KERR-MCGEE GATHERING LLC

1099 18TH STREET, SUITE 1800, DENVER, CO 80202-1918
P.O. BOX 173779 • DENVER, COLORADO 80217-3779

February 27, 2020

City of Aurora
15151 E. Alameda Parkway, Ste. 2300
Aurora, Colorado 80012

RE: Mechanical Integrity Testing – Mustang Connect Pipeline
Application Number: **DA-2207-00**
Case Number: **2019-6060-00**

Dear City of Aurora Representative:

We completed our mechanical integrity analysis on the Mustang Connect Pipeline on February 18, 2020. The results are included below. If you have any comments or concerns, please feel free to reach me at 720-929-3496.

Regards,

Aileen Yeung
Regulatory Affairs
Kerr-McGee Gathering LLC

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Mustang Connect Pipeline – Mechanical Integrity Analysis

Kerr-McGee Gathering LLC completed a mechanical integrity analysis on the Mustang Connect Pipeline on February 18, 2020. KMGG will incorporate the integrity management recommendations listed below for the pipeline.

Integrity Management *(standards to be used but are not limited to)*:

- Coatings:
  - Fusion Bonded Epoxy Coating (FBE)
    - Poly Guard RD-6 (joint welds)
  - Dual-Layer Abrasion Resistant Overcoat Fusion Bonded Epoxy (ARO)
    - Pipeline bore locations
  - Standards for application & maintenance
    - Manufactures SDS
    - PHMSA 49 CFR 192.461, 192.479, 192.481
    - NACE SPO188-2006-SG, SPO502-2010 & NACE/SSPC

- Cathodic Protection:
  - Current supplied from existing 16-73-1-20 pipeline interconnect at Wattenberg Plant
  - Standards for application & maintenance as applicable
    - PHMSA 49 CFR: 192.463, 192.465, 192.467, 192.469, 192.471, 192.473,
    - NACE SPO: 169-2013, 286-2007, 177-2014, SP21424-2018, TMO: 497-2012,1158-2015

- Internal Integrity:
  - Cleaning pig maintenance
    - Minimum of six times annually
  - Product sampling
    - During pipeline commissioning
    - Followed by three, six- or twelve-month intervals, depending on sample results
  - Standards for application & maintenance
    - PHMSA 49 CFR 192.475, 192,476, 192.477
    - NACE SPO: 110-2010, 106-2006, 206-2006, 775-2013 standards

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Soil Resistivity Test Results

Conoco Mustang Soil Testing (GPS 39.74875, -104.67850) 2.18.2020							
Direction	Resistance Ω @ 5ft	Resisitance @ 5ft (Ωcm²)	Resistance Ω @ 10ft	Resisitance @ 10ft (Ωcm²)	Resistance Ω @ 15ft	Resisitance @ 15ft (Ωcm²)	Average Resistivity (Ωcm²)
East to West	10.7	10245	3.81	7296	2.44	7009	19877.7
North to South	11	10533	3.97	7603	2.47	7095	20500.075

Soil Resistivity (ohm cm)	Corrosivity Rating
>20,000	Essentially non-corrosive
10,000 to 20,000	Mildly Corrosive
5,000 to 10,000	Moderately Corrosive
3,000 to 5,000	Corrosive
1,000 to 3,000	Highly Corrosive
<1,000	Extremely Corrosive

KMGG's soil resistivity test results indicate that the potential for external corrosion due to atmospheric influences is low. KMGG will apply the required cathodic protection to meet industry and regulatory requirements.

Current Requirements

Date:	02.20.2020					
	DATA INPUT					
Pipe Diameter:		in	8.625			
Pipe Length:		ft	7500			
Additional Areas:	16935.13	sq ft				
Coating Efficiency	99	%				
Current Density:	2	ma/sq ft				
Soil Resistivity:	19877	ohm-cm		*Current Required:*	*338.70*	*ma*
Anode Potential:	1.75	volts				
Polarized Potential:	1	volts				

Using industry standard calculations, the Mustang Connect Pipeline will require limited current requirements of .338 Amps DC to meet regulatory criteria. Access to an impressed cathodic protection system feeding the existing WES 16-73-1-20 pipeline at KMGG's Wattenberg Gas Plant will provide adequate protection for the Mustang Connect Pipeline.

Providing impressed cathodic protection from the existing 16-73-1-20 with appropriate current isolation will ensure a robust monitoring program while providing long-term integrity needs.

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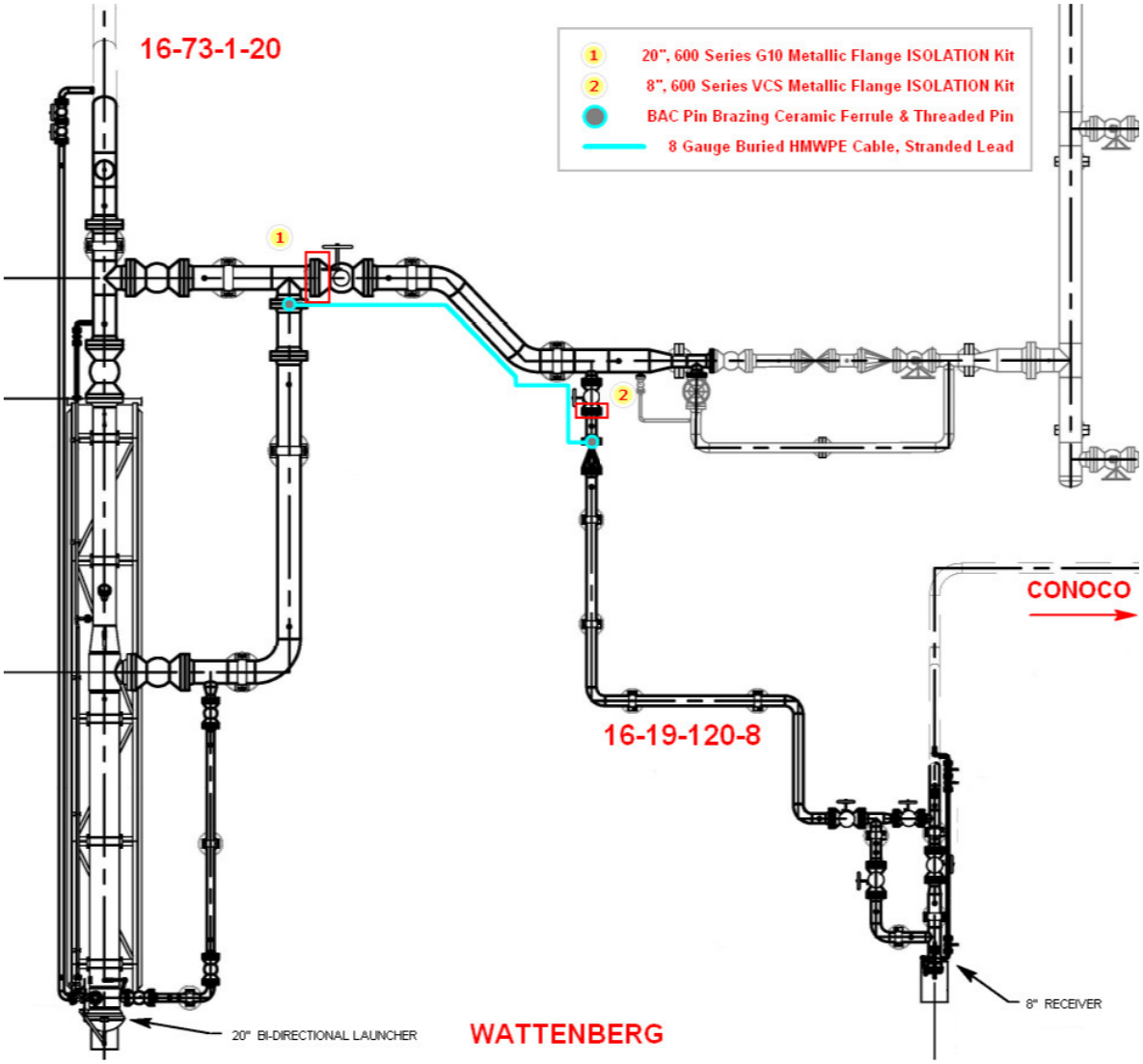
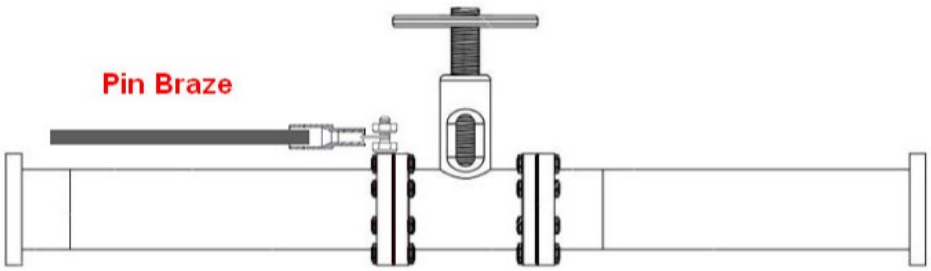
KerrMcGee

Mustang Interconnect at Wattenberg Plant





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Launcher at Conoco Facility