

**Laboratory Analytical Results Summary
Mack Energy, Magpie Release**

		Sample	SB1 @ 1'	SB1 @ 3'	SB1 @ 5'	SB1 @ 10'	SB1 @ 15'	SB1 @ 20'	SB1 @ 25'
Analyte	Method	Date	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		3400	3600	2960	3120	192	96	112
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a

		Sample	SB2 @ 1'	SB2 @ 3'	SB2 @ 5'	SB2 @ 10'	SB2 @ 15'	SB2 @ 20'	SB2 @ 25'
Analyte	Method	Date	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		18200	9300	8800	816	144	112	128
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a

		Sample	SB3 @ 1'	SB3 @ 3'	SB3 @ 5'	SB3 @ 10'	SB3 @ 15'	SB3 @ 20'	SB3 @ 25'
Analyte	Method	Date	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		2960	3040	1360	992	256	144	128
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a

		Sample	SB4 @ 1'
Analyte	Method	Date	5/25/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		<0.050
Ethylbenzene	BTEX 8021B		<0.050
Total Xylenes	BTEX 8021B		<0.150
Total BTEX	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		112
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

		Sample	NORTH @ SURFACE
Analyte	Method	Date	5/25/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		0.067
Ethylbenzene	BTEX 8021B		<0.050
Total Xylenes	BTEX 8021B		<0.150
Total BTEX	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		48
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

		Sample	EAST @ SURFACE
Analyte	Method	Date	5/25/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		0.117
Ethylbenzene	BTEX 8021B		<0.050
Total Xylenes	BTEX 8021B		<0.150
Total BTEX	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		96
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

		Sample	WEST @ SURFACE
Analyte	Method	Date	5/25/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		0.064
Ethylbenzene	BTEX 8021B		<0.050
Total Xylenes	BTEX 8021B		<0.150
Total BTEX	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		64
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

		Sample	SOUTH @ SURFACE
Analyte	Method	Date	5/25/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		0.092
Ethylbenzene	BTEX 8021B		<0.050
Total Xylenes	BTEX 8021B		<0.150
Total BTEX	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		<16.0
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

Magpie Release

Legend

Sample Point



**Laboratory Analytical Results Summary
Magpie Release #2**

		Sample	SB1 @ 1'	SB1 @ 3'	SB1 @ 5'	SB1 @ 10'	SB1 @ 15'	SB1 @ 20'
Analyte	Method	Date	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	<0.050	n/a	n/a	n/a
Toluene	BTEX 8021B		0.082	<0.050	<0.050	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	<0.050	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		0.152	<0.150	<0.150	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	<0.300	n/a	n/a	n/a
Chloride	SM4500Cl-B		4720	5360	912	96	160	128
GRO	TPH 8015M		<10.0	<10.0	<10.0	n/a	n/a	n/a
DRO	TPH 8015M		82.5	12.4	<10.0	n/a	n/a	n/a

		Sample	SB2 @ 1'	SB2 @ 3'	SB2 @ 5'	SB2 @ 10'	SB2 @ 15'
Analyte	Method	Date	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a
Chloride	SM4500Cl-B		16400	1310	128	48	128
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a

		Sample	SB3 @ 1'	SB3 @ 3'	SB3 @ 5'	SB3 @ 10'	SB3 @ 15'
Analyte	Method	Date	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a
Toluene	BTEX 8021B		0.064	<0.050	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a
Chloride	SM4500Cl-B		1070	3600	176	64	64
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a

		Sample	SB4 @ 1'	SB4 @ 3'	SB4 @ 5'	SB4 @ 10'	SB4 @ 15'	SB4 @ 20'
Analyte	Method	Date	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17	5/25/17
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		0.071	<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		16000	3860	608	64	112	128
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a

		Sample	NORTH @ SURFACE
Analyte	Method	Date	5/25/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		0.145
Ethylbenzene	BTEX 8021B		<0.050
Total Xylenes	BTEX 8021B		<0.150
Total BTEX	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		<16.0
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

		Sample	EAST @ SURFACE
Analyte	Method	Date	5/25/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		<0.050
Ethylbenzene	BTEX 8021B		<0.050
Total Xylenes	BTEX 8021B		<0.150
Total BTEX	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		208
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

		Sample	WEST @ SURFACE
Analyte	Method	Date	5/25/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		<0.050
Ethylbenzene	BTEX 8021B		<0.050
Total Xylenes	BTEX 8021B		<0.150
Total BTEX	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		192
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

		Sample	SOUTH @ SURFACE
Analyte	Method	Date	5/25/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		0.071
Ethylbenzene	BTEX 8021B		<0.050
Total Xylenes	BTEX 8021B		<0.150
Total BTEX	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		240
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

Magpie Release
#2

Legend

Sample Point



Laboratory Analytical Results Summary
Mack Energy, State 35

		Sample	SP1 @ 2'	SP1 @ 7'	SP1 @ 12'	SP1 @ 17'
Analyte	Method	Date	5/24/17	5/24/17	5/24/17	5/24/17
			mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Toluene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Ethylbenzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Total Xylenes	BTEX 8021B		<0.150	<0.150	<0.150	<0.150
Total BTEX	BTEX 8021B		<0.300	<0.300	<0.300	<0.300
Chloride	SM4500Cl-B		608	576	288	192
GRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0
DRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0

		Sample	SP2 @ 2'	SP2 @ 7'	SP2 @ 12'	SP2 @ 17'
Analyte	Method	Date	5/24/17	5/24/17	5/24/17	5/24/17
			mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Toluene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Ethylbenzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Total Xylenes	BTEX 8021B		<0.150	<0.150	<0.150	<0.150
Total BTEX	BTEX 8021B		<0.300	<0.300	<0.300	<0.300
Chloride	SM4500Cl-B		336	688	192	368
GRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0
DRO	TPH 8015M		160	<10.0	<10.0	10.5

		Sample	SP3 @ 1'	SP3 @ 6'	SP3 @ 11'
Analyte	Method	Date	5/24/17	5/24/17	5/24/17
			mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	<0.050
Toluene	BTEX 8021B		<0.050	<0.050	<0.050
Ethylbenzene	BTEX 8021B		<0.050	<0.050	<0.050
Total Xylenes	BTEX 8021B		<0.150	<0.150	<0.150
Total BTEX	BTEX 8021B		<0.300	<0.300	<0.300
Chloride	SM4500Cl-B		64	400	368
GRO	TPH 8015M		<10.0	<10.0	<10.0
DRO	TPH 8015M		<10.0	<10.0	<10.0

		Sample	SP4 @ 1'	SP4 @ 7'	SP4 @ 12'
Analyte	Method	Date	5/24/17	5/24/17	5/24/17
			mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	<0.050
Toluene	BTEX 8021B		<0.050	<0.050	<0.050
Ethylbenzene	BTEX 8021B		<0.050	<0.050	<0.050
Total Xylenes	BTEX 8021B		<0.150	<0.150	<0.150
Total BTEX	BTEX 8021B		<0.300	<0.300	<0.300
Chloride	SM4500Cl-B		48	224	384
GRO	TPH 8015M		<50.0	<10.0	<10.0
DRO	TPH 8015M		194	<10.0	<10.0

		Sample	SP5 @ 1'	SP5 @ 6'	SP5 @ 11'
Analyte	Method	Date	5/24/17	5/24/17	5/24/17
			mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	<0.050
Toluene	BTEX 8021B		0.07	<0.050	<0.050
Ethylbenzene	BTEX 8021B		<0.050	<0.050	<0.050
Total Xylenes	BTEX 8021B		<0.150	<0.150	<0.150
Total BTEX	BTEX 8021B		<0.300	<0.300	<0.300
Chloride	SM4500Cl-B		64	16	32
GRO	TPH 8015M		<10.0	<10.0	<10.0
DRO	TPH 8015M		<10.0	<10.0	<10.0

		Sample	NORTH @ 1'
Analyte	Method	Date	2/8/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		<0.050
Ethylbenzene	BTEX 8021B		<0.050
Total Xylenes	BTEX 8021B		<0.150
Total BTEX	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		32
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

		Sample	SOUTH @ 1'
Analyte	Method	Date	2/8/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		<0.050
Ethylbenzene	BTEX 8021B		<0.050
Total Xylenes	BTEX 8021B		<0.150
Total BTEX	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		32
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

		Sample	EAST @ 1'
Analyte	Method	Date	2/8/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		<0.050
Ethylbenz	BTEX 8021B		<0.050
Total Xyle	BTEX 8021B		<0.150
Total BTE	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		32
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		<10.0

		Sample	WEST @ 1'
Analyte	Method	Date	2/8/17
			mg/Kg
Benzene	BTEX 8021B		<0.050
Toluene	BTEX 8021B		<0.050
Ethylbenz	BTEX 8021B		<0.050
Total Xyle	BTEX 8021B		<0.150
Total BTE	BTEX 8021B		<0.300
Chloride	SM4500Cl-B		<16.0
GRO	TPH 8015M		<10.0
DRO	TPH 8015M		61.1

Legend

 Sample Point

