

WELL CONTRACTOR BID PRICES

Well 4A Rehabilitation and Well 2 Maintenance Programs - October 8, 2018

Contractor: Roadrunner Drilling & Pump Company, Inc

BID SCHEDULE A - WELL 4A REHABILITATION	Units	Estimated Quantity	Unit Price	Total Cost
#1 – Mobilization	Lump Sum	1	\$ 20,000	\$ 20,000
#2 – Chemical Mixing Tank (1,000 gal.)	Lump Sum	1	\$ 500	\$ 500
#3 – Chemical Mixing, Placement, Brushing and Bailing	Hours	45	\$ 195	\$ 8,775
#4 – Swab/Airlift Development	Hours	16	\$ 210	\$ 3,360
#5 – Hydrochloric Acid (material only)	Gallons	689	\$ 8	\$ 5,512
#6 – Well Renew (material only)	Gallons	70	\$ 72	\$ 5,040
#7 – Ammonium Bifluoride (material only)	Pounds	39	\$ 5	\$ 195
#8 – Soda Ash (material only)	Pounds	100	\$ 2	\$ 200
WELL 4A REHABILITATION TOTAL				\$ 43,582
BID SCHEDULE B – WELL 2 MAINTENANCE	Units	Estimated Quantity	Unit Price	Total Cost
#1 – Mobilization	Lump Sum	1	\$ 8,000	\$ 8,000
#2 – Chemical Placement, Brushing and Bailing	Hours	16	\$ 195	\$ 3,120
#3 – Swab/Airlift Development	Hours	16	\$ 210	\$ 3,360
#4 – Hydrochloric Acid (material only)	Gallons	4	\$ 8	\$ 32
#5 – Sodium Hypochlorite 12-1/2 Percent (material only)	Gallons	16	\$ 5	\$ 80
WELL 2 MAINTENANCE TOTAL				\$ 14,592

Well 2



Motor & Discharge head



Motor & Discharge head



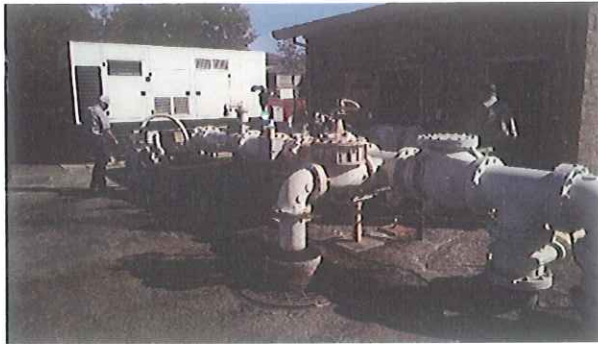
Old electrical switchgear

Summary of Historical Testing Results

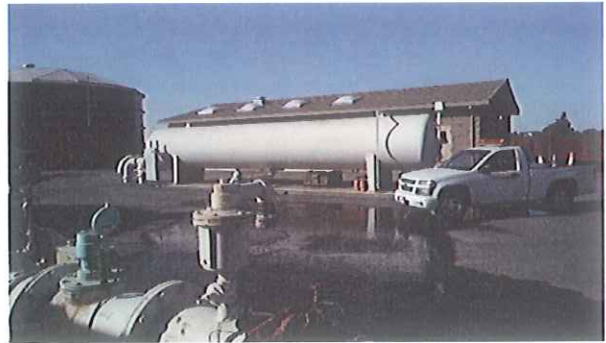
	2001	2007	2009	2011	2013	2015	2017
24hr Q/s (gpm/ft)	14	13	11	12	11	--(*)	12 (*)
Test Flow (gpm)	N/A	991	855	925	1,017	923	590
Design PWL (ft)	120	125	130	130	130	--	130
Distance to Pump (ft)	100	95	90	90	90	--	90
Overall Plant Efficiency		70%	66%	68%	62%	67%	59% (*)

- Due to Oil Lube, water levels are not accurate with sounder. In 2017 a transducer was used enabling more accurate measurements. Well is a reliable producer with consistent Q/s drawdown.
- Efficiency dropped significantly in 2017. Pump is underperforming by about 25 feet TDH (15% off curve). Pump upgrade needed to avoid failure. Replace with water lube.
- Electrical switch gear is old and could use upgrade.

Well 4A



Well Station Piping



Overboard drainage issue



Corroded HP switch and mixed piping



Corroded pump baseplate

Summary of Historical Testing Results

	2001	2007	2009	2011	2013	2015	2017
24hr Q/s (gpm/ft)	26	23	23	23	21	20	16
Flow (gpm)	N/A	1,912	1,910	2,150	1,838	1,909	1745
Design PWL (ft)	130	140	140	140	145	150	170
Distance to Pump (ft)	50	40	40	40	35	30	10
Overall Plant Efficiency		66%	65%	73%	65%	65%	59% (*)

- Capacity dropped significantly. 20% since 2015, and 40% since 2001. Well Rehab is needed. Lower pump 80 feet.
- OPE dropped since 2015. Pump is underperforming by about 50 feet TDH (20% off curve). Pump maintenance needed on bowls. Condition unknown until pump is removed. Re-use submersible motor if possible (Type H mercury seal).
- Station pipe is corroded. Plan on replacing station piping. Relocate chlorine injection downstream of check valve.

PUMP CONTRACTOR BID PRICES
Well 4A Pump Maintenance and Well 2 Pump Replacement
Contractor: Kirby's Pump & Mechanical

Well 4A Pump Maintenance (minimum required)	Units	Estimated Quantity	Unit Price	Total Cost
#1 Pump Removal and Inspection	Lump Sum	1	\$ 3,800	\$ 3,800
#2 Video Survey	Lump Sum	1	\$ 1,100	\$ 1,100
#3 Pump Re-installation with 80-ft additional column and cable splice	Lump Sum	1	\$ 10,760	\$ 10,760
<i>Well 4A Total minimum</i>				\$ 15,660
Optional Items	Units	Estimated Quantity	Unit Price	Total Cost
#4 Re-Build Bowl Assembly (ADD ON)	Lump Sum	1	\$ 6,238	\$ 6,238
#5 All New Cable if old cable is unsuitable (ADD ON)	Lump Sum	1	\$ 7,120	\$ 7,120
#6 Replace Column Pipe 10-inch x 20ft (ADD ON per piece)	each piece	1	\$ 1,310	\$ 1,310
#7 Coated Column Pipe for NSF 61 (ADD ON per piece)	Lump Sum	1	\$ 850	\$ 850
<i>Well 4A Total with re-build bowls (#4)</i>				\$ 21,898
<i>Well 4A Total with re-build bowls and new cable (#4, 5)</i>				\$ 29,018
<i>Well 4A Total with rebuild bowls, new cable, and all new coated column (9 pieces)</i>				\$ 51,858
1. New Pump Bowl cost not provided (approx \$15K, possible lead time)				
2. New motor cost not provided; anticipating good condition (approx \$80K for new with possible lead time)				
Well 2 Pump Replacement (pump-only)	Units	Estimated Quantity	Unit Price	Total Cost
#1 Remove Pump and Bail Oil	Lump Sum	1	\$ 3,900	\$ 3,900
#2 Video Survey	Lump Sum	1	\$ 1,100	\$ 1,100
#3 New Bowl Assembly 850 GPM @ 200 ft TDH (NSF 61 compliant)	Each	1	\$ 8,478	\$ 8,478
#4 Column Pipe 8-inch: 21 x 10-ft pcs and 2 x 5-ft pcs, non-coated	Pieces	23	\$ 540	\$ 12,420
#5 Lineshaft 416SS 1.5-inch x 220-ft and Spider Bearings (water lubricated)	Pieces	23	\$ 525	\$ 12,075
#6 Modify Discharge Head (convert oil-lube to water-lube)	Lump Sum	1	\$ 2,362	\$ 2,362
#7 Recondition Existing 100 HP Motor	Lump Sum	1	\$ 4,670	\$ 4,670
#8 Pump Installation	Lump Sum	1	\$ 4,200	\$ 4,200
#9 Pre-Lube System for Water Lubrication	Lump Sum	1	\$ 2,430	\$ 2,430
<i>Well 2 Total minimum (pump only)</i>				\$ 51,635
Optional Items	Units	Estimated Quantity	Unit Price	Total Cost
#10A Upgrade to Soft Start, Breakers and Heaters (ADD ON)	Lump Sum	1	\$ 23,649.00	\$ 23,649.00
#10 Epoxy Coated Column Pipe for NSF 61 Certified (in lieu of #4)	Pieces	23	\$ 886	\$ 20,378
#11 New Electrical Panel, Soft Start, breakers (ADD ON)	Lump Sum	1	\$ 33,460	\$ 33,460
#12 New Premium Eff. 60 HP Motor (in lieu of #7)	Lump Sum	1	\$ 6,170	\$ 6,170
#13 New Discharge Head (in lieu of #6)	Lump Sum	1	\$ 5,125	\$ 5,125
#14 Vesconite Bearing	Each	1	\$ 123	\$ 123
#14 Remove and Disponse Diesel Engine	Lump Sum	1	\$ 4,670	\$ 4,670
<i>Well 2 Total with coated column for NSF 61 compliance (#10)</i>				\$ 59,593
<i>Well 2 Total with coated column, new panel, motor, discharge head (#10, 11, 12, 13)</i>				\$ 97,316
<i>Well 2 Total with all optional items (#10, 11, 12, 13, 14)</i>				\$ 101,986

BUDGET ANALYSIS FOR WELL 4A AND WELL 2 REHAB PROJECTS

Well 4A

	Base Cost	Possible Adders	Total	Adder Assumptions
Engineering	25,530	5,000	30,530	Additional time for rehab or equipment selection
Pump Contractor	15,660	36,198	51,858	Re-build bowls, all new cable, all new column pipe, coated
Well Contractor	43,582	5,520	49,102	Extra day of cleaning and chemicals
Total	84,772	46,718	131,490	
CIP Budget	75,000		75,000	
Budget Surplus/Shortfall (+/-)	-9,772		-56,490	

Well 2

	Base Cost	Possible Adders	Total	Adder Assumptions
Engineering	0	15,000	15,000	Panel design and equipment selection
Pump Contractor	51,635	50,351	101,986	Update all for code compliance
Well Contractor	14,592	1,250	15,842	Assumes 5 add'l hours of labor for well cleaning
Total	66,227	66,601	132,828	
CIP Budget	75,000		75,000	
Budget Surplus/Shortfall (+/-)	8,773		-57,828	

Budgets combined for Well 2 and Well 4A

	Base Cost	Possible Adders	Total
Total	150,999	113,319	264,318
CIP Budgets	150,000		150,000
Budget Surplus/Shortfall (+/-)	-999		-114,318