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Missouri Public
Service Commission

MGE ISRS PLAN (2015 – 2017)

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MGE ISRS PLAN

MGE's Infrastructure System Replacement Surcharge (ISRS) plan includes the following components (with cite to Section 393.1009 criteria):

- Main Replacements (5a)
- Encapsulation of Cast Iron Joints (5b)
- Service Line Replacements (5a)
- Public Improvements (5c)
- Regulator Station Replacement and Rebuilding Project (5a, 5b)
- Cathodic Protection – installation and replacement of rectifiers (5a)
- Integrity Verification of Transmission Lines (5b)

MAIN REPLACEMENT

Why Replace Cast Iron and Bare Steel Main?

1. Safety Replacement Programs are required by law
2. These Mains are aged and deteriorating –
 - Cast Iron was installed from mid-1800's to mid-1960's
 - Bare Steel was installed from early 1900's to early 1950's
 - The safety risk associated with continued service is no longer acceptable

Current Inventory of Main by Material (as of 12/31/13)

	Miles
Cast Iron	334
Bare Steel	1,120
Coated Protected Steel	3,607
Plastic	3,571
All Mains	8,632

MAIN REPLACEMENT

Is Aging Infrastructure an Issue Unique to Missouri?

- No, law makers, regulatory authorities and industry throughout the country have recognized the need to increase systematic replacements of cast iron and bare steel. Missouri has had replacement program requirements for these materials since 1989. Recent incidents in Allentown and Philadelphia, Pennsylvania and San Bruno, California have led to the acceleration of pipeline safety activity, including -
 - Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011
 - March 23, 2012, PHMSA Advisory Bulletin regarding cast iron
 - April 12, 2011, MoPSC Pipeline Safety Letter to PHMSA
 - April 2011, Staff Pipeline Safety Report to MoPSC

See Appendix for documents related to regulatory and industry awareness

MAIN REPLACEMENT

Historical and Projected Main Replacement Work

	2012	2013	2014	2015	2016	2017
Miles of Protected Bare Steel Eliminated	12	13	38	39	38	36
Miles of Projected Cast Iron Eliminated	5	8	13	15	26	31
Total Miles	17	21	51	54	64	67
Cost (\$ x1,000)	11,721	13,617	21,495	25,530	31,163	33,604

See Appendix for list of replacement projects and summary of risk analysis results

ENCAPSULATION OF CAST IRON JOINTS

Encapsulate cast iron bell joints on mains not scheduled for replacement

- Mandated requirement
- Extends the useful life of cast iron mains
- The number of joints encapsulated must clear 400 leaks

Historical and Projected Cast Iron Bell Joint Encapsulation Work

	2012	2013	2014	2015	2016	2017
Number of Bell Joints to be Encapsulated	1,208	1,201	1,200	1,200	1,200	1,200
Cost (\$ x1,000)	1,561	1,491	1,580	1,622	1,671	1,721

SERVICE LINE REPLACEMENT

Replacement of bare steel and other deteriorated services

- Bare steel services were installed from mid-1800's to 1950's
- 14,944 bare steel services remain (as of 9/30/13)
- Mandated requirement to replace all bare steel services by June 30, 2020

Historical and Projected Service Line Replacement Work

	2012	2013	2014	2015	2016	2017
Number of Bare Steel Services to be replaced	2,408	2,732	2,500	2,500	2,500	2,500
Cost of all Services to be Replaced (\$ x1,000)	3,601	4,069	7,724	7,959	8,198	8,444

PUBLIC IMPROVEMENTS

Provides for the relocation of company facilities due to street and highway improvement projects

Historical and Projected Public Improvement Cost

	2012	2013	2014	2015	2016	2017
Cost (\$ x1,000)	2,379	3,633	8,267	7,248	4,500	4,500

See Appendix for list of known public improvement projects

REGULATOR STATION REPLACEMENT AND REBUILDING PROJECT

Provides for the replacement or rebuilding of worn, deteriorated and obsolete regulator stations

Current number of regulator stations: 1564 (as of August 2014)

Historical and Projected Regulator Station Rebuild Cost

	2012	2013	2014	2015	2016	2017
Cost (\$ x1,000)	1,009	678	435	973	1,002	1,032

CATHODIC PROTECTION PROJECT

Provides for the installation and replacement of rectifiers to enhance the integrity and extend the life of Steel Mains

Current number of rectifiers: 190 (as of March 2014)

Historical and Projected Cathodic Protection Cost

	2012	2013	2014	2015	2016	2017
Number of Cathodic Protection Projects	6	25	17	13	12	10
Cost (\$ x1,000)	322	360	510	605	525	400

See Appendix for list of proposed rectifier and groundbed projects

INTEGRITY VERIFICATION OF TRANSMISSION LINES

Integrity Verification Projects

- Performed through hydro-testing to comply with State and Federal safety requirements
- Allows the Company to extend the useful life of transmission lines in lieu of expensive replacement of those lines to meet safety requirements

Historical and Projected Hydro-testing Projects

	2012	2013	2014	2015	2016	2017
Number of Integrity Verification Projects	2	2	0	3	2	2
Cost (\$ x1,000)	724	1,272	0	1,932	1,475	1,500

See Appendix for list of known Integrity Verification projects

SUMMARY OF ISRS PROJECTS

Historical and Projected Total ISRS Cost

	2012 (\$ x1000)	2013 (\$ x1000)	2014 (\$ x1000)	2015 (\$ x1000)	2016 (\$ x1000)	2017 (\$ x1000)
Main Replacement	11,721	13,617	21,495	25,530	31,163	33,604
Encapsulation of Cast Iron Joint	1,561	1,491	1,580	1,622	1,671	1,721
Service Line Replacement	3,601	4,069	7,724	7,959	8,198	8,444
Public Improvements	2,379	3,633	8,267	7,248	4,500	4,500
Regulator Station Rebuilds	1,009	678	435	973	1,002	1,032
Cathodic Protection	322	360	510	605	525	400
Integrity Verification Projects	724	1,272	0	1,932	1,475	1,500
Total	21,317	25,120	40,011	45,869	48,534	51,201

APPENDIX

Main Replacement

Replacement Projects

- [2015 Main Replacement Projects](#)
- [2016 Main Replacement Projects](#)
- [2017 Main Replacement Projects](#)

DIMP Risk Analysis Summary Results

- [Central Risk Analysis](#)
- [St Joe Risk Analysis](#)
- [Lee's Summit Risk Analysis – area 1](#)
- [Lee's Summit Risk Analysis – area 2](#)
- [Joplin Risk Analysis](#)
- [Monett Risk Analysis – area 1](#)
- [Monett Risk Analysis – area 2](#)

Regulatory and Industry Awareness

- [MoPSC Pipeline Safety Letter to PHMSA](#)
- [Staff Pipeline Safety Report to MoPSC](#)
- [Cast Iron Advisor Bulletin](#)
- [AGA Paper](#)
- [Governor Letters](#)
- [State Letter from Administrator](#)
- [Industry Letter for Administrator](#)
- [PHMSA](#)
- [Pipeline \(H. R. 2845\)](#)
- [Pipeline Safety Update](#)

APPENDIX

Public Improvements

- [Public Improvement Projects](#)

Cathodic Protection and Integrity Verification

- [Cathodic Protection and Integrity Verification Projects](#)