

BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

Received
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by
State Corporation Commission
of Kansas

In the Matter of the Application of Black Hills/)
Kansas Gas Utility Company, LLC, d/b/a Black)
Hills Energy, For Approval of the Commission) Docket No. 12-BHCG-055-TAR
For Gas System Reliability Surcharge Per K.S.A.)
6-2201 through 66-2204)

DIRECT TESTIMONY OF JERRY A. WATKINS

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. My name is Jerry A. Watkins, and my business address is 2330 N. Hoover, Wichita,
3 Kansas 67205.

4

5 Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

6 A. I am employed by Black Hills/Kansas Gas Utility Company, LLC, d/b/a Black Hills
7 Energy ("Black Hills") as Senior Manager of Technical Services for
8 Kansas/Colorado. In this capacity, I provide support and technical assistance for the
9 management of operational and financial performance of Black Hills' natural gas
10 distribution and transmission assets in Kansas and Colorado.

11

12 Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND BUSINESS
13 EXPERIENCE.

1 A. I earned an Associates of General Studies degree from Friends University in 2008. I
2 have completed several courses at the Wichita State University including a
3 Management Certificate from the W. Frank Barton School of Business. I have
4 completed numerous courses related to natural gas technical operations sponsored by
5 Black Hills and various industry organizations. Since joining the Arkansas Louisiana
6 Gas Company in 1981, I have worked in the natural gas industry and held several
7 operational positions. Included in the positions I have held, were those of Utility
8 Service Technician, Operations Foreman, Lead Operations Technician, Wellhead
9 Supply Representative, Operations Supervisor, Operations Manager and my current
10 position as Senior Manager of Gas Technical Services.

11

12 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

13 A. The purpose of my testimony is to support the eligibility of infrastructure system
14 replacement projects and safety related projects included in Black Hills' proposed
15 Gas System Reliability Surcharge (GSRS.) In addition to my testimony, Mr. Steven
16 Peters provides direct testimony on the calculation of the GSRS revenue and the
17 surcharge amounts by customer class.

18

19 Q. ARE YOU SPONSORING ANY EXHIBITS?

20 A. Yes. I am sponsoring Exhibits JAW-1, JAW-2, and JAW-3. Exhibit JAW-1 is an
21 index of the projects being included in this proposal. Exhibit JAW-2 is a more
22 detailed summary of the projects. Exhibit JAW-3 is the supporting documentation

1 for the specific projects and has been designated by Black Hills as containing
2 confidential information.

3
4 Q. PLEASE BRIEFLY DESCRIBE BLACK HILLS' KANSAS GAS OPERATIONS.

5 A. Black Hills serves approximately 108,000 customers in 66 communities and in 35
6 surrounding counties in Kansas. Operation centers are located in the major cities and
7 towns served by Black Hills which include Lawrence, Wichita, Garden City, Dodge
8 City, Liberal, and Goodland. Black Hills currently operates approximately 283 miles
9 of transmission lines, 2,582 mile of distribution lines, and 97,720 services lines in
10 Kansas.

11
12 Q. WHAT TYPES OF PROJECTS ARE INCLUDED IN BLACK HILLS' GSRS
13 PROPOSAL?

14 A. Exhibit JAW-1 summarizes the projects being included in this GSRS proposal.
15 There are two groups of projects being submitted. The first group is comprised of
16 specific safety related system replacement projects and blanket work orders. The
17 second group consists of governmentally mandated road relocation projects which
18 have not been reimbursed to the natural gas utility. All of these types of projects are
19 eligible for inclusion in a GSRS proposal.

20
21 Q. WHAT IS THE INCLUSION CRITERIA FOR THE SAFETY RELATED SYSTEM
22 REPLACEMENT PROJECTS?

1 A. The inclusion criteria for the safety related projects, according to K.S.A. 66-2202, is
2 as follows: “(1) Mains, valves, service lines, regulator stations, vaults and other
3 pipeline system components installed to comply with state or federal safety
4 requirements as replacements for existing facilities; (2) Main relining projects,
5 service line insertion projects, joint encapsulation projects and other similar projects
6 extending the useful life or enhancing the integrity of pipeline system components
7 undertaken to comply with state or federal safety requirements.”
8

9 Q. REGARDING GOVERNMENT MANDATED ROAD RELOCATIONS, WHAT IS
10 THE INCLUSION CRITERIA FOR THESE PROJECTS?

11 A. The inclusion criteria for the road relocation projects, according to K.S.A. 66-2202,
12 is as follows: “Facility relocations required due to construction or improvement of a
13 highway, road, street, public right of way or other public work by or on behalf of the
14 United States, this state, a political subdivision of this state or another entity having
15 the power of eminent domain provided that the costs related to such projects have not
16 been reimbursed to the natural gas utility.”
17

18 Q. ARE PROJECTS OTHER THAN SAFETY RELATED AND GOVERNMENT
19 MANDATED ROAD RELOCATIONS MEETING THE INCLUSION CRITERIA
20 LISTED ABOVE BEING INCLUDED IN THE GSRS PETITION?

21 A. No. Only projects meeting the two criteria previously mentioned are being submitted
22 for consideration in this filing.

1 Q. CAN YOU EXPLAIN WHAT BLANKET WORK ORDERS WERE INCLUDED
2 IN THE FILING?

3 A. Black Hills uses blanket work orders for smaller projects. Blanket work orders can
4 include projects for system improvements, new customers, leasehold improvements,
5 and other general plant. However, only system improvement blankets have been
6 included in this filing. System improvement blanket work orders include short
7 distribution main, service line and yard line replacement projects. These types of
8 projects typically eliminate leaking pipe and normally require immediate
9 replacement. Projects included in this blanket are required to be less than \$10,000,
10 but are normally less than \$5,000. Replacement lengths are typically less than 100'
11 per project. The projects included in this filing are from January of 2007 through
12 December of 2010. Blanket work orders have not been included in any of the
13 previous GSRS filings.

14
15 Q. WHAT REGULATIONS WERE REFERENCED IN DETERMINING SAFETY
16 RELATED PROJECT INCLUSION?

17 A. The referenced regulations are contained in 49 CFR Part 192, Transportation of
18 Natural and Other Gas by Pipeline: Minimum Federal Safety Standards.

19
20 Q. HOW DOES 192.453 PERTAIN TO THE GSRS FILING?

21 A. Paragraph (c) of the Kansas regulation requires operators to replace all unprotected
22 bare steel service lines in a defined area once 25% of the service lines in the area
23 have experienced leaks due to corrosion.

1

2 Q. HOW DOES 192.465 PERTAIN TO THE GSRS FILING?

3 A. The regulation requires operators to monitor cathodic protection rectifier facilities
4 and to begin corrective measures within 30 days when deficiencies are found by such
5 monitoring. Black Hills Energy replaced a depleted cathodic protection ground bed
6 as a result of this monitoring and subsequent deficiency.

7

8 Q. HOW DOES 192.485 PERTAIN TO THE GSRS FILING?

9 A. The regulation requires an operator to repair, replace, or reduce the operating
10 pressure of a pipeline if localized pitting is found to a degree where leakage might
11 result. Black Hills Energy replaced those sections of main or transmission line that
12 had localized pitting corrosion or leakage due to localized corrosion.

13

14 Q. HOW DOES 192.487 PERTAIN TO THE GSRS FILING?

15 A. The regulation requires an operator to repair, replace, or reduce the operating
16 pressure of a pipeline if localized pitting is found to a degree where leakage might
17 result. Black Hills Energy replaced those sections of main or distribution line that
18 had localized pitting corrosion or leakage due to localized corrosion.

19

20 Q. HOW DOES 192.605 PERTAIN TO THE GSRS FILING?

21 A. The regulation requires operators to prepare and follow a manual of written
22 procedures for conducting operations and maintenance activities. Black Hills Energy

1 follows this manual to identify and correct deficiencies within its system. Such
2 deficiencies include pressure drop, gas quality, leak repairs and exposed lines.

3

4 Q. HOW DOES 192.613 PERTAIN TO THE GSRS FILING?

5 A. Continuing surveillance requires an operator to examine their system on an ongoing
6 basis to determine and take appropriate action concerning changes in unusual
7 operating conditions.

8

9 Q. HOW DOES 192.625 PERTAIN TO THE GSRS FILING?

10 A. The regulation requires operators to odorize its lines so gas is readily detectable by a
11 person with a normal sense of smell. Paragraph (e) states that odorant must be
12 introduced without wide variations in the level of odorant. Black Hills Energy
13 replaced antiquated equipment to properly manage these variations.

14

15 Q. HOW DOES 192.739 PERTAIN TO THE GSRS FILING?

16 A. The regulation requires operators to inspect and test regulators and relief devices
17 annually to ensure they are in good mechanical condition. Black Hills Energy
18 replaced a large regulator as result of this inspection.

19

20 Q DOES BLACK HILLS UTILIZE A SYSTEM TO PRIORITIZE WHICH PIPE
21 SEGMENTS REQUIRE REMEDIAL ACTIONS?

22 A. Yes, Black Hills uses a repair/replacement program for its long term pipe
23 replacements to rank projects utilizing a points system. An order of priority is given

1 based on such factors including leak history, age of facility, proximity to the public,
2 and several others. A Repair/Replacement Worksheet is completed to determine the
3 replacement priority by a point system. This program is for long term pipe
4 replacements and is not used for emergency situations.

5
6 Q. ONCE IT IS DETERMINED THAT A PIPE SEGMENT REQUIRES REMEDIAL
7 MEASURES, HOW DOES BLACK HILLS DETERMINE WHETHER THE
8 SEGMENT SHOULD BE REPAIRED OR REPLACED?

9 A. Black Hills examines several factors on whether a segment should be repaired or
10 replaced. In the projects submitted in our GSRS, pipe segments were replaced due to
11 the existing pipe segment being of unapproved material, vintage of pipe, and
12 historical leaks.

13
14 Q. WHAT IS UNAPPROVED MATERIAL?

15 A. Unapproved material is defined as material not tested per a recognized standard in
16 Subpart A of 49 CFR Part 192, not approved for use by a specific section of the code,
17 or not approved by Black Hills material standards. This can include cast iron, bare
18 steel and polyvinyl chloride (PVC) pipe.

19
20 Q. HAVE YOU REVEIUED THE PROJECTS INCLUDED IN THE CURRENT
21 GSRS FILING TO DETERMINE WHETHER THE FILING COMPLIES WITH
22 THE PROVISIONS OF THE STIPULATION AND AGREEMENT (“S&A”)
23 DATED JANUARY 31, 2008 IN DOCKET NO. 07-BHCG-1063-ACQ (“1063

1 DOCKET) RELATING TO BLACK HILLS' FUTURE GSRS FILINGS WITH THE
2 KANSAS CORPORATION COMMISSION ("COMMISSION")?

3 A. Yes, I have. Article IX of the S&A in the 1063 Docket limited Black Hills' GSRS
4 filings during the rate case moratorium to projects defined under Section (f)(1) and
5 (f)(3) under K.S.A. 66-2202. All projects in the current filing fall under either K.S.A.
6 66-2202(f)(1) or (f)(3). Therefore, the current GSRS filing complies with the
7 provisions of the S&A in the 1063 Docket.

8

9 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

10 A. Yes it does.

VERIFICATION

STATE OF KANSAS)
) ss:
COUNTY OF SEDGWICK)

I, JERRY A. WATKINS, being first duly sworn on oath, depose and state that I am the witness identified in the foregoing prepared direct testimony, that I have read the testimony and I am familiar with its contents, and that the facts set forth are true to the best of my knowledge, information and belief.



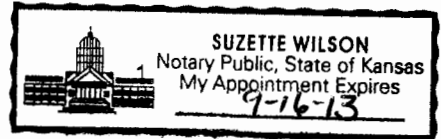
Jerry A. Watkins

SUBSCRIBED AND SWORN to before me this 14th day of July, 2011.



Notary Public

Appointment/Commission Expires: 9-16-13



**Black Hills/Kansas Gas Utility Company, LLC
d/b/a Black Hills Energy**

Safety Related Project Index Summary

Project No.	Location	Project Description	Work Order Number	Retirement WO Number	Complete Date	Compliance Issue
1	Dodge City	Avenue A & Commanche Main Replacement	60014270		8/12/2010	192.487, 192.613
2	Dodge City	Avenue A & Commanche Service Replacement	10028397		8/12/2010	192.453, 192.613
3	Dodge City	Hart & Arapahoe Main Replacement	60015665		4/30/2010	192.487, 192.613
4	Dodge City	Hart & Arapahoe Service Replacement	10028185		4/30/2010	192.453, 192.613
5	Dodge City	East Wyatt Earp Main Replacement	60015684		4/5/2010	192.487, 192.613
6	Dodge City	Howell PVC Replacement	60016278		1/7/2011	192.487, 192.613
7	Dodge City	DRS #40 Pressure Upgrade	60016870		10/19/2010	192.605, 192.613
8	Garden City	Taylor St. Main Replacement	60016537		10/15/2010	192.487, 192.613
9	Garden City	Taylor St. Service Line Replacements	10028525		9/29/2010	192.453, 192.613
10	Garden City	Pony to Kansas Main Replacement	60016794		8/30/2010	192.487, 192.613
11	Garden City	East Fulton Main Replacement	60017011		11/2/2010	192.487, 192.613
12	Garden City	N. St. John, 12th to 13th Main Replacement	60016878		9/10/2010	192.487, 192.613
13	Garden City	West Fulton Main Replacement	60015780		8/23/2010	192.487, 192.613
14	Garden City	N. Hackberry, 6th & 7th Main Replacement	60017029		10/11/2010	192.487, 192.613
15	Goodland	1223 Cherry Main Replacement	60016412	60016413	6/17/2010	192.487, 192.613
16	Goodland	Road 21 & Road D Main Replacement	60017189		12/22/2010	192.487, 192.613
17	Goodland	9th & 10th Main Replacement	60016676		10/13/2010	192.487, 192.613
18	Lawrence	Rockledge Rd, Crestline Dr, Madeline Ln, Murrow Ct & W. 9th St Main Replacement	60016068	60016069	7/2/2010	192.487, 192.613
19	Lawrence	Murphy Dr, north of W. 24th St Main Replacement Miller Acres Subdivision & N. Iowa St Main Replacement	60016595	60016596	7/13/2010	192.487, 192.613
20	Lawrence	Replacement	60016649	60016650	11/19/2010	192.487, 192.613
21	Copeland/Liberal	Hwy 56 & Tice Main Replacement	60016352		2/24/2011	192.487, 192.613
22	Elkhart	Morton and Border Main Replacement	60016295		03/05/201	192.487, 192.613
23	Fowler	Fowler Odorizer Replacement	10028376		12/17/2010	192.625, 192.613
24	Hugoton	204 E 8th Main Replacement	60016644		7/15/2010	192.487, 192.613
25	Hugoton	Hugoton PVC Replacement	60015663		7/13/2010	192.487, 192.613
26	Hugoton	Hugoton PVC Service Line Replacement	10028430		7/13/2010	192.453, 192.613
27	Hugoton	Hugoton DRS and Odorizer Replacement	60016891		11/22/2010	192.625, 192.739, 192.613
28	Liberal	Jordan and 2nd Main Replacement	60016683		8/6/2010	192.487, 192.613
29	Liberal	Pancake and Pershing Main Replacement	60016580		6/17/2010	192.487, 192.613
30	Liberal	Missouri and Calvert Main Replacement	60016458		4/30/2010	192.487, 192.613
31	Liberal	5th and Sherman Main Replacement	60016642		7/20/2010	192.487, 192.613
32	Liberal	10th and Sherman Main Replacement	60016390		4/9/2010	192.487, 192.613
33	Liberal	Carpenter Drive Main Replacement	60016433		4/20/2010	192.487, 192.613
34	Liberal	DRS 3 Upgrade	10028381		5/27/2010	192.739, 192.613

**Black Hills/Kansas Gas Utility Company, LLC
d/b/a Black Hills Energy**

Safety Related Project Index Summary

Project No.	Location	Project Description	Work Order Number	Retirement WO Number	Complete Date	Compliance Issue
35	Liberal	Garrettsville Phase 2 Main Replacement	60016453		5/13/2010	192.487, 192.613
36	Liberal	Garrettsville Service Line Replacement	10028393		5/13/2010	192.453, 192.613
37	Meade	Meade TBS Line Main Replacement	60016640		8/10/2010	192.487, 192.613
38	Meade	Botkon and West Plains Main Replacement	60016856		9/15/2010	192.487, 192.613
39	Rolla	Rolla Loop Lines	60016282		2/26/2010	192.605, 192.613
40	Satanta	Piute and Tonkawa Main Replacement	60016274		3/2/2010	192.487, 192.613
41	Satanta	Omaha and Cherokee Main Replacement	60017067		10/25/2010	192.487, 192.613
42	Andale	Andale Deep Well Anode Bed Replacement	10028196	10028197	9/2/2010	192.465, 192.613
43	Colwich	Wichita & W 6th Main Replacement	60016258	60016259	4/23/2010	192.487, 192.613
44	Hutchinson	Hendricks & 4th Main Replacement	60016300	60016301	5/24/2010	192.487, 192.613
45	Hutchinson	Hendricks & 4th Service Replacement	10028239	10028240	8/26/2010	192.453, 192.613
46	Hutchinson	McNew Road Odorizer Replacement	10028194	10028295	6/18/2010	192.625, 192.613
47	Hutchinson	Hutchinson Deep Well Anode Bed Replacement	10028204	10028205	9/2/2010	192.465, 192.613
48	Hutchinson	Obeeville 25% Bare Service Replacement	10040013		10/1/2010	192.453, 192.613
49	Hutchinson	Ave G Road Crossing Main Replacement	10040433		12/17/2010	192.485, 192.613
50	Little River	Little River Main Replacement	10028245	10028246	12/15/2010	192.485, 192.613
51	Lyons	Tobias Junction Main Replacement	10041284		3/2/2011	192.485, 192.613
52	Norwich	Main & Burns Main Replacement	60017462		3/9/2011	192.487, 192.613
53	Peck	Ave D & 119th Main Replacement	60016297	60016298	5/24/2010	192.487, 192.613
54	Sterling	Sterling TBS Upgrade	10028476	10028477	12/15/2010	192.739, 192.613
55	Wellington	Wellington Main Replacement	10028407	10028408	9/30/2010	192.485, 192.613
56	Wichita	Coolidge & 11th Main Replacement	60016283	60016284	4/19/2010	192.487, 192.613
57	Wichita	Meridian & 14th Main Replacement	60016174	60016175	4/23/2010	192.487, 192.613
58	Wichita	100 Block N Hoover Main Replacement	60016290	60016291	5/24/2010	192.487, 192.613
59	Wichita	Hieserman & 17th Main Replacement	60016285	60016286	5/24/2010	192.487, 192.613
60	Wichita	Burns & 17th Main Replacement	60016499	6016500	7/22/2010	192.487, 192.613
61	Wichita	Anna - 9th to Elm Service Replacement	10027600	10027601	8/24/2010	192.453, 192.613
62	Wichita	Sheridan - 16th to 18th Main Replacement	60016608		9/16/2010	192.487, 192.613
63	Wichita	Sheridan - 16th to 18th Service Replacement	10028545	1028550	9/30/2010	192.453, 192.613
64	Wichita	Wichita STBS Regulator Upgrade	10027419	10027420	12/6/2010	192.739, 192.613
65	Wichita	12th St DRS Regulator Replacement	10027464	10027465	12/6/2010	192.739, 192.613
66	Wichita	Clara & 2nd Main Replacment	60017407		3/17/2011	192.487, 192.613
67	Wichita	Wichita 25 % Bare Service Replacment	10028269	10028270	3/17/2011	192.453, 192.613
68	Winfield	Line 27 Main Replacement	10028261	10028262	9/2/2010	192.487, 192.613
69	Various	Blanket Replacement Main	5215...111		12/31/2010	192.487, 192.613
70	Various	Blanket Replacement Services	5215...113		12/31/2010	192.453, 192.613

**Black Hills/Kansas Gas Utility Company, LLC
d/b/a Black Hills Energy**

Relocation Project Index Summary

Project No.	Location	Project Description	Work Order Number	Retirement WO Number	Complete Date	State/Federal or Local project
1	Dodge City	Cimarron Highway 50 Relocate	60016305		5/30/2010	State
2	Dodge City	Bike Pedestrian Trail	60016992		10/30/2010	Local
3	Goodland	Road 80 & Road 14, Sherman County Bridge Relocation	60017075		11/1/2010	Local
4	Lawrence	Kasold Dr, between W. 24th & W. 31st St	60016712		11/16/2010	State
5	Fowler	Fowler Hwy 98 Relocation	60015659	60015660	3/10/2010	State
6	Liberal	Western Ave Road & Drainage Relocation	60016350		4/20/2010	Local
7	Nickerson	Ave B & Nickerson Blvd Sewer Replacement	60017257		3/17/2011	Local
8	Sterling	Sterling High School Project	60016243		7/14/2010	Local
9	Wichita	Ridge & 45th St N Street Improvement	60016355	60016356	4/22/2010	Local
10	Wichita	Franklin - Arapaho to Gilda Street Improvement	60016054	60016055	4/23/2010	Local
11	Wichita	Franklin - Arapaho to Gilda Services	10027632	10027633	9/1/2010	Local
12	Wichita	Fairway & Shade Storm Sewer Improvement	60016265	60016266	4/23/2010	Local
13	Wichita	Emerald Bay Estates Street Improvement	60016293	60016294	4/23/2010	Local
14	Wichita	Harry & Hydraulic Storm Sewer	60016734		9/16/2010	Local
15	Wichita	47 ST S - Meridian to Seneca Street Improvement	60016776		10/20/2010	Local
16	Wichita	Madison & Pike Sewer Line Project	60017356		3/17/2011	Local

SUMMARY OF SAFETY RELATED & RELOCATION PROJECTS

Safety Related Projects

- Project summary includes the primary and, where applicable, a secondary, complimentary regulation requirement (49 CFR Part 192 and Kansas Administrative Regulation (K.A.R.)) that mandated replacement or other action.
- Yard Lines: Black Hills’ policy regarding yard line replacement complies with 192.453 General. (K.A.R. 82-11-4(k)). Additionally, upon repair of a leak where the cause was undetermined, it is documented to be corrosion, to be the most conservative in terms of more quickly triggering replacement in an area and as per KCC Pipeline Safety Staff’s guidance.
- Transmission & Distribution Replacement Program: Black Hills’ policy regarding a repair/replacement program complies with 192.465 External corrosion controls: Monitoring. (K.A.R. 82-11-4(q)). More specifically, Black Hills’ Repair/Replacement Program is prioritized by leak history, segment material, leak potential, and potential hazard that leaks may cause. Systems are divided into segments (over 500 ft but less than 5,280 ft of the same material and age) and evaluated to determine a replacement priority by a point system. The minimum point threshold for main replacements in Kansas is 500 points. Main segments rated below 500 points may be replaced at Black Hills’ discretion based on additional safety factors and/or business considerations.

➤ **Project Summaries (Safety Related)**

<p>SR-1- Avenue A & Comanche Main Replacement</p> <p>This replacement project eliminated 1,080’ of 4” bare steel main that was installed prior to 1950. Records indicate that the line was under the street and had a history of localized corrosion and pitting. The line was also considered to be Low Frequency ERW pipe with seam corrosion present. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 1,080’ of 4” and 76’ of 2” PE pipe. The line tied into 4”coated steel at each end of the project.</p> <p>Repair/Replacement Program points for this segment of line were 400.</p>
<p>SR-2 - Avenue A & Comanche Service Replacement</p> <p>In conjunction with the above noted main replacement (SR-1), 13 service lines were either replaced or tied over to the new main. All bare steel service or yard lines were replaced with ½” PE pipe.</p>
<p>SR-3 – Hart & Arapahoe Main Replacement</p> <p>This replacement project eliminated 709’ of 4” and 739’ of 2” bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe</p>

<p>over the past five years. The line was also located under the street and had a history of localized corrosion and pitting. Seam corrosion was also noted. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 709' of 4" and 739' of 2" PE pipe. The line tied into 4" PE and 4" & 2" steel at each end of the project.</p> <p>Repair/Replacement Program points for this segment of line were 400.</p>
<p>SR-4- Hart & Arapahoe Service Replacement</p> <p>In conjunction with the above noted main replacement (SR-3), 27 service lines were either replaced or tied over to the new main. All bare steel service or yard lines were replaced with 1/2" PE pipe.</p>
<p>SR-5 – East Wyatt Earp Main Replacement</p> <p>This replacement project eliminated 1,371' of 2" PVC main. Records indicate that two leaks were repaired on this section of pipe over the past five years. The line was also non-locatable and under concrete next to a busy truck stop. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 1,371' of 2" PE pipe. The line tied into 2" steel at each end of the project.</p> <p>Repair/Replacement Program points for this segment of line were 360.</p>
<p>SR-6 –Howell PVC Main Replacement</p> <p>This replacement project eliminated 24,175' of 4" PVC main. Records indicate that six leaks were repaired on this section of pipe over the past five years. The line was also non-locatable, ran parallel to railroad tracks and operated at 60 psi. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 24,175' of 4" PE pipe. The line tied into 4" steel at each end of the project.</p> <p>Repair/Replacement Program points for this segment of line were 350.</p>
<p>SR-7- DRS 40 Pressure Upgrade</p> <p>A new DRS and connecting mains were installed because of low pressure problems experienced in the northern part of Dodge City. BHE installed 207' of 6", 50' of 4" and 266' of 2" PE pipe to help maintain pressure in this area.</p>
<p>SR-8 Taylor St. Main Replacement</p> <p>This replacement project eliminated 1,368' of 4" bare steel main that was installed prior to 1950. Records indicate that two leaks were repaired on this section of pipe over the past five</p>

years. The line was also located under the street and had a history of localized corrosion and pitting. During the investigation numerous previously installed repair clamps were also found. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 1,495' of 4" and 79' of 2" PE pipe. The line tied into 4" PE and 4" & 2" steel at each end of the project.

Repair/Replacement Program points for this segment of line were 350.

SR-9 Taylor Service Line Replacement

In conjunction with the above noted main replacement (SR-8), 28 service lines were either replaced or tied over to the new main. All bare steel service or yard lines were replaced with 1/2" PE pipe.

SR-10 Pony to Kansas Main Replacement

This replacement project eliminated 275' of 2" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. Additionally, portions of the main were located under hard surface material. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 271' of 2" PE pipe. The line tied into 2" coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 320.

SR-11 East Fulton Main Replacement

This replacement project eliminated 891' of 4" bare steel main that was installed prior to 1950. Records indicate that two leaks were repaired on this section of pipe over the past five years. Additionally, the main was located under hard surface material. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 906' of 4" PE pipe. The line tied into 4" PE and 4" steel.

Repair/Replacement Program points for this segment of line were 390.

SR-12 N. St John, 12th to 13th Main Replacement

This replacement project eliminated 213' of 2" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. Additionally, portions of the main were located under hard surface material. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated

steel or PE pipe. The line was replaced with 215' of 2" PE pipe. The line tied into 2" PE and coated steel.

Repair/Replacement Program points for this segment of line were 320.

SR-13 West Fulton Main Replacement

This replacement project eliminated 800' of 8" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The line was also located under the street and was noted to be Low Frequency ERW. During the investigation numerous previously installed repair clamps were also found. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 764' of 4" PE pipe. The line tied into 4" coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 320.

SR-14 N. Hackberry 6th & 7th Main Replacement

This replacement project eliminated 209' of 4" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The line was also located under the street and was noted to be Low Frequency ERW. During the investigation numerous previously installed repair clamps were also found. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 196' of 4" PE pipe. The line tied into 4" coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 320.

SR-15 1223 Cherry Main Replacement

This replacement project eliminated 580' of 4" and 312' of 2" bare steel main that was installed prior to 1950. Records indicate that five leaks were repaired on this section of pipe over the past five years. The line was also located under hard surface material. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 580' of 4" and 312' of 2" PE pipe. The line tied into 4" PE and steel at each end of the project.

Repair/Replacement Program points for this segment of line were 520.

SR-16 RD 21 and Rd D Main Replacement

This replacement project eliminated 6,970' of 2" PVC main. Records indicate that twenty leaks were repaired on this section of pipe over the past five years. The line was also non-

locatable. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 6,970' of 2" PE pipe. The line tied into 2" PVC at each end of the project.

Repair/Replacement Program points for this segment of line were 480.

SR-17 9th & 10th Main Replacement

This replacement project eliminated 1,665' of 2" bare steel main that was installed prior to 1950. Records indicate that thirteen leaks were repaired on this section of pipe over the past five years. Portions of the line were also located under the street and were noted to have seam corrosion. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 1,665' of 2" PE pipe. The line tied into 2" steel at each end of the project.

Repair/Replacement Program points for this segment of line were 620.

SR-18 Rockledge Rd, Crestline Dr, Madeline Ln, Murrow Ct & W. 9th St Main Replacement

This replacement project eliminated 1,300' of 4" and 2,000' of 2" bare steel main that was installed prior to 1950. Records indicate that two leaks were repaired on this section of pipe over the past five years. Additional leak history shows 25 leaks were repaired outside the five year window. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 3,557' of 2" PE pipe. The line tied into 2" PE at each end of the project.

Repair/Replacement Program points for this segment of line were 400.

SR-19 Murphy Dr, north of W. 24th St Main Replacement

This replacement project eliminated 309' of 2" bare steel dresser coupled main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. Portions of the line were also located under the street. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 309' of 2" PE pipe. The line tied into 2" PE at each end of the project.

Repair/Replacement Program points for this segment of line were 350.

<p>SR-20 Miller Acres Subdivision & N. Iowa St Main Replacement</p> <p>This replacement project eliminated 4,170' of 2" and 1,542' of 2" steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. Additional leak history shows 3 leaks were repaired outside the five year window. A lack of drainage improvements in this area had also caused erosion, exposing the main and taps in several locations. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 5,712' of 2" PE pipe. The line tied into 2" PE at each end of the project.</p> <p>Repair/Replacement Program points for this segment of line were 330.</p>
<p>SR-21 Highway 56 & Tice Main Replacement</p> <p>This replacement project eliminated 536' of 3" and 86' of 2" bare steel main that was installed prior to 1950. Records indicate that three leaks were repaired on this section of pipe over the past five years. Portions of the line were also located under the street. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 444' of 4" coated steel, 167' of 4" PE and 40' of 2" PE pipe. The line tied into 4" & 2" coated steel and 2" steel at each end of the project.</p> <p>Repair/Replacement Program points for this segment of line were 330.</p>
<p>SR-22 Morton and Border Main Replacement</p> <p>This replacement project eliminated 168' of 2" coated steel main that was installed prior to 1970. Records indicate that one leak was repaired on this section of pipe over the past five years. This line was located under concrete. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 186' of 2" PE pipe. The line tied into 2" coated steel at each end of the project.</p> <p>Repair/Replacement Program points for this segment of line were 270.</p>
<p>SR-23 Fowler Odorizer Replacement</p> <p>Replaced underground bypass odorizer with Preco pulse bypass with adjustable pulse bottle. The odorizer was originally installed prior to 1975, and was beginning to introduce odorant in wide variations. The odorizer serves approximately 282 customers in the city of Fowler.</p>
<p>SR-24 204 E 8th Main Replacement</p> <p>This replacement project eliminated 18' of 2" coated steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was</p>

utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 18' of 2" PE pipe. The line tied into 2" coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 330.

SR-25 Hugoton PVC Replacement

This replacement project eliminated the remaining 4,554' of 2" PVC main in the City of Hugoton. Records indicate that five leaks were repaired on this section of pipe over the past five years. The line was also non-locatable. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 4,554' of 2" PE pipe. The line tied into 2" PE and coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 400.

SR-26 Hugoton PVC Service Line Replacement

In conjunction with the above noted main replacement (SR-25), 48 service lines were either replaced or tied over to the new main. All bare steel and PVC service or yard lines were replaced with 1/2" and 1" PE pipe.

SR-27 Hugoton DRS and Odorizer Replacement

This replacement eliminated one old DRS setting and replaced it with two standard monitor type settings which serve the town of Hugoton.

Replaced underground bypass odorizer with Preco pulse bypass with adjustable pulse bottle. The odorizer was originally installed prior to 1975, and was beginning to introduce odorant in wide variations. The odorizer serves approximately 828 customers in the city of Hugoton.

SR-28 Jordan and 2nd Main Replacement

This replacement project eliminated 40' of 6" and 85' of 4" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. Portions of the line were also located under the street. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 125' of 4" PE pipe. The line tied into 4" PE and 6" steel at each end of the project.

Repair/Replacement Program points for this segment of line were 350.

SR-29 Pancake and Pershing Main Replacement

This replacement project eliminated 375' of 3" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem

area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 375' of 4" PE pipe. The line tied into 4" PE at each end of the project.

Repair/Replacement Program points for this segment of line were 370.

SR-30 Missouri and Calvert Main Replacement

This replacement project eliminated 130' of 4" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 130' of 4" PE pipe. The line tied into 4" steel and 3" coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 330.

SR-31 5th and Sherman Main Replacement

This replacement project eliminated 273' of 4" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 273' of 4" PE pipe. The line tied into 4" steel at each end of the project.

Repair/Replacement Program points for this segment of line were 330.

SR-32 10th and Sherman Main Replacement

This replacement project eliminated 95' of 2" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 95' of 2" PE pipe. The line tied into 2" steel at each end of the project.

Repair/Replacement Program points for this segment of line were 330.

SR-33 Carpenter Drive Main Replacement

This replacement project eliminated 100' of 1¼" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was

utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 100' of 2" PE pipe. The line tied into 1¼" steel at each end of the project.

Repair/Replacement Program points for this segment of line were 310.

SR-34 DRS 3 Upgrade

This replacement eliminated one old DRS and replaced it with a standard monitor type setting. The outdated regulator had set point and lockup problems during the annual inspection. This station provides service to the Liberal low pressure system.

SR-35 Garrettsville Phase 2 Main Replacement

This replacement project eliminated 3,270' of 3" bare steel main that was installed prior to 1950. Records indicate that two leaks were repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 3,270' of 4" PE pipe. The line tied into 4" PE at each end of the project.

Repair/Replacement Program points for this segment of line were 350.

SR-36 Garrettsville Service Line Replacement

In conjunction with the above noted main replacement (SR-35), 14 service lines were either replaced or tied over to the new main. All bare steel service or yard lines were replaced with ½" PE pipe.

SR-37 Meade TBS Line Main Replacement

This replacement project eliminated 1,129' of 4" and 87' of 2" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 1,129' of 4" and 87' of 2" PE pipe. The line tied into 4" PE and 2" coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 300.

SR-38 Botkon and West Plains Main Replacement

This replacement project eliminated 641' of 2" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 641' of 2" PE pipe. The line tied into 2"

coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 330.

SR-39 Rolla Loop Lines

Installed 412' of 2" PE pipe to loop together two separate dead end feeds in Rolla. These connections were necessary to eliminate low pressure problems at the high school and downtown area.

SR-40 Piute and Tonkawa Main Replacement

This replacement project eliminated 320' of 2" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 320' of 2" PE pipe. The line tied into 2" steel at each end of the project.

Repair/Replacement Program points for this segment of line were 350.

SR-41 Omaha and Cherokee Main Replacement

This replacement project eliminated 200' of 2" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 200' of 2" PE pipe. The line tied into 4" PE and 2" steel at each end of the project.

Repair/Replacement Program points for this segment of line were 330.

SR-42 Andale Deep Well Anode Bed Replacement

The cathodic protection ground bed was replaced due to depletion of its existing anodes. Ten new rods were installed.

SR-43 Wichita & W 6th Main Replacement

This replacement project eliminated 750' of 2" bare steel main that was installed prior to 1950. Records indicate that two leaks were repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 128' of 4" and 32' of 2" PE pipe. The line was upgraded to 4" due to pressure problems on this segment of line during peak winter months. The line tied into 2" coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 390.

SR-44 Hendricks & 4th Main Replacement
<p>This replacement project eliminated 1,392' of 2" bare steel main that was installed prior to 1950. Records indicate that four leaks were repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 1,392' of 2" PE pipe. The line tied into 2" PE and 2" coated steel at each end of the project.</p> <p>Repair/Replacement Program points for this segment of line were 450.</p>
SR-45 Hendricks & 4th Service Replacement
<p>In conjunction with the above noted main replacement (SR-44), 13 service lines were either replaced or tied over to the new main. All bare steel service or yard lines were replaced with ½" PE pipe.</p>
SR-46 McNew Road Odorizer Replacement
<p>Replaced outdated odorizer cabinet with a standard Preco injection odorizer cabinet. The old unit was had become obsolete and replacement components were no longer available. This unit odorizes the main transmission line providing service to South Hutchinson, Haven, Mount Hope, Andale, Colwich and Maize.</p>
SR-47 Hutchinson Deep Well Anode Bed Replacement
<p>The cathodic protection ground bed was replaced due to depletion of its existing anodes. Ten new rods were installed.</p>
SR-48 Obeeville 25% Bare Service Replacement
<p>Map area #443 triggered in December, 2010. There were a total of 71 bare steel yard lines in this area and 18 failed, making the failure rate at 25%. The 53 bare steel yard lines were replaced in September, 2010. Corrosion leaks were determined to be the cause by visual inspection and evidence when it was exposed. If the leak location was not exposed, the more stringent safety criterion of "corrosion" was used.</p>
SR-49 Ave G Road Crossing Main Replacement
<p>This replacement project eliminated 243' of 8" coated steel transmission main that was installed prior to 1970. Records indicate that one leak was located in a cased crossing and therefore non-repairable on this section of pipe over the past five years. The project starting point was determined by the location of the first known leak with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel pipe. The line was replaced with 243' of 8" coated steel, and tied into 8" coated steel at each end.</p> <p>Repair/Replacement Program points for this segment of line were 310.</p>

SR-50 Little River Main Replacement

This replacement project eliminated 11,669' of 4" OD, Low Frequency ERW, bare steel transmission main that was installed prior to 1950. Records indicate that four leaks were repaired on this section of pipe over the past five years. Additional leak history shows 19 leaks were repaired outside the five year window. The project starting point was determined by the location of the first known leak with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel pipe. The line was replaced with 11,669' of 4" coated steel and tied into 4" coated steel at each end.

Repair/Replacement Program points for this segment of line were 310 and 330.

SR-51 Tobias Junction Main Replacement

This replacement project eliminated 248' of 8" bare steel Low Frequency ERW transmission main and underground valve setting that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known leak with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel pipe. The line was replaced with 313' of 8" coated steel, and tied into 8" steel at each end.

Repair/Replacement Program points for this segment of line were 300.

SR-52 Main & Burns Main Replacement

This replacement project eliminated 8' of 2" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 8' of 2" PE pipe. The line tied into 2" coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 330.

SR-53 Ave D & 119th Main Replacement

This replacement project eliminated 330' of 2 1/2" bare steel main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 297' of 2" PE pipe. The line tied into 2" coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 340.

SR-54 Sterling TBS Upgrade
This replacement eliminated one old DRS and replaced it with a standard monitor type setting. The outdated regulator had set point and lockup problems during the annual inspection. This station provides service to the City of Sterling.
SR-55 Wellington Main Replacement
This replacement project eliminated 6,900' of 12" bare steel Low Frequency ERW, dresser coupled, shallow transmission main that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known leak with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel pipe. The line was replaced with 6,904' of 12" coated steel, and tied into 12" and 16" coated steel at each end. Repair/Replacement Program points for this segment of line were 430.
SR-56 Coolidge & 11th Main Replacement
This replacement project eliminated 185' of 3" bare steel main that was installed prior to 1950. Records indicate that three leaks were repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 185' of 2" PE pipe. The line tied into 3" coated steel at each end of the project. Repair/Replacement Program points for this segment of line were 400.
SR-57 Meridian & 14th Main Replacement
This replacement project eliminated 500' of 2" bare steel main that was installed prior to 1950. Records indicate that two leaks were repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 500' of 2" PE pipe. The line tied into 2" PE and coated steel at each end of the project. Repair/Replacement Program points for this segment of line were 390.
SR-58 100 Block N Hoover Main Replacement
This replacement project eliminated 960' of 2" bare steel main that was installed prior to 1950. Records indicate that 4 leaks were repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing

coated steel or PE pipe. The line was replaced with 960' of 2" PE pipe. The line tied into 2" coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 360.

SR-59 Heiserman & 17th Main Replacement

This replacement project eliminated 518' of 2" bare steel main that was installed prior to 1950. Records indicate that six leaks were repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 490' of 2" PE pipe. The line tied into 4" coated steel.

Repair/Replacement Program points for this segment of line were 440.

SR-60 Burns & 17th Main Replacement

This replacement project eliminated 616' of 4" and 691' of 2" bare steel main that was installed prior to 1950. Records indicate that seven leaks were repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 616' of 4" and 691' of 2" PE pipe. The line tied into 4" PE and coated steel at each end of the project.

Repair/Replacement Program points for this segment of line were 470.

SR-61 Anna – 9th to Elm Service Replacement

In conjunction with a main replacement from 2009, 24 service lines were either replaced or tied over to the new main. All bare steel service or yard lines were replaced with ½" PE pipe. The service side of this project did not get closed until after 2010 GSRs filing was complete.

SR-62 Sheridan – 16th to 18th Main Replacement

This replacement project eliminated 1,851' of 2" bare steel shallow main that was installed prior to 1950. Records indicate that fifteen leaks were repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 1,881' of 2" PE pipe. The line tied into 2" PE at each end of the project.

Repair/Replacement Program points for this segment of line were 470,410, 370.

SR- 63 Sheridan – 16th to 18th Service Replacement					
In conjunction with the above noted main replacement (SR-62), 35 service lines were either replaced or tied over to the new main. All bare steel service or yard lines were replaced with ½” PE pipe.					
SR-64 Wichita STBS Regulator Upgrade					
This replacement eliminated one old TBS and replaced it with a standard measurement and monitor type regulators. The outdated meters and regulators were obsolete and had set point and lockup problems during the annual inspection. This station is the main feeder to the City of Wichita.					
SR-65 12th Street DRS Regulator Replacement					
This replacement eliminated an obsolete regulator and relief valve and replaced them with standard equipment. The outdated regulator had set point and lockup problems during the annual inspection. This station provides service to customers east of Winfield.					
SR-66 Clara & 2nd Main Replacement					
This replacement project eliminated 28’ of 1 ¼” and 6’ of 2” bare steel main and an underground valve setting that was installed prior to 1950. Records indicate that one leak was repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 36’ of 2” PE pipe. The line tied into 2” steel and 1 ¼” coated steel at each end of the project.					
Repair/Replacement Program points for this segment of line were 290.					
SR-67 Wichita 25% Bare Service Replacement					
The 96 bare steel yard lines were replaced in July, 2010. Corrosion leaks were determined to be the cause by visual inspection and evidence when it was exposed. If the leak location was not exposed, the more stringent safety criterion of “corrosion” was used. We continue to work proactively on non-triggered maps as they could take longer than the required 18 months to replace.					
Map Number	Original Count	Number of Leaks	Percent	Trigger Date	Number Replaced
2688	595	142	23.87%	Pending	96
SR-68 Line 27 Phase 2					
This replacement project eliminated 2,640’ of 8” OD bare steel shallow main that was installed prior to 1950. Records indicate that four leaks were repaired on this section of pipe over the past five years. The project starting point was determined by the location of the first known problem area with additional footage required to find an adequate tie-in point. The same process was utilized for the project ending location, taking into consideration the distance between known problem areas. Additional consideration was given to the proximity of any existing coated steel or PE pipe. The line was replaced with 466’ of 4” and 2,553’ of					

2" PE pipe. The line tied into 4" and 2" PE at each end of the project.
Repair/Replacement Program points for this segment of line were 420.

SR-69 Blanket Replacement Main

This blanket work order is inclusive of short distribution main replacement projects. These types of projects typically eliminate leaking pipe and require immediate replacement. Projects included in this blanket are required to be less than \$10,000, but are normally less than \$5,000. Replacement lengths are typically less than 100' per project. The projects included in this filing are from January of 2007 through December of 2010.

Main Replaced

2007	2008	2009	2010	Total
10,769	9,024'	2,035'	1,389'	23,217'

SR-70 Blanket Replacement Services

This blanket work order is for the replacement of services and yard lines. These types of projects typically eliminate leaking pipe and require immediate replacement. The projects included in this filing are from January of 2007 through December of 2010.

Services & Yard Lines Replaced

2007	2008	2009	2010	Total
958	1,253	628	605	3,444

Relocation Projects:

- Black Hills works closely with and in partnership with all governmental agencies to ensure timely and effective relocation of gas facilities to allow completion of public works projects. The design decisions are generally a size-for-size rerouting of our facilities done in a way to minimize construction costs; any upgrading or additional replacement work would be an exception and would be noted as such. These projects generally include service line tie over or replacement costs.

➤ **Project Summaries (Relocation)**

R-1: Cimarron Highway 50 Relocate

This project was necessary due to KDOT widening of Highway 50 from 7th to 11th Street in Cimarron. Our existing 2" main was on state road right of way. Black Hills Energy replaced 2162' of main with 2162' of 2" PE pipe to avoid conflicts.

R-2: Bike Pedestrian Trail

This project was due to the City of Dodge City constructing a Bike/Pedestrian trail along Highway 50 bypass and Nate Reese Rd. We had conflicts with the construction in three locations: Thompson Street, Howell Street and Hart Avenue. Black Hills Energy replaced a total of 60' of 6" steel gas main that was in the construction limits to avoid conflicts.

R-3: Road 80 & Road 14, Sherman County Bridge Relocation
This project was due to conflicts with bridge reconstruction by Sherman County Public Works. We relocated 400' of 2" CWS with the same to clear conflicts.
R-4: Kasold Dr, between W. 24th & W. 31st St – Main Relocation
This main replacement and relocation was mandated by KDOT & the City of Lawrence, due to street, waterline & storm sewer infrastructure improvements planned along Kasold Dr. A total of 3,500 feet of 4" PE, 285 feet of 4" coated steel & 185 feet of 2" PE main replaced the existing 6" & 4" coated steel mains that were in conflict with the improvements. Conditions required that the majority of this main replacement & relocation be installed by directional boring.
R-5: Fowler Hwy 98 Relocation
This replacement was necessary to clear road improvements on Highway 98. We replaced 150' of 2" PE, 475' of 2" CWS, 240' of 2" BST, and 53' of 4" CWS with 1752' of 2" PE pipe to clear conflicts.
R-6: Western Ave Road & Drainage Relocation
This replacement was necessary to clear road and drainage improvements in three areas. At Western and Hancock we replaced 500' of 1 ¼" BST with 2" PE; at 7 th Street we replaced 130' of 2" PE with 2" PE; and at 8 th Street we replaced 185' of 4" CWS with 4" PE to clear conflicts.
R-7: Ave B & Nickerson Blvd Sewer Replacement
This relocation was necessary due the City of Nickerson upgrading their sewer line. We relocated 17' of existing 2" CWS main with 2" PE to avoid conflicts.
R-8: Sterling High School Project
The City of Sterling vacated the existing street right-of-way located on west side of 4 th Street. BHE relocated 957' of 6" CWS with 6" PE to a new dedicated utility easement to avoid conflicts.
R-9: Ridge & 45 St N Street Improvement
This relocation was necessary due to conflicts with road and drainage improvements by Sedgwick County Public Works. We relocated 1457' of existing 4" PE gas main with the same on Ridge Road near 45 th Street North.
R-10: Franklin – Arapahoe to Gilda Street Improvement
This relocation was necessary due to conflicts with road and drainage improvements by the City of Wichita. We relocated 993' of 2" CWS with 2" PE pipe.
R-11: Franklin – Arapahoe to Gilda Services
This relocation was necessary due to conflicts with road and drainage improvements by the City of Wichita. We relocated 13 service lines associated with the main replacement above (R-10).
R-12: Fairway & Shade Storm Sewer Improvement
This relocation was necessary due to a new storm sewer installed by the City of Wichita. We

relocated 19' of 2" CWS with 2" PE to clear conflicts.
R-13: Emerald Bay Estates Street Improvement
This relocation was necessary due to conflicts with road and drainage improvements by the City of Wichita. We relocated 1875' of 4" PE main with the same to clear construction.
R-14: Harry & Hydraulic Storm Sewer
This relocation was necessary due to a new storm sewer installed by the City of Wichita. We relocated 7' of 8" CWS with the same to clear construction.
R-15: 47 Street S – Meridian to Seneca Street Improvement
This relocation was necessary due to conflicts with road and drainage improvements by the City of Wichita. We relocated 3900' of 4" PE pipe with the same to clear construction.
R-16: Madison & Pike Sewer Line Project
This relocation was necessary due to a new sanitary sewer line installed by the City of Wichita. We relocated 85' of 4" CWS with 4" PE to clear conflicts.