N

Remarks: Shut system off due to High Backpressure on Vessels #1 + #2. Requires carbon change out.

FNC-3
FORTUNA BEACON
REMEDIATION SYSTEM O&M FORM

DATE	2/22/06
TECH.	SF

	ARRIVAL	DEPARTURE	
Time			
SYSTEM STATUS	Off		(On/Off/Recharging)
Totalizer Gallons Reading			gallons
Water Samples (EX-1 INF, EX-2 INF, EFF-Main)			(Y/N)
EX-1 Status			(On/Off/Recharging)
EX-2 Status			(On/Off/Recharging)
EX-1 Pump Backpressure			PSI
EX-2 Pump Backpressure			PSI
Transfer Pump Backpressure			PSI

	CHECKED	EMPTIED
Water Filter	x	x

cleaned Housing + piping on entire system.

Carbon Vessel	PSI	Leaking (y/n)
#1		
#2		
#3		

Remarks: Performed Major O+M cleaning of system while US Filter R+R carbon vessels #1 and #2, also removed ~~x~~ 8" off top of #3, Filled Carbon Vessels #1 + #2 with Tap water for 24-hour pre-soak.

FNC-3
FORTUNA BEACON
REMEDIATION SYSTEM O&M FORM

DATE	2/23/06
TECH.	SF

	ARRIVAL	DEPARTURE	
Time			
SYSTEM STATUS	off	on	(On/Off/Recharging)
Totalizer Gallons Reading	2,710,680	2,711,640	gallons
Water Samples (EX-1 INF, EX-2 INF, EFF-Main)			(Y/N)
EX-1 Status		on	(On/Off/Recharging)
EX-2 Status		on	(On/Off/Recharging)
EX-1 Pump Backpressure		15	PSI
EX-2 Pump Backpressure		15	PSI
Transfer Pump Backpressure		10	PSI

	CHECKED	EMPTIED
Water Filter		

Carbon Vessel	PSI	Leaking (y/n)
#1	6	N
#2	2	N
#3	0	N

Remarks: Confirmed system cycle prior to leaving site.

FNC-3
FORTUNA BEACON
REMEDIATION SYSTEM O&M FORM

DATE	3/2/06
TECH.	SF

	ARRIVAL	DEPARTURE	
Time	onsite During	DPE Test	
SYSTEM STATUS	On	On	(On/Off/Recharging)
Totalizer Gallons Reading	(2,794,780 - 8:30 AM)	2,796,650 1:50 PM	gallons
Water Samples (EX-1 INF, EX-2 INF, EFF-Main)	y		(Y/N)
EX-1 Status	On		(On/Off/Recharging)
EX-2 Status	On		(On/Off/Recharging)
EX-1 Pump Backpressure	17		PSI
EX-2 Pump Backpressure	17		PSI
Transfer Pump Backpressure	11		PSI

	CHECKED	EMPTIED
Water Filter	y	N

Carbon Vessel	PSI	Leaking (y/n)
#1	8	N
#2	3	N
#3	0	N

Remarks: EX-1 has been continuously pumping During Pilot Test 2/27 - 3/2
EX-2 pump goes on + off Daily.

FNC-3
FORTUNA BEACON
REMEDIATION SYSTEM O&M FORM

DATE	3/15/06
TECH.	SF

	ARRIVAL	DEPARTURE	
Time	11:30	230	
SYSTEM STATUS	off	on	(On/Off/Recharging)
Totalizer Gallons Reading	2,858,030	2,858,480	gallons
Water Samples (EX-1 INF, EX-2 INF, EFF-Main)			(Y/N)
EX-1 Status	off		(On/Off/Recharging)
EX-2 Status	off		(On/Off/Recharging)
EX-1 Pump Backpressure	N/A		PSI
EX-2 Pump Backpressure	N/A		PSI
Transfer Pump Backpressure	N/A		PSI

	CHECKED	EMPTIED
Water Filter	✓	✓

Cleaned Hoses

Departure

Carbon Vessel	PSI	Leaking (y/n)
#1	8	No
#2	4	No
#3	0	No

Remarks: * removed ≈ 12" of carbon/silt off top of 1st vessel.

System ok at Departure
- confirmed cycle

Table 2
20 Horsepower Oil Sealed Liquid Ring Pump
(300ACFM And up to 29" Hg / 100 SCFM @ 20" Hg)

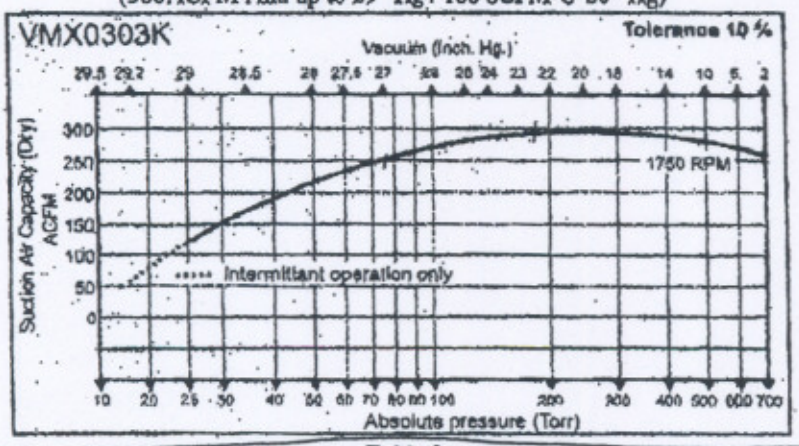
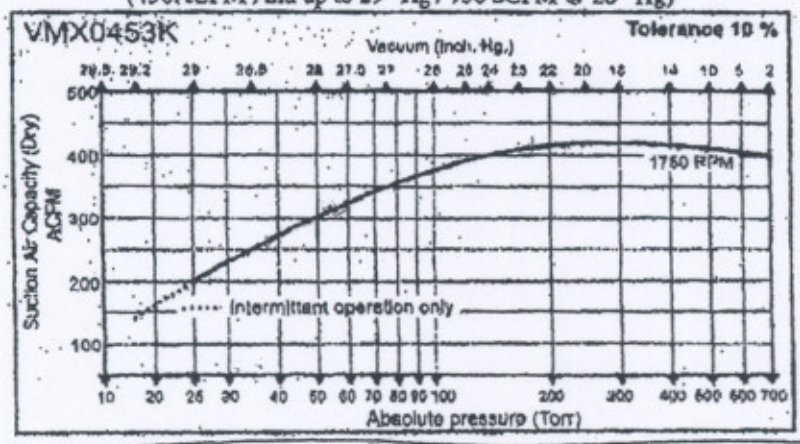


Table 3
25 Horsepower Oil Sealed Liquid Ring Pump
(450ACFM And up to 29" Hg / 150 SCFM @ 20" Hg)



HDPE Pump used for Fortuna Beacon Pilot Test

Table 4
ACFM Vs. SCFM Ratio
Conversion Ratios

Vacuum Levels ("Hg)	Ratio (SCFM:ACFM)	Vacuum Levels ("Hg)	Ratio (SCFM:ACFM)
0	1:1.00	16	1:2.14
1	1:1.03	17	1:2.32
2	1:1.07	18	1:2.50
3	1:1.11	19	1:2.75
4	1:1.15	20	1:3.00
5	1:1.20	21	1:3.33
6	1:1.25	22	1:3.75
7	1:1.31	23	1:4.28
8	1:1.36	24	1:5.00
9	1:1.43	25	1:6.00
10	1:1.50	26	1:7.50
11	1:1.58	27	1:12.0
12	1:1.66	28	1:15.0
13	1:1.77	29	1:30.0
14	1:1.88	29.5	1:60.0
15	1:2.00	29.9	1:300

HEALTHCAIR®

Conversion Chart
ACFM / SCFM

Vacuum Level (Gauge)	Conversion Factor	Vacuum Level (Gauge)	Conversion Factor	Vacuum Level (Gauge)	Conversion Factor
1"	1.03	11"	1.58	21"	3.33
2"	1.07	12"	1.67	22"	3.75
3	1.11	13"	1.76	23	4.28
4"	1.15	14"	1.88	24"	5.00
5"	1.20	15"	2.00	25"	6.00
6"	1.25	16"	2.14	26"	7.63
7"	1.30	17	2.31	27"	10.00
8"	1.36	18"	2.50	28"	15.00
9"	1.43	19"	2.73	29"	30.00
10"	1.50	20"	3.00		

TO FIND ACFM - Multiply SCFM by conversion factor

EXAMPLE:

99 SCFM @ 19" Hg
99 x 2.73 = 270.27 ACFM

99 SCFM @ 25" Hg
99 x 6 = 594 ACFM

TO FIND SCFM - Divide ACFM by conversion factor

EXAMPLE:

270.27 ACFM @ 19" Hg
270.27 divide by 2.73 = 99 scfm

594 ACFM @ 25" Hg
594 divide by 6 = 99 scfm

Rotary Vane Vacuum Pumps

Liquid Ring Vacuum Pumps

Oil-Les Air Compressors

Liquid Ring Air Compressors

SQUIRE-COGSWELL / AEROS INSTRUMENTS

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DPE on
MW-6

10 AM – 8 PM
Total Hrs = 10 hrs

- Well Breather open at well head
- Hose Inlet set at 19' BGS.

2/27/06

Frontier
Environmental Services, Inc

Our Service Makes The Difference!

Start @ 10 AM

Pump Vacuum		"HgV
Pump Capacity	420	ACFM
SCFM	420	SCFM

Of

Pilot Study Data (Thermal Oxidizer Info)

	Event Timeline	Oxidizer Temp (F)	Stack Temp (F)	Pump Temp (F)	Knockout ~~MTS Vac~~ "Hg	~~Knockout Pump Vac~~ Main Vac "Hg	Total Flow (SCFM)	Dilution (SCFM)	Total Well Flow (SCFM)	PPMV Influent Conc	Effluent Conc	Lbs/Hr VOC	Water GPM	Water Total Gal
121	10:30	1424			16.6	21.0		78 + 0	78	1048				0.00
122	11:00	1470			16.8	21.0		75+0	75	1952				32.97
123	11:30	1438			16.8	21.0		80	80	1720				66.25
124	12:00	1472			17.0	21.0		75	75	1982				97.55
125	13:00	1445			16.7	20.9		80	80	2730				126.3
126	14:00	1452			17.6	21.5		75	75	2960				159.8
127	15:00	1450			17.7	21.6		75	75	2440				193.3
128	16:00	1478			17.7	21.2		76	76	2820				226.78
129	17:00	1405			17.8	21.5		76	76	2570				260.33
130	18:00	1479			17.6	21.5		75	75	2180				342.50
131	19:00	1465			17.6	21.5		75	75	2640				342.50
132	20:00	1472			17.7	21.6		75	75	2420				382.5
133														
134														
135	*	Max Test (Hose @ 19' BGS + Dilution closed + wellhead valve closed)												
136		1501			27.2	27.4		0+0	0	128 ← very little flow from knockout sample port				
137														
138														
139														
140														
141														
142														
143														
144														

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DPE on MW-6

2/22/06

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Environmental Services, Inc

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start @ 10 AM

Well ID	
1.0	2.00

= Inches W.C. Vacuum
= Depth Water 'bgs

C Of 1

Pilot Study Data (Field-Well Data)

	Event Timeline	Well ID MW-14		Well ID MW-2		Well ID MW-5		Well ID RW-5		Well ID MW-17A		Well ID MW-17B		Well ID		Well ID		Well ID		Well ID		Well ID	
145	10:00	0.0	10.22	0.0	10.32	0.0	12.63	0.0	14.43	0.0	7.19	0.75	13.75			Baseline - No Vac Applied							
146	10:30	0.15	10.23	0.0	10.23	<0	12.68	0.0	13.68	0.01	7.19	0.75	13.87										
147	11:00	0.15	10.25	<0	10.31	0.54	12.69	<0	13.32	<0	7.19	0.24	13.88										
148	11:30	0.06	10.23	0.0	10.31	0.56	12.68	0.0	12.99	<0	7.18	<0	13.85										
149	12:00	<0	10.23	0.0	10.32	0.65	12.67	0.0	12.64	<0	7.18	0.05	13.86										
150	13:00	<0	10.22	<0	10.33	0.45	12.64	<0	12.02	<0	7.18	<0	13.85										
151	14:00	<0	10.18	0.0	10.34	0.38	12.63	<0	11.55	<0	7.18	<0	13.83										
152	15:00	<0	10.18	<0	10.33	0.52	12.62	<0	11.15	<0	7.18	<0	13.83										
153	16:00	<0	10.17	<0	10.33	0.24	12.63	<0	10.89	0.0	7.19	<0	13.84										
154	17:00	<0	10.15	<0	10.30	0.48	12.60	<0	10.78	<0	7.18	<0	13.81										
155	18:00	<0	10.15	<0	10.29	0.60	12.60	<0	10.76	<0	7.18	<0	13.81										
156	19:00	<0	10.15	<0	10.30	0.55	12.59	<0	10.74	<0	7.18	<0	13.80										
157	20:00	<0	10.14	<0	10.28	0.70	12.57	<0	10.72	<0	7.18	<0	13.79										
158																							
159																							
160																							
161																							
162																							
163																							
164																							
165																							
166																							
167																							
168																							

DPE on EX-2

start @ 8pm 2/27/06
end 6:40 3/1/06

Frontier Environmental Services, Inc

Our Service Makes The Difference!

Pump Vacuum		"HgV
Pump Capacity	420	ACFM
SCFM	420	SCFM

1 Of 1

Pilot Study Data (Thermal Oxidizer Info)

	Event Timeline	Oxidizer Temp (F)	Stack Temp (F)	Pump Temp (F)	Engineout MTS Vac "Hg	Pump Vac "Hg	Total Flow (SCFM)	Dilution (SCFM)	Well Flow (SCFM)	PPMV Influent Conc	Effluent Conc	Lbs/Hr VOC	Water GPM	Water Total Gal	
121	20:00	1353			17.3	21.2	80+0	80		1355					Start 382.50
122	21:00	1507			17.0	20.8	68	68		7520	SPH slugs				456.8
123	22:00	1535			21.2	23.8	0	0		2960				543.0	
124	23:00	1876			17.2	21.4	55	55		22540	SPH Slugs			581.2	
125	24:00	1567			16.2	20.6	65	65		2020				581.14	
126	2:00	1475			15.8	20.6	65	65		890				647.80	
127	4:00		System shut Down @ 3:00 AM												
128	6:00														
129	8:00		System restarted @ 8 AM small slugs of SPH at start.												
130	10:00	1565			15.1	20.1	48	48		3240	SPH Slugs			739.4	
131	12:00	1448			16.8	21.0	55	55		1842				772.6	
132	1400	1456			16.7	20.9	70	70		2660				949.3	
133	1600	1453			16.8	21.1	70	70		1970				1,162.5	
134	1800	1451			17.3	21.4	67	67		1994				1,271.5	
135	2000	1436			17.1	21.2	75	75		2060				1572	
136	2400	1439			16.5	21.0	75	75		1182				2169.46	
137	4.00	1433			16.2	20.80	75	75		1103				2692.92	
138	8:00	640	System shut Down - Low Diesel											2979.6	
139		Max Test													
140		1535			21.2	23.8	0	0		2960					
141															
142															
143		- Bottom of Hose set at 14' BGS (Problems if set Below water) DTW ≈ 14' BGS.													
144		- Breather shut, Very Little water Intake if Hose kept above water level.													

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- Leaks at Conduit Seal Near compound. Breather opened @ 23:00

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DPE on Ex-2

2/27/06

Frontier
Environmental Services, Inc

Start @ 8 pM
end @ 6:40 AM 3/1/00

Our Service Makes The Difference!

Well ID	
1.0	2.00

= Inches W.C. Vacuum
= Depth Water 'bgs

1 Of 1

Pilot Study Data (Field-Well Data)

	Event Timeline	Well ID MW-14		Well ID MW-2		Well ID MW-5		Well ID RW-5		Well ID MW-17A		Well ID MW-17B		Well ID		Well ID		Well ID		Well ID		Well ID		Well ID	
145	20:00	0	11.14	-0	10.22	0.42	12.65	0	10.79	0	7.15	0	13.81					Baseline (No Vac Applied)							
146	21:00	0	10.15	0	10.20	0.54	12.61	0	10.72	0	7.14	0	13.85												
147	22:00	0	10.16	0	10.20	0.54	12.61	0	10.71	0	7.11	.25	13.92												
148	23:00	0	10.16	0	10.18	.84	12.65	0	10.65	0	7.08	.50	13.95												
149	24:00	0	10.20	0	10.15	1.20	12.67	0	10.58	0	7.05	.95	13.95												
150	02:00	0	9.99	0	10.33	1.80	12.78	0	10.53	0	6.78	.50	14.03												
151	04:00				Shut Down @ 3 AM																				
152	06:00					- Flame Failure																			
153	08:00				Restarted @ 8 AM																				
154	10:00	0.30	10.39	0.03	9.84	2.30	12.81	<0	10.08	<0	6.83	1.90	14.14												
155	12:00	1.55	10.40	<0	9.82	2.30	12.81	<0	10.09	<0	6.84	2.20	14.15												
156	14:00	1.25	10.38	<0	9.81	2.0	12.79	<0	10.11	<0	6.85	2.30	14.17												
157	16:00	>2.0	10.44	<0	9.79	2.90	12.85	<0	10.11	<0	6.84	>3.0	14.23												
158	18:00	0.60	10.48	0.0	9.80	3.20	12.89	<0	10.10	<0	6.86	0.80	14.26												
159	20:00	0.60	10.51	0.0	9.81	3.3	12.92	<0	10.12	<0	6.87	0.5	14.29												
160	24:00	0.0	10.49	0.0	9.84	2.45	12.91	<0	10.16	<0	6.90	0.0	14.27												
161	4:00	0.0	10.42	0.0	9.82	1.53	12.87	<0	10.21	0.025	6.93	0.02	14.25												
162	8:00																								
163																									
164																									
165																									
166																									
167																									
168																									

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- VAC on EX-1 3/1/06
- EX-1 pump on During Test to keep water down.
- Hose Set @ 20' BGS, Breather Shut
  ↳ at water level in EX-1

Frontier
Environmental Services, Inc

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Pump Vacuum		"HgV
Pump Capacity	420	ACFM
SCFM	420	SCFM

Of

Pilot Study Data (Thermal Oxidizer Info)

	Event Timeline	Oxidizer Temp (F)	Stack Temp (F)	Pump Temp (F)	~~MTS Vac~~ Knockout "Hg	Pump Vac "Hg	Total Flow (SCFM)	Dilution (SCFM)	Well Flow (SCFM)	ppmv Influent Conc	Effluent Conc	Lbs/Hr VOC	Water GPM	Water Total Gal
121	10:45	1352			16.9	21.2		46+0	46	146				2979.8
122	11:00	1370			16.9	21.0		45	45	153				3011.59
123	11:30	1448			22.0	23.9		0+0	0	136				3011.6
124	12:00	1469			21.5	23.8		0+0	0	118				3011.6
125	13:00	1478			21.5	23.7		0	0	116				3011.6
126	14:00	1487			21.4	23.7		0	0	135				↓
127	15:00	1462			21.4	23.6		0	0	131				
128	16:00	1490			21.3	23.6		0	0	125				3011.6
129	17:00													
130	18:00													
131	19:00													
132	20:00													
133														
134														
135														
136														
137														
138														
139														
140														
141														
142														
143														
144														

- Ended Test @ 16:00, No GW pumped During Test

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VAC on Ex-1

3/1/06

Frontier
Environmental Services, Inc

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Well ID | 1.0 2.00 | = Inches W.C. Vacuum | = Depth Water 'bgs

Of

Pilot Study Data (Field-Well Data)

Nightime only

	Event Timeline	Well ID MW-1		Well ID MW-5		Well ID MW-17A		Well ID MW-17B		Well ID MW-18A		Well ID MW-18B		Well ID MW-19A		Well ID MW-19B		Well ID MW-4		Well ID RW-5		Well ID		Well ID	
145	10:30	<0	18.11	0.40	12.74	0.10	6.97	<0	14.10	0.0	9.17	0.0	11.66							<0	10.24	Baseline			
146	11:00	<0	18.11	0.30	12.74	0.25	7.01	0.04	14.11	<0	9.17	0.04	11.66							<0	10.29				
147	11:30	0.02	18.13	0.20	12.73	0.31	7.01	<0	14.11	0.00	9.15	0.0	11.66							<0	10.29				
148	12:00	0.04	18.13	0.0	12.70	0.34	7.02	<0	14.09	0.0	9.13	<0	11.65							<0	10.30				
149	13:00	<0	18.14	<0	12.65	0.20	7.01	<0	14.05	<0	9.12	0.0	11.61							<0	10.30				
150	14:00	<0	18.17	<0	12.64	0.20	7.03	<0	14.06	<0	9.13	0.0	11.57							<0	10.32				
151	15:00	0.09	18.17	0.0	12.65	0.30	7.04	<0	14.04	<0	9.14	<0	11.56							<0	10.32				
152	16:00	0.02	18.17	0.0	12.62	0.03	7.04	0.04	14.03	<0	9.14	<0	11.55							<0	10.33				
153	17:00																								
154	18:00																								
155	19:00																								
156	20:00																								
157																									
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168																									

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Vac on MW-17B 3/1/06

Breather open at well to allow water flow

Frontier
Environmental Services, Inc

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Pump Vacuum		"HgV
Pump Capacity	420	ACFM
SCFM	420	SCFM

1 Of 1

Pilot Study Data (Thermal Oxidizer Info)

	Event Timeline	Oxidizer Temp (F)	Stack Temp (F)	Pump Temp (F)	~~MTS Vac~~ Knockout "Hg	Pump Vac "Hg	Total Flow (SCFM)	Dilution (SCFM)	Well Flow (SCFM)	PPMV Influent Conc	Effluent Conc	Lbs/Hr VOC	Water GPM	Water Total Gal	
121	16:30	16:30 1427			17.4	21.1		80+0	80	1468				3011.6	
122	17:00	1572			17.8	21.5		80	80	3420				3011.6	
123	17:30	1459			17.9	21.5		80	80	4870				↓	
124	18:00	1478			17.8	21.5		80	80	4980				↓	≈ 20 gal. in Tank from start
125	18:30	1469			17.9	21.6		80	80	5490				↓	
126	19:00	1486			17.9	21.6		80	80	5540				↓	
127	20:00	1445			17.9	21.5		80	80	7910				↓	
128	21:00	1447			18.0	21.5		80	80	6790				↓	
129	22:00	1434			18.0	21.6		80	80	7730				↓	
130	23:00	1474			18.0	21.6		80	80	7610				↓	
131	24:00	1479			18.0	21.6		80	80	8320				↓	
132	2:00	1474			18.0	21.6		80	80	8240				↓	
133	4:00	1451			18.0	21.6		80	80	7950				↓	
134	6:00	1440			18.0	21.6		80	80	8850				↓	
135	8:00	1456			18.0	21.6		80	80	10,760	Max Test Interrupted			↓	
136	9:00	1471			17.1	21.1		80	80	2,620				3046.9	
137	10:00	1384			17.1	21.0		75	75	2,640	Interrupted			3081.5	
138	11:00	1453			17.1	21.7		75	75	1,558				3147.1	
139															
140		Max Test													
141	8:50	1602			26.4	26.7		0	0	670				≈ 20 gal.	pumped small amount GW
142															
143															
144															

2936 E. Coronado Street, Unit B, Anaheim, CA 92806 (714) 414-1050 (714) 414-1049 Fax www.frontierenv.com

Jul 13 2005 2:20PM Blue Rock Environmental (650) 522-9259 p.1

VAC on MW-17B 3/1/06 - 3/2/06

Hose Inlet set @ 6" Above Bottom of well.

EX-1 GWE pump on during test

Frontier Environmental Services, Inc

Our Service Makes The Difference!

Well ID	
1.0	2.00

= Inches W.C. Vacuum

= Depth Water 'bgs

1 Of 1

Pilot Study Data (Field-Well Data)

Event Timeline		Well ID MW-17A		Well ID RW-5		Well ID MW-1		Well ID MW-5		Well ID MW-18A		Well ID MW-18B		Well ID		Well ID		Well ID		Well ID		Well ID		Well ID	
145	16:30	<0	7.01	<0	10.32	<0	18.17	0.0	12.60	0.0	9.12	0.0	11.57					~~Baseline~~	~~[illegible]~~	~~Applied~~	VAC				
146	17:00	0.05	7.01	<0	10.30	<0	18.20	0.15	12.61	0.05	9.12	<0	11.58												
147	17:30	0.10	7.02	<0	10.31	0.15	18.20	0.40	12.63	<0	9.10	0.07	11.58												
148	18:00	0.10	7.02	<0	10.32	0.10	18.22	0.35	12.63	0.0	9.09	0.0	11.58												
149	19:00	0.37	7.04	0.32	10.33	0.31	18.22	0.90	12.62	<0	9.10	0.52	11.56												
150	20.00	0.225	6.99	<0	10.29	<0	18.22	0.60	12.70	<0	8.98	0.70	11.60												
151	21:00	<0	6.98	<0	10.24	0.23	18.19	0.65	12.67	<0	8.98	1.0	11.59												
152	22:00	<0	6.92	<0	10.21	0.18	18.20	0.95	12.71	<0	9.00	0.90	11.63												
153	23:00	<0	6.89	<0	10.18	0.13	18.21	1.25	12.72	0.03	8.99	1.05	11.64												
154	24:00	<0	6.84	<0	10.14	0.14	18.22	1.35	12.74	0.10	9.01	1.25	11.65												
155	2:00	<0	6.84	<0	10.14	0.15	18.22	1.35	12.73	0.19	9.02	1.30	11.64												
156	4:00	<0	6.84	<0	10.13	0	18.22	1.15	12.71	0.04	9.01	1.20	11.63												
157	6:00	<0	6.84	<0	10.18	.06	18.23	1.10	12.72	0.14	9.05	1.25	11.64												
158	8:00	<0	6.80 6.89	<0	10.11	0.07	18.21	1.10	12.70	<0	8.97	1.20	11.61												
159	9:00	<0		<0		0.1		1.0		<0		1.4				SC	Needed	water	level	Meter	for	other	site		
160	10:00	<0		<0		0.04		0.6		<0		1.4													
161	11:00	<0		<0		1.4		0.7		<0		1.6													
162																									
163																									
164																									
165																									
166																									
167																									
168																									

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Jul 12 2005 11:51AM Blue Rock Environmental (650) 522-9259 p.1

KIFF Analytical LLC

Report Number : 48916
Date : 3/20/2006

Scott Ferriman
Blue Rock Environmental, Inc.
535 3rd Street, Suite 100
Eureka, CA 95501

Subject : 21 Water Samples
Project Name : Fortuna Beacon
Project Number : FNC-3

Dear Mr. Ferriman,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 48916
Date : 3/20/2006

Subject : 21 Water Samples
Project Name : Fortuna Beacon
Project Number : FNC-3

Case Narrative

Matrix Spike/Matrix Spike Duplicate Results associated with sample MW-14 for the analyte Benzene were affected by the analyte concentrations already present in the un-spiked sample.

Approved By: Joel Kiff

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 48916

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Sample : **MW-1** Matrix : Water Lab Number : 48916-01

Sample Date :3/8/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**580**	5.0	ug/L	EPA 8260B	3/16/2006
Toluene	**110**	5.0	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**43**	5.0	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**83**	5.0	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**100**	5.0	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**4300**	500	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	98.0		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	3/16/2006

Sample : **MW-2** Matrix : Water Lab Number : 48916-02

Sample Date :3/8/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	3/16/2006

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 48916

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Sample : **MW-3** Matrix : Water Lab Number : 48916-03

Sample Date :3/8/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	3/16/2006

Sample : **MW-4** Matrix : Water Lab Number : 48916-04

Sample Date :3/8/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**1000**	15	ug/L	EPA 8260B	3/17/2006
Toluene	**9800**	15	ug/L	EPA 8260B	3/17/2006
Ethylbenzene	**2700**	15	ug/L	EPA 8260B	3/17/2006
Total Xylenes	**13000**	25	ug/L	EPA 8260B	3/17/2006
Methyl-t-butyl ether (MTBE)	**< 15**	15	ug/L	EPA 8260B	3/17/2006
TPH as Gasoline	**79000**	1500	ug/L	EPA 8260B	3/17/2006
Toluene - d8 (Surr)	96.8		% Recovery	EPA 8260B	3/17/2006
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	3/17/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 48916

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Sample : **MW-5** Matrix : Water Lab Number : 48916-05

Sample Date :3/8/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**1.3**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	3/16/2006

Sample : **MW-7** Matrix : Water Lab Number : 48916-06

Sample Date :3/8/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**2.1**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	3/16/2006

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 48916

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Sample : **MW-11** Matrix : Water Lab Number : 48916-07

Sample Date :3/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	91.4		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	88.5		% Recovery	EPA 8260B	3/16/2006

Sample : **MW-12** Matrix : Water Lab Number : 48916-08

Sample Date :3/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**0.56**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	90.8		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	88.7		% Recovery	EPA 8260B	3/16/2006

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 48916

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Sample : **MW-13** Matrix : Water Lab Number : 48916-09

Sample Date :3/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	91.2		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	90.7		% Recovery	EPA 8260B	3/16/2006

Sample : **MW-14** Matrix : Water Lab Number : 48916-10

Sample Date :3/8/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**120**	0.50	ug/L	EPA 8260B	3/17/2006
Toluene	**2.5**	0.50	ug/L	EPA 8260B	3/17/2006
Ethylbenzene	**32**	0.50	ug/L	EPA 8260B	3/17/2006
Total Xylenes	**0.56**	0.50	ug/L	EPA 8260B	3/17/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/17/2006
TPH as Gasoline	**860**	50	ug/L	EPA 8260B	3/17/2006
Toluene - d8 (Surr)	104		% Recovery	EPA 8260B	3/17/2006
4-Bromofluorobenzene (Surr)	98.7		% Recovery	EPA 8260B	3/17/2006

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 48916

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Sample : **MW-15** Matrix : Water Lab Number : 48916-11

Sample Date :3/8/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	95.7		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	105		% Recovery	EPA 8260B	3/16/2006

Sample : **DW-1** Matrix : Water Lab Number : 48916-12

Sample Date :3/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**1.2**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	96.0		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	105		% Recovery	EPA 8260B	3/16/2006

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 48916

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Sample : **DW-2** Matrix : Water Lab Number : 48916-13

Sample Date :3/8/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**2.3**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	96.2		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	105		% Recovery	EPA 8260B	3/16/2006

Sample : **DW-3** Matrix : Water Lab Number : 48916-14

Sample Date :3/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**1.3**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	95.6		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	3/16/2006

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 48916

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Sample : **RW-5** Matrix : Water Lab Number : 48916-15

Sample Date :3/8/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**35**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**3.0**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**66**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**150**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**7.1**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**2500**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	93.0		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	89.9		% Recovery	EPA 8260B	3/16/2006

Sample : **MW-17A** Matrix : Water Lab Number : 48916-16

Sample Date :3/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**4.3**	2.5	ug/L	EPA 8260B	3/16/2006
Toluene	**3.8**	2.5	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**240**	2.5	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**580**	2.5	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**< 2.5**	2.5	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**14000**	250	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	96.3		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	106		% Recovery	EPA 8260B	3/16/2006

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 48916

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Sample : **MW-17B** Matrix : Water Lab Number : 48916-17

Sample Date :3/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**19000**	50	ug/L	EPA 8260B	3/17/2006
Toluene	**32000**	50	ug/L	EPA 8260B	3/17/2006
Ethylbenzene	**3100**	50	ug/L	EPA 8260B	3/17/2006
Total Xylenes	**18000**	50	ug/L	EPA 8260B	3/17/2006
Methyl-t-butyl ether (MTBE)	**650**	50	ug/L	EPA 8260B	3/17/2006
TPH as Gasoline	**150000**	5000	ug/L	EPA 8260B	3/17/2006
Toluene - d8 (Surr)	96.4		% Recovery	EPA 8260B	3/17/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	3/17/2006

Sample : **MW-18A** Matrix : Water Lab Number : 48916-18

Sample Date :3/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	96.3		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	105		% Recovery	EPA 8260B	3/16/2006

Approved By: Joel Kiff

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KIFF Analytical LLC

Report Number : 48916

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Sample : **MW-18B** Matrix : Water Lab Number : 48916-19

Sample Date :3/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**840**	30	ug/L	EPA 8260B	3/17/2006
Toluene	**13000**	30	ug/L	EPA 8260B	3/17/2006
Ethylbenzene	**3500**	30	ug/L	EPA 8260B	3/17/2006
Total Xylenes	**19000**	30	ug/L	EPA 8260B	3/17/2006
Methyl-t-butyl ether (MTBE)	**< 30**	30	ug/L	EPA 8260B	3/17/2006
TPH as Gasoline	**110000**	3000	ug/L	EPA 8260B	3/17/2006
Toluene - d8 (Surr)	96.8		% Recovery	EPA 8260B	3/17/2006
4-Bromofluorobenzene (Surr)	105		% Recovery	EPA 8260B	3/17/2006

Sample : **MW-19A** Matrix : Water Lab Number : 48916-20

Sample Date :3/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**180**	5.0	ug/L	EPA 8260B	3/17/2006
Toluene	**650**	5.0	ug/L	EPA 8260B	3/17/2006
Ethylbenzene	**690**	5.0	ug/L	EPA 8260B	3/17/2006
Total Xylenes	**3000**	5.0	ug/L	EPA 8260B	3/17/2006
Methyl-t-butyl ether (MTBE)	**5.1**	5.0	ug/L	EPA 8260B	3/17/2006
TPH as Gasoline	**20000**	500	ug/L	EPA 8260B	3/17/2006
Toluene - d8 (Surr)	99.2		% Recovery	EPA 8260B	3/17/2006
4-Bromofluorobenzene (Surr)	100		% Recovery	EPA 8260B	3/17/2006

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2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 48916

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Sample : **MW-19B** Matrix : Water Lab Number : 48916-21

Sample Date :3/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**5600**	50	ug/L	EPA 8260B	3/16/2006
Toluene	**23000**	50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	**3900**	50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	**20000**	50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	**69**	50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	**160000**	5000	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	99.2		% Recovery	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	94.6		% Recovery	EPA 8260B	3/16/2006

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Report Number : 48916

Date : 3/20/2006

QC Report : Method Blank Data

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	95.9		%	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	111		%	EPA 8260B	3/16/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/17/2006
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/17/2006
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/17/2006
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/17/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/17/2006
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	3/17/2006
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/17/2006
Toluene - d8 (Surr)	104		%	EPA 8260B	3/17/2006
4-Bromofluorobenzene (Surr)	95.9		%	EPA 8260B	3/17/2006
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	101		%	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	102		%	EPA 8260B	3/16/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/17/2006
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/17/2006
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/17/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/17/2006
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	3/17/2006
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/17/2006
Toluene - d8 (Surr)	101		%	EPA 8260B	3/17/2006
4-Bromofluorobenzene (Surr)	98.1		%	EPA 8260B	3/17/2006
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	95.4		%	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	107		%	EPA 8260B	3/16/2006
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	3/16/2006
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/16/2006
Toluene - d8 (Surr)	92.4		%	EPA 8260B	3/16/2006
4-Bromofluorobenzene (Surr)	90.0		%	EPA 8260B	3/16/2006

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Report Number : 48916

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 3/20/2006

Project Name : **Fortuna Beacon**

Project Number : **FNC-3**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene	48892-03	<0.50	40.0	39.6	41.1	41.2	ug/L	EPA 8260B	3/16/06	103	104	1.20	70-130	25
Toluene	48892-03	<0.50	40.0	39.6	39.9	39.6	ug/L	EPA 8260B	3/16/06	99.8	100	0.367	70-130	25
Tert-Butanol	48892-03	<5.0	200	198	210	201	ug/L	EPA 8260B	3/16/06	105	102	3.14	70-130	25
Methyl-t-Butyl Ether	48892-03	<0.50	40.0	39.6	41.7	41.3	ug/L	EPA 8260B	3/16/06	104	104	0.0210	70-130	25
Benzene	48927-02	<0.50	40.0	39.9	39.7	40.1	ug/L	EPA 8260B	3/17/06	99.3	100	1.20	70-130	25
Toluene	48927-02	<0.50	40.0	39.9	38.6	39.2	ug/L	EPA 8260B	3/17/06	96.6	98.1	1.56	70-130	25
Tert-Butanol	48927-02	<5.0	200	200	202	194	ug/L	EPA 8260B	3/17/06	101	97.1	4.05	70-130	25
Methyl-t-Butyl Ether	48927-02	530	40.0	39.9	551	557	ug/L	EPA 8260B	3/17/06	44.2	58.0	27.0	70-130	25
Benzene	48916-10	120	40.0	39.9	146	140	ug/L	EPA 8260B	3/17/06	77.7	62.3	22.0	70-130	25
Toluene	48916-10	2.5	40.0	39.9	43.7	43.1	ug/L	EPA 8260B	3/17/06	103	102	1.31	70-130	25
Tert-Butanol	48916-10	9.7	200	200	207	205	ug/L	EPA 8260B	3/17/06	98.8	97.7	1.07	70-130	25
Methyl-t-Butyl Ether	48916-10	<0.50	40.0	39.9	40.8	40.4	ug/L	EPA 8260B	3/17/06	102	101	0.630	70-130	25
Benzene	48916-05	<0.50	40.0	40.0	41.0	39.1	ug/L	EPA 8260B	3/16/06	102	97.8	4.68	70-130	25
Toluene	48916-05	<0.50	40.0	40.0	40.9	38.8	ug/L	EPA 8260B	3/16/06	102	97.1	5.24	70-130	25
Tert-Butanol	48916-05	<5.0	200	200	210	208	ug/L	EPA 8260B	3/16/06	105	104	0.794	70-130	25
Methyl-t-Butyl Ether	48916-05	1.3	40.0	40.0	42.7	41.2	ug/L	EPA 8260B	3/16/06	104	99.8	3.65	70-130	25
Benzene	48928-06	<0.50	40.0	40.0	43.7	42.2	ug/L	EPA 8260B	3/17/06	109	105	3.47	70-130	25
Toluene	48928-06	<0.50	40.0	40.0	43.9	42.0	ug/L	EPA 8260B	3/17/06	110	105	4.37	70-130	25

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