

APPENDIX A

Laboratory Data

(CD included with selected hard copies only)

APPENDIX B

Photo Log



PHOTO 1

Domestic well tap facing NE at sample location PGDW23. IMG_0315.JPG.



PHOTO 2

START personnel purging domestic well at location PGDW05. IMG_0845.JPG.



PHOTO 3

Bucket containing purged water from location PGDW05. IMG_0849.JPG.

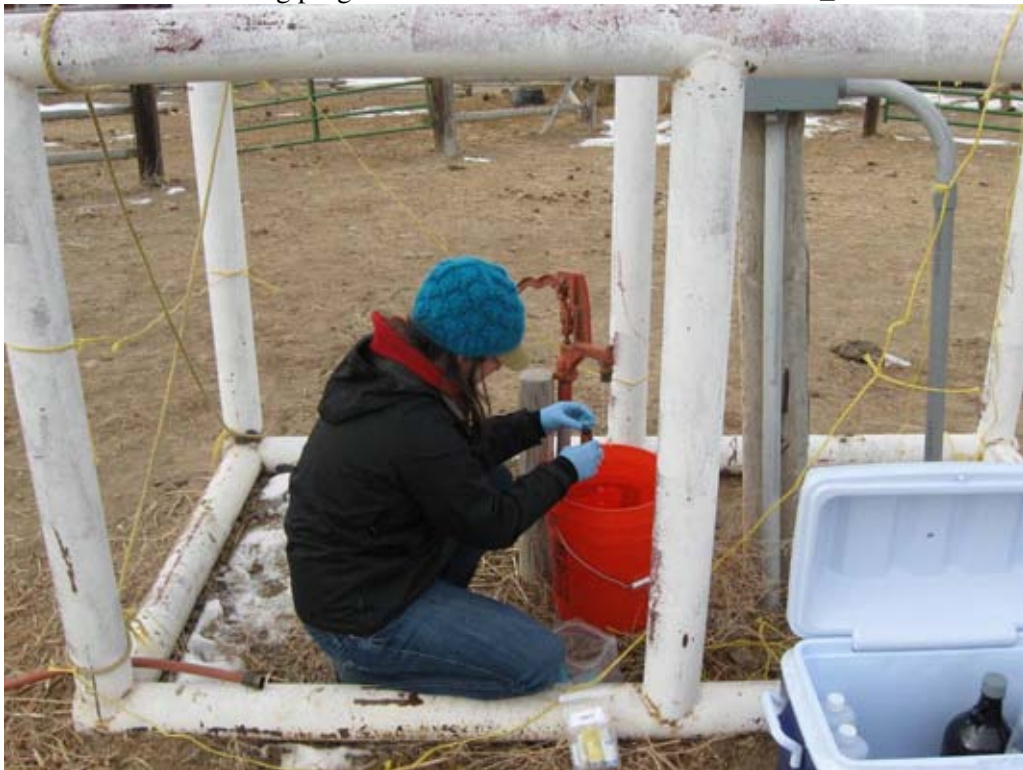


PHOTO 4

START personnel collecting domestic well water sample from spigot at location PGDW39. IMG_0857.JPG.



PHOTO 5

Domestic well at location PGDW25. IMG_0865.JPG.



PHOTO 6

New (white), used (black), and dried (grey) water filters from sample location PGGW20.
IMG_0336.JPG.



PHOTO 7

Pump house spigot at municipal well location PGPW02. IMG_0869.JPG.



PHOTO 8

START personnel collecting domestic well water sample at location PGDW46. IMG_0346.JPG.



PHOTO 9

START personnel collecting soil sample at waste pit using Geoprobe® at location PGSO02.
IMG_1827.JPG.



PHOTO 10

Soil core samples collected using Geoprobe® from waste pit at location PGSO02.
IMG_1828.JPG.



PHOTO 11

START personnel collecting sediment sample, co-located with surface water sample at location SWSE03. IMG_0352.JPG.



PHOTO 12

Monitoring well sampling at pit remediation location PGMW03. IMG_1831.JPG.

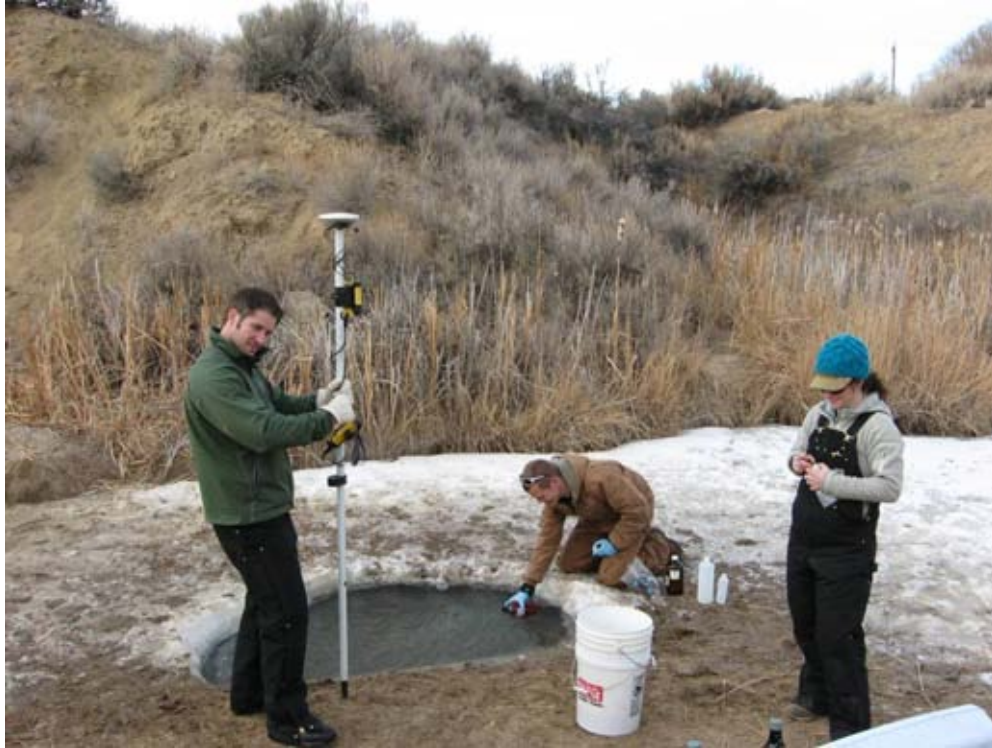


PHOTO 13

START personnel collecting surface water sample at location SWSE03 facing north.
IMG_0350.JPG.

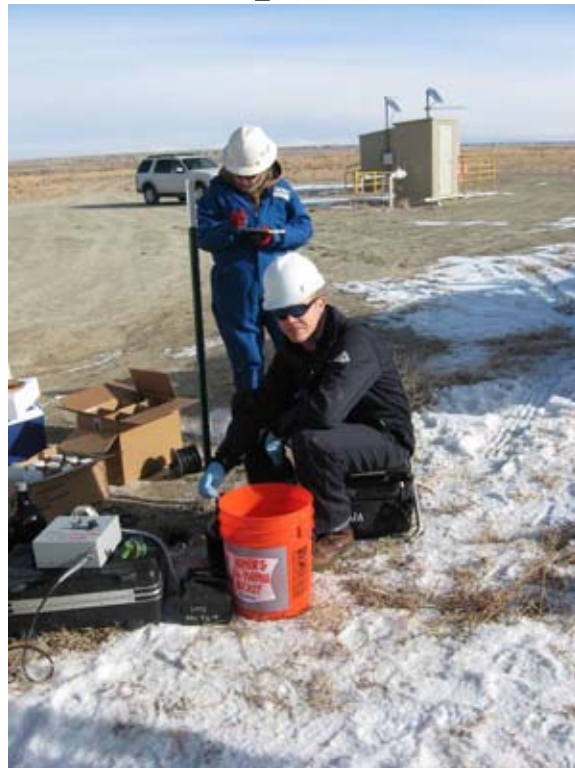


PHOTO 14

START personnel sampling monitoring well at pit remediation location PGMW01.
IMG_1834.JPG.



PHOTO 15

EnCana Contractor collecting liquid phase sample from natural gas well. IMG_0887.JPG.



PHOTO 16

Drill rig crew preparing shallow (70' deep) domestic well for sampling at location PGDW41. IMG_0365.JPG.



PHOTO 17

EnCana contractor collecting gas product sample from natural gas well. IMG_0893.JPG.



PHOTO 18

376' deep domestic well being pulled at location PGDW41. IMG_0371.JPG.



PHOTO 19

START personnel collecting domestic well water sample at location PGDW43. IMG_0373.JPG.



PHOTO 20

EnCana contractor collecting liquid phase sample from natural gas well. IMG_0901.JPG.



PHOTO 21

START personnel collecting domestic well water sample at location PGDW49. IMG_0277.JPG.



PHOTO 22

Non-functional domestic well being purged at location PGDW40. IMG_0388.JPG.



PHOTO 23

START personnel collecting nonfunctional domestic well water sample at location PGDW40.
IMG_0389.JPG.

APPENDIX C

EPA Figures

ERATHEM	SYSTEM	GEOLOGIC UNIT	HYDROLOGIC ROLE
CENOZOIC	Quaternary	Deposits including: alluvial, colluvial, terrace, pediment, landslide, glacial, and travertine	Local aquifers
	Tertiary	Wiggle Formation Tees Trail Formation Aycross Formation	Leaky confining layer
		Wind River Formation	Aquifer
		Indian Meadows Formation	Leaky confining layer
		Fort Union Formation	Aquifer
MESOZOIC	Upper Cretaceous	Lance Formation	Aquifer
		Meeteetse Formation	Leaky confining layer
		Mesaverde Formation	Aquifer
		Cody Shale	Leaky confining layer
		Niobrara Formation	Leaky confining layer
		Frontier Formation	Aquifer
	Lower Cretaceous	Mowry Shale	Leaky confining layer
		Muddy Sandstone	Aquifer
		Thermopolis Shale	Leaky confining layer
		Cloverly Formation	Aquifer
	Jurassic	Morrison Formation	Leaky confining layer
		Sundance Formation	Aquifer
		Gypsum Spring Formation	Leaky confining layer
		Nagpet Sandstone	Aquifer
		Chugwater Group	Leaky confining layer
Triassic	Popo Agie Formation	Leaky confining layer	
	Crow Mountain Formation		
PALEOZOIC	Permian	Phosphoria Formation	Aquifer
		Park City Formation	Leaky confining layer
	Pennsylvanian	Tensleep Sandstone	Aquifer system
		Darwin Sandstone Member	
	Mississippian	Amsden Formation	
		Madison Limestone	
	Devonian	Darby Formation	
	Ordovician	Bighorn Dolomite	Leaky confining layer
		Gallatin Limestone	
	Cambrian	Gros Ventre Formation	
Flathead Sandstone		Aquifer	
Precambrian			

Figure 1 – Generalized Stratigraphic Column (Mason et al., 2005)

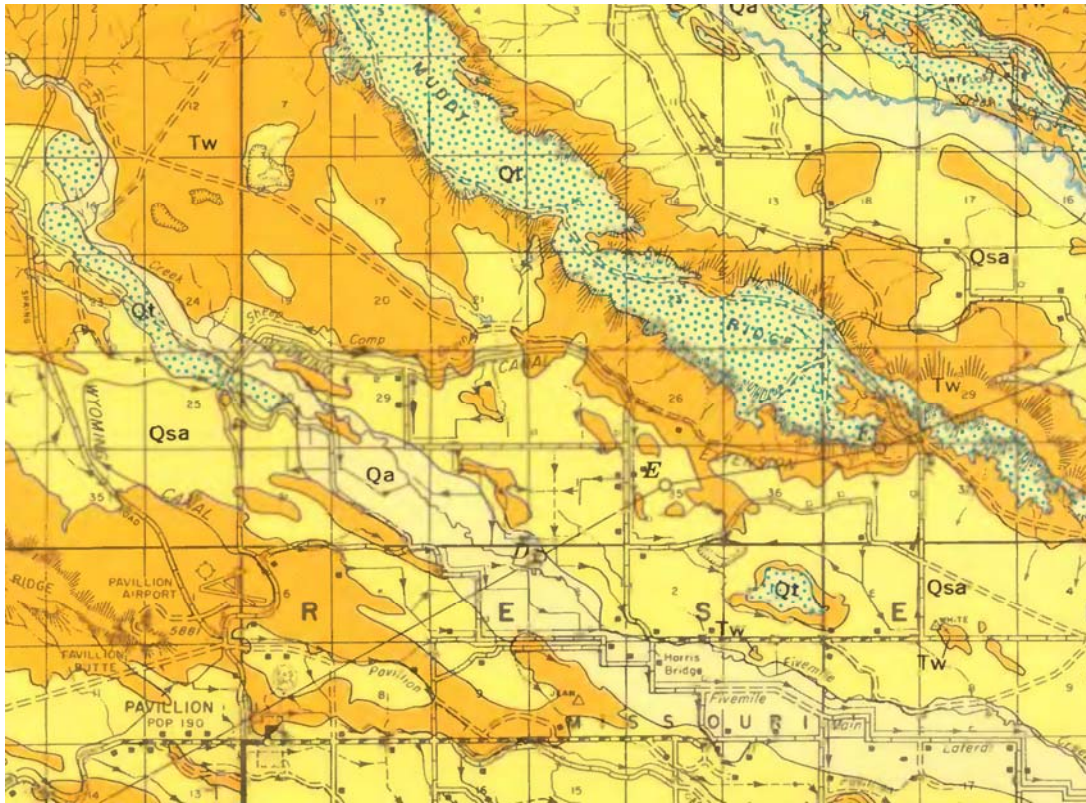


Figure 2 - USGS Water Supply Paper 1576-1 (Plate 2)

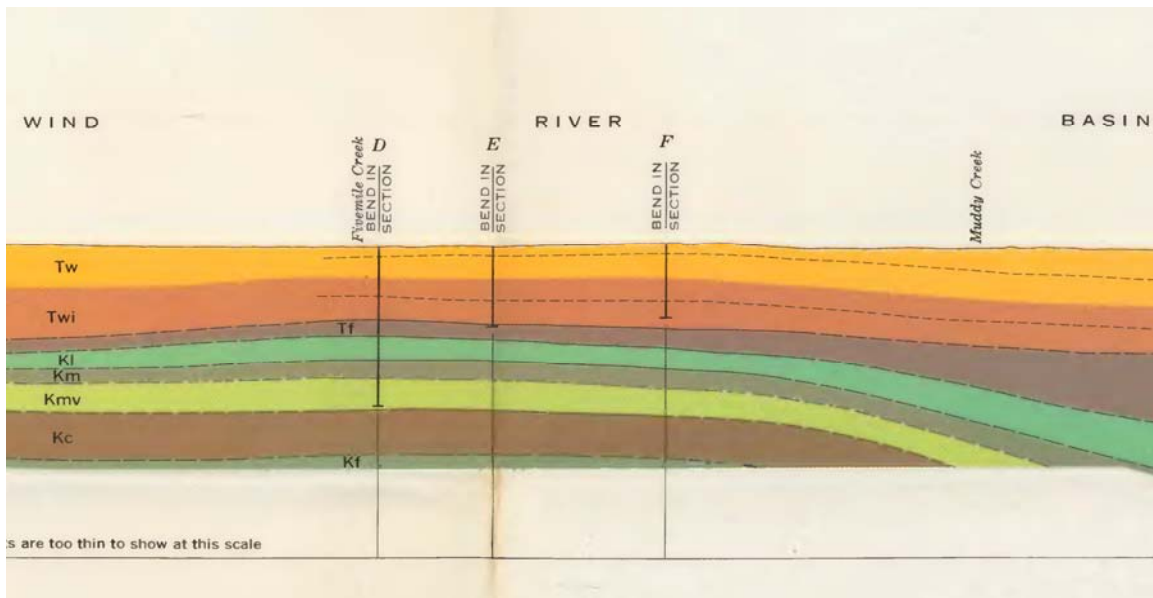


Figure 3 - USGS Water Supply Paper 1576-1 (Plate 2)

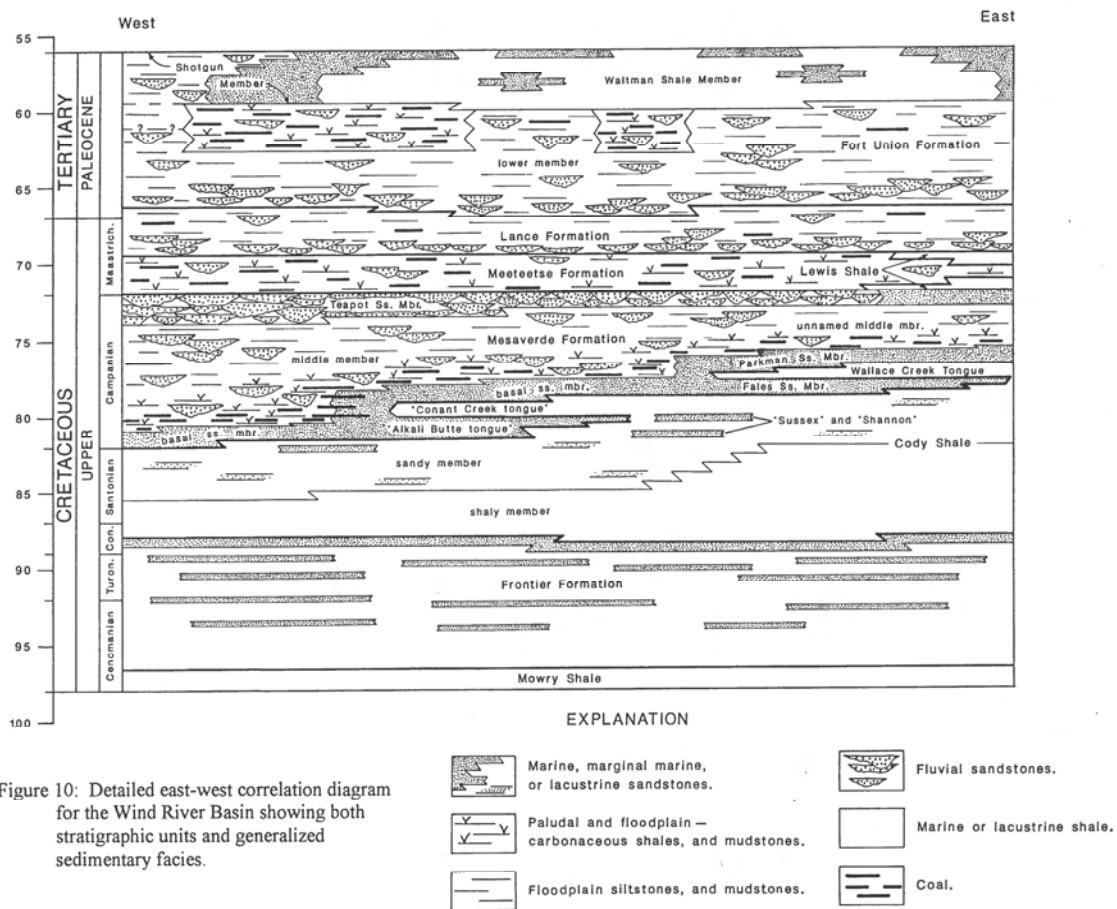


Figure 10: Detailed east-west correlation diagram for the Wind River Basin showing both stratigraphic units and generalized sedimentary facies.

Figure 4 – Generalized stratigraphic facies changes in the Wind River Basin. USGS Open-File Report 98-240A Johnson et al

Piper Diagram - Phase 2

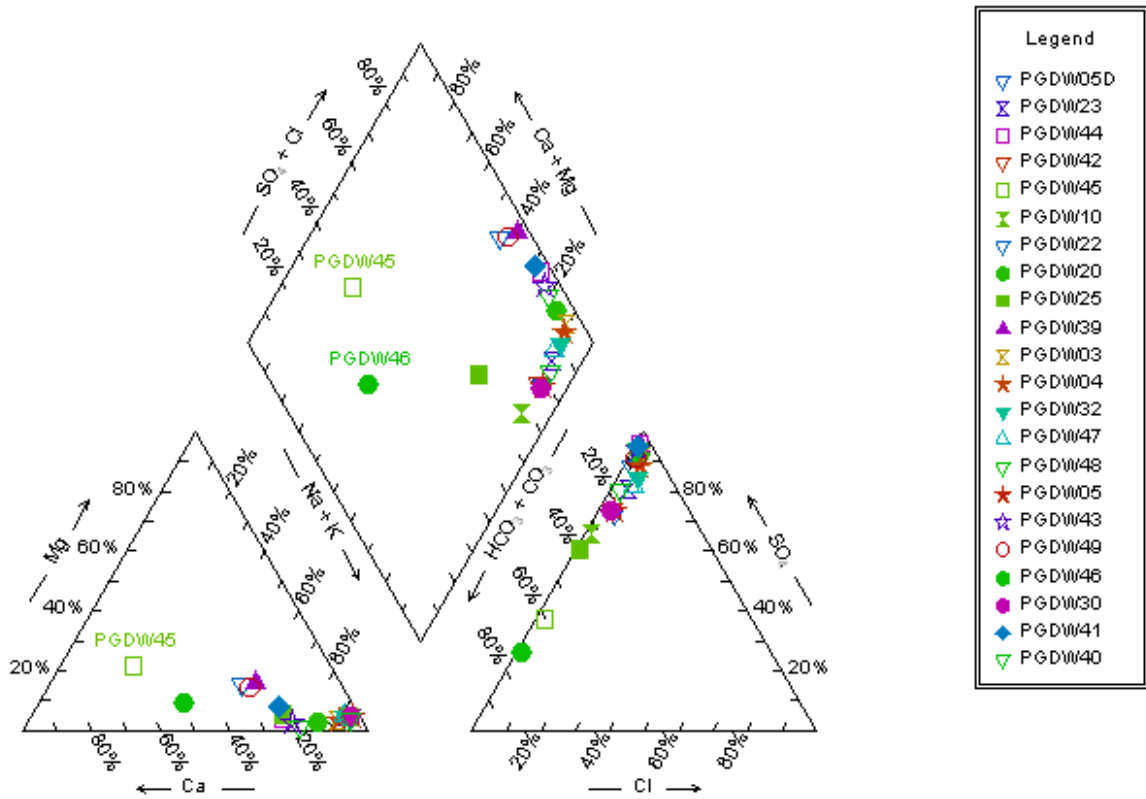


Figure 5. Piper diagram showing major groundwater compositions collected during the Phase 2 water quality investigation.

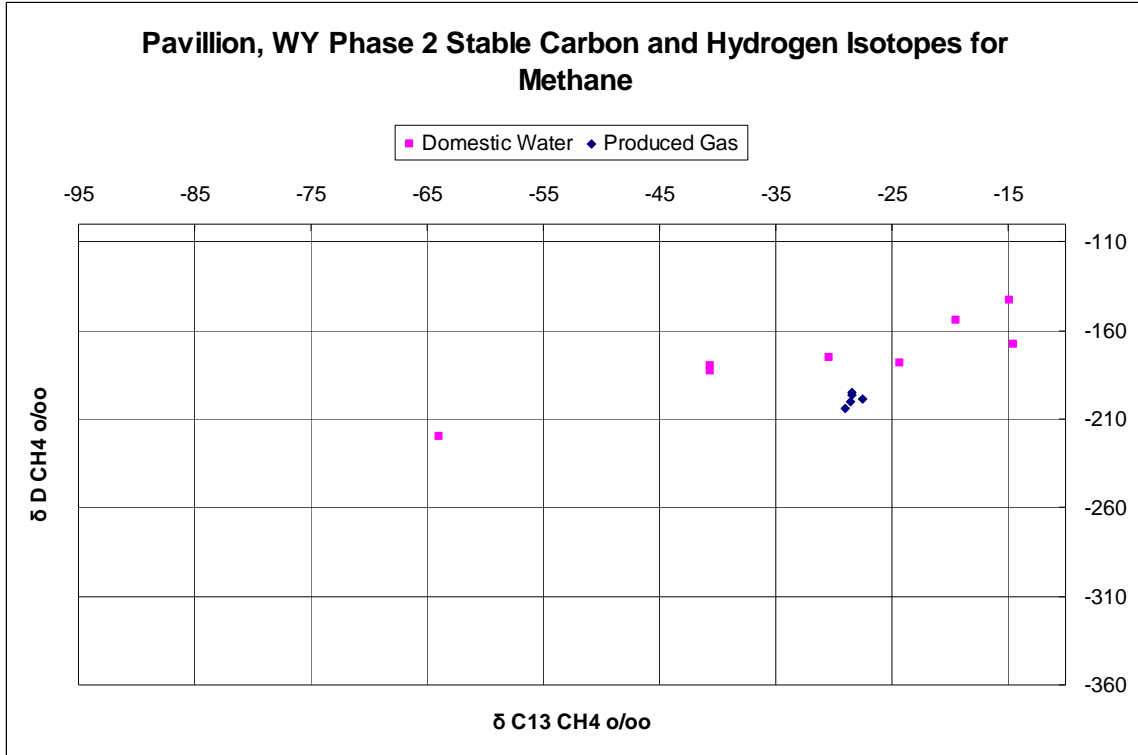


Figure 6. Isotope Graph showing relationships between Domestic Water well and Produced Gas well methane samples.

APPENDIX D

Chemicals Used in Oil and Gas Production (TEDX)

**Appendix D
Chemicals Used in Oil and Gas Production (TEDX)**

Chemical	# of Products	Product	Purpose	CAS #	Readily evaporates/volatile	Water Soluble/Miscible	Cancer	Mutagen	Cardiovascular and blood	Developmental	Endocrine disruptors	Gastrointestinal and liver	Immune	Kidney	Brain and nervous system	Reproductive	Respiratory	Skin, eye and sensory organ	Ecological	Other	Protective Clothing
Methanol	49	40 HTL, Busan 1030, CI-25, CI-14, Inflo-102, ICI-150, Enviro-Chem Defoam, NE-940, NE 100, XLW-32, DWP-202, HAI-OS, L55, SS0-21M, W54, A 264, 19N, Flo-Back 20, Baracor 100 & 700, Inflo-150, Klean-break, Ezeflo F40, W054, C-200-W, EPL-50, Versacoat, Nalco EC1076A, CSI 1220, SCI 755, SF 53, SI 203, CI 1259, CI 1226, WT 782, CSI 5009, LSCW-0452, L-SOLV 2001, S-2000, Techni-Hib 7671W, Cortron R-2389, Foamatron V-41, Cortron RN-211, Gypton T-240, Gypton T-106, Foamatron VDF-127, Techni-Hib 767W, Techni-Foam 570, ZetaFlow	Biocide, acid inhibitor, defoamer, foamer, lubricant, crosslinker, pH balance, surfactant, non-emulsifier, emulsifier, corrosion inhibitor, surface tension, solvent, fracturing, scale inhibitor, clay stabilizer, breaker	67-56-1	X	X		S	S	S	S	S	S	S	S	S	S	S	S	S	R,G,E,C
Crystalline silica, quartz	45	Acfrac CR-4000D, Acfrac PR-6000W, Anco Salt Gel, Aquagel, Aquagel Gold Seal #2, Black Hills Lignite, Bentone 910, Baracarb 5,25,50, Baracarb #2 25,150,600, Baracarb #3 150, Carbonox, Diaseal M, Geltone V, High Strength Proppant, Max-Gel, MicaTex Fine/Course, Mesh sand, Mil-bar #2, Milgel, Mil-Graphite, Mica #2,4, M-I Mica, N-Seal #2, Nut Plug, Prop-XRT AcFrac Gold, Quik-Gel, S-8C, Safe-Carb #1, Sand, Super-LC, Super DC, Super LC Proppant, Tempered Super DC Coated Sand Proppant, Tempered Super LC Proppant, Tempered LC, VG Plus, Volclay, Walnut Nut Plug, X-Cide 207, Zeogel #1,2	Viscosifier, fracturing, fluid loss additive, lost circulation material, surfactant, gellant, biocide, sand	14808-60-7			X	S			S		X	S			S	S			R,G,E,C

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No hazardous ingredients	6	GBW-20C, HVG-04, Iron Check, FRP-21, Delta Frac 140, Kol Seal	Fracturing, lost circulation material																		R,G,E,C
Sodium carboxymethylcellulose (<i>Polyanionic cellulose</i>)	6	Aquaflo Cellulose Polymer, Aquapac Cellulose Polymer, Fed Pac UL, AquaPAC, AquaCEL, Aquapacø	Polymer, fluid loss reducer, fracturing	9004-32-4		X				S		S	S			S	S	S			R,G,E,C
Sodium hydroxide	6	Sodium hydroxide, Caustic Soda #2,3,4, ICI-3240, Caustic Soda Micropearls (OC)	Gellant, fracturing, pH control	1310-73-2		X						S					S	S	S	S	R,G,C,E
Xanthan gum	6	Barazan D Plus, Kelzan XC & XCD/ Xanvis, Barazan D, N-Vis, XC-207, XCD Polymer	Corrosion inhibitor, viscosifier, fracturing	11138-66-2		X						MSDS					MSDS	MSDS		S	R,G,C,E
Acetic acid	5	Clear FRAC-EF, DWP-105, FE-1A, SGA-1, Glacial Acetic	Additive, gellant, clay control, fracturing	64-19-7	X	X			S			S	S	S	S		S	S	S	S	R,G,C,E
Ammonium persulfate	5	GBW-5, High Perm CRB, High Perm CRB-LT, Breaker J218, EB-Clean	Breaker, viscosity breaker, fracturing	7727-54-0		X			S			S	S				S	S	S		R,G,C,E
Crystalline silica, cristobalite	5	Aquagel, Aquagel Gold Seal #2, X-Cide 207, Zeogel #2, Hydro-Plug	Viscosifier/gellant, biocide, lost circulation material, fracturing	14464-46-1			S	S					S				S	S			R,E
Ethanol (Acetylenic alcohol)	5	HAI-85M Acid Inhibitor, F104 Foaming Agent, F52, Bactron K-87, Alpha 133	Corrosion inhibitor, foaming agent, biocide, surfactant, fracturing	64-17-5	X	X	S	S	S	S	S	S	S	S	S	S	S	S	S	S	R,G,E,C
Potassium hydroxide	5	Potassium Hydroxide, Potassium Hydroxide Solid, W.O. Defoam, B9, BXL-2	Crosslinker, defoamer, fracturing	1310-58-3		X	S	MSDS				S					S	S	S	S	R,G,E,C
Propargyl alcohol (Prop-2-YN-1-OL)	5	A 264, CI-25, CI-14, HAI-85M HAI-OS	Corrosion inhibitor, acid inhibitor, pH control, fracturing	107-19-7	X	X		S	S			S		S	S		S	S	S	S	R,G,E,C
Tetramethyl ammonium chloride	5	DWP-105, L064, Clayfix-II, Clay Treat 3C, S-780	Clay control, clay stabilizer, fracturing, completion	75-57-0		X			S			S			S	S	S	S	S	S	R,G,C,E
2,2-Dibromo-3-nitrilopropionamide (DBNPA)	4	Biocide B69, Bio-Clear 1000, Bactron K-108, Bio-Clear 200	Biocide, fracturing, completion	10222-01-2		X			S	S		S	S		S		S	S	S	S	R,G,C,E
Calcium carbonate (sized)	4	Safe-Carb 1, Baracarb 25, Baracarb 150 #3, Calcium Carbonate	Lost circulation material, pH control, fracturing	471-34-1			S					S		S			S	S	S		E,G
Cellulose	4	Hy-Seal, Walnut Nut Plug, Mil-Cedar Fiber, Nut Plug	Lost circulation material, fracturing	9004-34-6								MSDS					S	S			R,G,E,C
Crystalline silica, tridymite	4	Aquagel, Max-Gel, Aquagel Gold Seal #2, Zeogel #2	Viscosifier/gellant, fracturing	15468-32-3			S	S									S				
Formic acid	4	DWP-104, DWP-204, Formic Acid, Formic Acid 10%	Clay control, pH control, fracturing	64-18-6	X	X		S	S	S		S	MSDS	S	S		S	S	S	S	R,G,C,E
Graphite	4	Steelseal, Stop-Frac, Stop-Frac-S, Mil-Graphite	Lost circulation material, fluid loss additive, fracturing	7782-42-5					S			S					S	S			R,G,E,C
Guar gum	4	WG-22, WG-35, GW-3LD Green, Water Gelling Agent J424	Gellant, fracturing	9000-30-0		X							S				S	S			

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Chemical	# of Products	Product	Purpose	CAS #	Readily evaporates/volatile	Water Soluble/Miscible	Cancer	Mutagen	Cardiovascular and blood	Developmental	Endocrine disruptors	Gastrointestinal and liver	Immune	Kidney	Brain and nervous system	Reproductive	Respiratory	Skin, eye and sensory organ	Ecological	Other	Protective Clothing
NaHCO3	4	Bicarbonate of Soda, Sodium Bicarbonate #1&2, K-34	pH control, fracturing	144-55-8		X	P		S		S	S	S	S			S	S	S	S	R,G,E,
Xylene	4	NE-118, DWP-931, W54, EB 9625	Non-emulsifier, emulsion breaker, fracturing	1330-20-7	X				S	S	S	S	S	S	S	S	S	S	S	S	
2,2',2"-Nitrilotriethanol	3	J 318 Liquid Breaker Aid, XLW-14, Bactron K-87	Liquid breaker aid, crosslinker, biocide, fracturing	102-71-6	X	X	S	S	S		S	S	S	S	S	S	S	S	S	S	R,G,E,C
Aromatic naphtha, Type I (light) (Light aromatic solvent)	3	Anco Mul S, Losurf-300, DWP-931	Surfactant, fracturing	64742-95-6	X					S		MSDS			S		S	S	MSDS		R,G,C,E
Asphaltite (Gilsonite, Hydrocarbon black solid)	3	Barablok, LCM-1, Versatrol	Viscosifier, fluid loss, fracturing	12002-43-6								S	S				S	S			R,E,G
Boric acid	3	BC-140, HMP Link, Unilink 8.5	Crosslinker, fracturing	10043-35-3		L			S	S	S	S	S	S	S	S	S	S	S	S	R,G,E,C
Butanol (N-butyl alcohol, Butan-1-OL, 1-Butanol)	3	F105, OptiPlus, Anco Mul S	Surfactant, fracturing	71-36-3	X	X			S			S		S	S		S	S	S	S	R,G,E,C
Dipropylene glycol monomethyl ether	3	SandWedge NT, MECT 5, N-Vis L	Proppant, viscosifier, biocide, fracturing	34590-94-8	X	X						S		S	S	S	S	S		S	G,E,R
Fumaric acid	3	Water Gelling Agent J424 Galactosol 467 Guar Product, Fumaric Acid	pH control, viscosifier, fracturing, gellant	110-17-8	X	T						S		S			S	S			R,G,C,E
Hydroxyethylcellulose	3	Natrosol, Pheno Seal, FLAC	Lost circulation material, viscosifier, fluid loss additive, fracturing	9004-62-0		X						S					S	MSDS			G,C,E
Methyl-4-isothiazolin	3	Dextrid-LT, X-cide 207, Clean Faze	Fluid loss additive, biocide, biocide treated starch, fracturing	2682-20-4		X				S			S		S		S	S	S		
Monoethanolamine	3	BC-140, HMP Link, Baracor 95	Crosslinker, pH control, fracturing	141-43-5	X	X		MSDS	S	MSDS	S	S	S	S	S	MSDS	S	S	S	S	R,G,E,C
Non-hazardous and other components below reportable levels	3	Mil-Bar #2, Milgel, W.O. Defoam	Lost circulation material, viscosifier, defoamer, fracturing																		
Particulates not otherwise classified (PNOC)	3	Cedar Fiber #4, Cotton Seed Hulls #3, Drilling Paper #2	Lost circulation material, fracturing									MSDS	MSDS				MSDS	MSDS			R,E,G
Potassium chloride	3	HMP CON, Delta Frac with KCL, KCL	pH control, reagent, clay control, fracturing	7447-40-7		X			S		S	S		S	S		S	S		S	G,E
Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione (Dazomet)	3	Busan, Busan 1059, ICI-3240	Biocide, fracturing	533-74-4	X	L		S	S			S	S	S	S		S	S	S	S	
1,2-Bromo-2-nitropropane-1,3-Diol (2-Bromo-2-nitro-1,3-propanediol or Bronopol)	2	BE-6, DWP-933	Biocide, fracturing	52-51-7		X						S	S	S			MSDS	S	MSDS		E,G
2-Bromo-3-nitropropionamide	2	Biocide B69, Bactron K-108	Biocide, fracturing	1113-55-9		X						MSDS					MSDS	MSDS			
5-chloro-2-methyl-4-isothiazolin-3-one	2	X-cide 207, Clean Faze	Biocide, biocide treated starch, fracturing	26172-55-4		X	S	S	S	S		S	S		S		S	S		S	R,G,E,C

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Chemical	# of Products	Product	Purpose	CAS #	Readily evaporates/volatile	Water Soluble/Miscible	Cancer	Mutagen	Cardiovascular and blood	Developmental	Endocrine disruptors	Gastrointestinal and liver	Immune	Kidney	Brain and nervous system	Reproductive	Respiratory	Skin, eye and sensory organ	Ecological	Other	Protective Clothing
Aliphatic alcohol	1	F105	Surfactant, fracturing																		
Aliphatic alcohols, ethoxylated	1	A 264	Corrosion inhibitor, fracturing																		
Aliphatic amine derivative	1	J508W	Gellant, fracturing																		R,E,G,C
Aliphatic hydrocarbon	1	HME Energizer	Surfactant, fracturing	64742-96-7	X						S		S	MSDS		S	S		MSDS		R,G,C,E
Alkanolamine derivative	1	F78	Surfactant, fracturing		P	X					MSDS					MSDS	MSDS	MSDS			R,G,C,E
Alkyl quaternary ammonium bentonite	1	VG Plus	Viscosifier, fracturing	68153-30-0							MSDS					MSDS	MSDS				R,G,E
Alkylamine salts	1	U80	Emulsifier, fracturing		P	X			MSDS		MSDS			MSDS		MSDS	MSDS	MSDS			R,G,C,E
Alkylated sodium naphthalene sulphionate	1	Alkanol XC	Surfactant, fracturing	68442-09-1							S					S	S				R,E,G,C
Aluminum silicate	1	Interprop	Proppant, fracturing	12141-46-7			S				S			S		S					R,E
Ammonium C6-C10 alcohol ethoxysulfate	1	F52	Foaming agent, fracturing																		R,G,E,C
Anionic acrylamide	1	FRW-50	Fracturing																		
Anionic polyacrylamide	1	Poly-Plus	Friction reducer, fracturing																		
Anionic surfactants	1	Busan 1030	Biocide, fracturing																		
Aqueous emulsion of diethylpolysiloxane	1	Defoam X EH	Defoamer, fracturing		X	M					S					S	S				R,G,C,E
Aqueous suspension of cellulose	1	Natrosol FPS	Viscosifier, fracturing	proprietary		X										MSDS	MSDS				G,C,E
Aromatic solvent	1	MECT 5	Biocide, fracturing		X																
Bauxite	1	Premium Prop	Proppant, fracturing	1318-16-7							S					S	S				E
Benzyl chloride	1	HAI-85M Acid Inhibitor	Corrosion inhibitor, fracturing	100-44-7	X		S	S	S	S	S		MSDS	S	MSDS	S	S	S	S		
Blast furnace slag	1	N-Seal #2	Viscosifier, fracturing	65996-69-2												S	S				R,G,E
Blend of sythetic oils & surfactants	1	Ez Glide #1	Lubricant, fracturing	2526-77-4																	
Boric oxide	1	XLW-32	Crosslinker, fracturing	1303-86-2		L					MSDS		MSDS	MSDS		S	S				R,G
Calcium oxide	1	High Strength Proppant	Proppant, fracturing	1305-78-8		X					S					S	S		S		R,G,C,E
Carbon	1	LC-Glide	Lost circulation material, fracturing	7440-44-0			S	S	S		S					S	S				
Carbon black	1	Zytel	Resin, fracturing	1333-86-4			X	S	S		S				S	S	S				R,G,E,C
Carboxylic acids	1	OptiMul	Emulsifier, fracturing	proprietary	X														S		
Carboxymethyl hydroxypropyl guar gum	1	Galactasol 653	Viscosifier, fracturing													MSDS	MSDS				
Carboxymethylhydroxy-propyl guar blend	1	Galactasol 650 Guar Product	Viscosifier, fracturing	mixture												MSDS	MSDS				
Cationic polymer	1	L55	Clay stabilizer, fracturing																		
Cedar fiber - processed	1	Plug-Git	Lost circulation material, fracturing																		
Cellophane (cellulose film)	1	Celloflake	Lost circulation material, fracturing																		E
Cellophane (polymer)	1	Poly-E-Flake	Fluid loss additive, fracturing																		
Cellulase enzyme	1	GBW-30	Viscosity breaker, fracturing	unspecified		X															
Cellulose	1	Chem Seal #2	Lost circulation material, fracturing														MSDS				

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Chemical	# of Products	Product	Purpose	CAS #	Readily evaporates/volatile	Water Soluble/Miscible	Cancer	Mutagen	Cardiovascular and blood	Developmental	Endocrine disruptors	Gastrointestinal and liver	Immune	Kidney	Brain and nervous system	Reproductive	Respiratory	Skin, eye and sensory organ	Ecological	Other	Protective Clothing
Cellulose derivative	1	WG-17	Gellant, fracturing																		
Cellulose ether	1	Drispac Polymer	Viscosifier, fracturing									MSDS					MSDS	MSDS			E
Cellulose material	1	Cedar Fiber #2	Lost circulation material, fracturing																		
Cellulosic polymer	1	Drispac polymer #2	Fluid loss reducer, fracturing			X						MSDS	MSDS				MSDS	MSDS			R,G,E
Chlorine	1	Rock Drill Lubricant	Lubricant, fracturing	7782-50-5		X		S	S			S		S	S	S	S	S	S	S	
Chrome acetate	1	DynaPlug	Lost circulation material, fracturing	39430-51-8		X						S					S	S			G,E,C
Colorants, stabilizers, lubricants	1	Zytel	Resin, fracturing																		
Complex carbohydrate	1	Dextrid LT	Fluid loss additive, fracturing														MSDS				
Complex carbohydrate	1	Dextrid	Fluid loss additive, fracturing																		E,G,R
Copolymers	1	FRW-50	Fracturing																		
Copper iodide	1	HAI-85M Acid Inhibitor	Corrosion inhibitor, fracturing	7681-65-4								MSDS						S			R,G,E,C
Cotton dust (raw)	1	Cottonseed Hulls #3	Lost circulation material, fracturing									S	S	S			S	S			R,G,C,E
Cottonseed flour	1	Cottonseed Hulls #1	Fluid loss additive, fracturing	68308-87-2								S			S						
Diammonium phosphate	1	DAP	Corrosion inhibitor, fracturing	7783-28-0		X								S			S	S	S		R, G
Diatomaceous earth, calcined	1	X-cide 207	Biocide, fracturing	91053-39-3			S	S					S		S		S	S		S	
Didecyl dimethyl ammonium chloride	1	Alpha 133	Biocide, fracturing	7173-51-5					MSDS			S			S		S	S	S	S	R,G,E
Diesel	1	FRW-50	Fracturing	unspecified	X																
Diethylene glycol	1	AQF-2	Foaming agent, fracturing	111-46-6	X	M			S	S		S		S	S	S		S			
Diethylene glycol monobutyl ether	1	Ansul, Foaming Concentrate (liquid)	Foaming agent, fracturing	112-34-5	X	M	S	S	S			S		S	S	S		S			E,G
Dimethyl formamide	1	HAI-85M Acid Inhibitor	Corrosion inhibitor, fracturing	68-12-2	X	X	S		S	S		S	S	S	S	S	S	S	S		R,G,E,C
Di-secondary-butylphenol w/10 moles of eo	1	Ezeflo F40	Surfactant, fracturing	53964-94-6		X						S						S	S		R,G,E,C
Distillates (petroleum), hydrotreated (mild) heavy naphthenic (9CI)	1	SGA-HT	Gellant, fracturing	64742-52-5			S	S				MSDS						MSDS			G
Dodecylbenzene sulfonic acid	1	MorFlo III	Surfactant, fracturing	27176-87-0		X				S							S	S	S	S	R,G,C,E
EO-C7-9-iso-,C8 rich-alcohols	1	NE-940	Non-emulsifier, fracturing	78330-19-5																	
EO-C9-11-iso, C10-rich alcohols	1	NE-940	Non-emulsifier, fracturing	78330-20-8																	
Ester alcohol	1	Defoam A	Defoamer, fracturing		T	L						MSDS					MSDS	MSDS	MSDS		R,G,E,C
Ester salt	1	F104 Foaming Agent	Foaming agent, fracturing	unspecified																	
Ethoxylated 4-nonylphenol	1	CI-25	Acid inhibitor, fracturing	26027-38-3		X											MSDS	S	S		R,G,E,C
Ethoxylated alcohol	1	FRW-14	Friction reducer, fracturing	68439-50-9		X												S	S		
Ethoxylated alcohol linear (1)	1	Ezeflo F103 #2	Surfactant, fracturing	proprietary								MSDS						MSDS	MSDS		
Ethoxylated alcohol linear (2)	1	Ezeflo F103 #2	Surfactant, fracturing	proprietary								MSDS						MSDS	MSDS		
Ethoxylated alcohol linear (3)	1	Ezeflo F103 #2	Surfactant, fracturing	proprietary								MSDS						MSDS	MSDS		
Ethyl octynol	1	HAI-85M Acid Inhibitor	Corrosion inhibitor, fracturing	5877-42-9	X	L												S	MSDS		R,G,E,C

Appendix D
Chemicals Used in Oil and Gas Production (TEDX)

Chemical	# of Products	Product	Purpose	CAS #	Readily evaporates/volatile	Water Soluble/Miscible	Cancer	Mutagen	Cardiovascular and blood	Developmental	Endocrine disruptors	Gastrointestinal and liver	Immune	Kidney	Brain and nervous system	Reproductive	Respiratory	Skin, eye and sensory organ	Ecological	Other	Protective Clothing
Oxiranemethanaminium, N,N,N-trimethyl-, chloride, homopolymer	1	Cla-Sta XP Additive	Clay control, fracturing	51838-31-4																	
Oxyalkalated alcohol (1)	1	W054	Non-emulsifier, fracturing	proprietary														MSDS	MSDS		
Oxyalkalated alcohol (2)	1	W054	Non-emulsifier, fracturing	proprietary														MSDS	MSDS		
Oxyalkalated alcohols	1	W54	Non-emulsifier, fracturing																		
Oxyalkylated alcohol	1	Inflo-150	Surface tension, fracturing	proprietary																	
Oxyalkylated alkyl alcohol (1)	1	W054	Non-emulsifier, fracturing	proprietary														MSDS	MSDS		
Oxyalkylated fatty alcohol salt	1	FAW-4	Foaming agent, fracturing																		
Oxyalkylated phenolic resin	1	DWP-931	Fracturing fluid	30704-64-4																	
OxyAlkylated tallow DiAmine	1	INC 1421	Corrosion inhibitor, fracturing			X						MSDS						MSDS	MSDS		R,G,E,C
Paraformaldehyde	1	Dextrid	Fluid loss additive, fracturing	30525-89-4	X		S	S	S			S	S	S	S		S	S	S	S	E,G,R
Petroleum distillate blend	1	GW-3LDF	Fracturing																		
Petroleum distillate	1	XLW-30A	Crosslinker, fracturing	proprietary	X				MSDS			MSDS			MSDS		MSDS	MSDS			R,G,C,E
Petroleum distillate	1	OptiMul	Emulsifier, fracturing		X																
Petroleum distillate naptha	1	LB-0150	Breaker, fracturing	8002-05-9	X		S	S	S	S	S	S	S	S	S	S	S	S	S	S	R,G,E,C
Petroleum solvent	1	OptiPlus	Surfactant, fracturing	ID: P04500000	X			S							S						
Phosphonate	1	Gytpron T-106	Scale inhibitor, fracturing	proprietary																	
Phosphonate	1	Gytpron T-240	Scale inhibitor, fracturing	proprietary							MSDS	MSDS		MSDS	MSDS			MSDS			R,G,E,C
Pine oil	1	CI-25	Acid inhibitor, fracturing	8002-09-3	X							S	S		S		S	S			R,G,E,C
Polyacrylamide	1	FRW-14	Friction reducer, fracturing	9003-05-8		X						MSDS			S		S	MSDS	MSDS		R,G,C,E
Polyaminated fatty acid	1	EZ-Mul	Oil mud emulsifier, fracturing	unspecified																	
Polyaminated fatty acid surfactants	1	Invermul	Oil mud emulsifier, fracturing																		
Polyethylene glycol	1	NE-940	Non-emulsifier, fracturing	25322-68-3		X						S	S	S			S	S		S	
Polyethylene glycol mixture	1	Bio-Clear 200	Fracturing, biocide																		
Polyglycerols	1	New 100	Lubricant, fracturing																		
Polyglycol	1	Defoam X	Defoamer, fracturing																		
Polyglycol ether	1	F104 Foaming Agent	Foaming agent, fracturing	unspecified						S		S								S	
Polyhexamethylene adipamide	1	Zytel	Resin, fracturing	32131-17-2													MSDS	MSDS			R,G,E,C
Polymers	1	Clay Treat 3C	Clay control, fracturing																		
Polylol phosphate ester	1	Conqor 404	Corrosion inhibitor, fracturing									MSDS					MSDS	MSDS			G,E,C
Polypropylene glycol	1	F52	Foaming agent, fracturing	25322-69-4		X			S					S	S			S			R,G,E,C
Polypropylene glycols	1	New 100	Lubricant, fracturing																		
Polysaccharide polymers in suspension	1	DWP-201	Viscosity additive, fracturing																		E,G
Polysaccharide	1	GW-3LDF	Fracturing																		
Polysaccharide ("Carbohydrate")	1	GBW-3	Viscosoty breaker, fracturing			X							MSDS				MSDS	MSDS			

Appendix D
Chemicals Used in Oil and Gas Production (TEDX)

Chemical	# of Products	Product	Purpose	CAS #	Readily evaporates/volatile	Water Soluble/Miscible	Cancer	Mutagen	Cardiovascular and blood	Developmental	Endocrine disruptors	Gastrointestinal and liver	Immune	Kidney	Brain and nervous system	Reproductive	Respiratory	Skin, eye and sensory organ	Ecological	Other	Protective Clothing
Polyvinyl alcohol [AlcoteX 17F-H]	1	LAP-1	Fluid loss control, fracturing	9002-89-5	X	X	S		S			S		S	S	S		S			
Potassium metaborate	1	CL-31 Crosslinker	Crosslinker, fracturing	13709-94-9		X						S		S		S		S	S		E,G,C
Potassium persulfate	1	DWP-986 S	Fracturing fluid additive	7727-21-1		X						MSDS	S				S	S			R,G,E,C
Proprietary	1	Diaseal M	Lost circulation material, fracturing	various								MSDS					MSDS	MSDS			
Proprietary	1	Versacoat	Emulsifier, fracturing									MSDS					MSDS	MSDS			R,G,C,E
Proprietary ingredients	1	D-D	Surfactant, fracturing			X						MSDS					MSDS	MSDS			R,G,C,E
Proprietary phosphate ester	1	ZetaFlow	Fracturing						MSDS				MSDS					MSDS			
Prydinium, 1-(phenylmethyl)-, ethyl methyl derivatives, chlorides	1	A 186 Corrosion Inhibitor	Corrosion inhibitor, fracturing	68909-18-2																	
Quaternary amine	1	Cortron RN-211	Corrosion inhibitor, fracturing	proprietary		X			MSDS			MSDS		MSDS	MSDS		MSDS	MSDS			R,G,E,C
Quaternary amine compound	1	F78	Surfactant, fracturing		P	X						MSDS					MSDS	MSDS	MSDS		R,G,C,E
Quaternary ammonium compound	1	W054	Non-emulsifier, fracturing	proprietary														MSDS	MSDS		
Quaternary ammonium compound	1	ClearFRAC-LT	Fracturing fluid																		
Quaternary ammonium compounds	1	CI-25	Acid inhibitor, fracturing																		
Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, chlorides, reaction products with bentonite	1	Bentone 910	Gellant, fracturing	68953-58-2														MSDS			R,G,E
Quaternary ammonium salts	1	HAI-85M Acid Inhibitor	Corrosion inhibitor, fracturing	unspecified																	
Raffinates (petroleum)	1	Klean-break	Breaker, fracturing																		
Refined mineral oil	1	Rock Drill Lubricant	Lubricant, fracturing															MSDS			
Resin	1	Pheno Seal	Lost circulation material, fracturing																		
Silane, dichlorodimethyl-, reaction products with silica	1	WG-35 Gelling Agent	Gellant, fracturing	68611-44-9													S	MSDS			E
Silica, amorphous	1	Diaseal M	Lost circulation material, fracturing	61790-53-2			S		S			S					S	MSDS		S	R,G,E,C
Sodium aluminum phosphate	1	DWP-986 S	Fracturing fluid additive	7785-88-8													S	S		S	R,G,E,C
Sodium bromate	1	Breaker J481	Breaker, fracturing	7789-38-0		X		S	S			S	S	S	S	S	S	S	S	S	R,G,E,C
Sodium carbonate (Soda ash)	1	Soda Ash #3	pH modifier, fracturing,	497-19-8		X			S			S	S				S	S		S	R,G,C,E
Sodium chlorite	1	Vicon NF	Breaker, fracturing	7758-19-2		X	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Sodium dichloro-s-triazinetriene	1	Bioguard Super Solid	Biocide, fracturing	2893-78-9	X	X	S					S		S	S	S	S	S	S	S	R,G,C,E
Sodium ligninsulfonate	1	Carbonox	Surfactant, fracturing	8061-51-6		X						S	S	S		S	S	S	S		R,G,E
Sodium mercaptobenzothiazole	1	Nalco 39M	Corrosion inhibitor, fracturing	2492-26-4		X			S			S	S	S	S		S	S	S		

**Appendix D
Chemicals Used in Oil and Gas Production (TEDX)**

Chemical	# of Products	Product	Purpose	CAS #	Readily evaporates/volatile	Water Soluble/Miscible	Cancer	Mutagen	Cardiovascular and blood	Developmental	Endocrine disruptors	Gastrointestinal and liver	Immune	Kidney	Brain and nervous system	Reproductive	Respiratory	Skin, eye and sensory organ	Ecological	Other	Protective Clothing
Ethoxylated octylphenol	0	Unknown	Fracturing	9036-19-5		M					S	S					S	S	S		G,E,C
Ferrous sulfate heptahydrate	0	Unknown	Fracturing	7782-63-0		X		MSDS	S			S	MSDS	MSDS	S		S	S			R,G,E,C
Glycol ethers (group of solvents based on alkyl ethers of ethylene glycol)	0	Unknown	Fracturing																		
Hemicellulase enzyme	0	Unknown	Fracturing																		
Mineral spirits	0	Unknown	Fracturing	64475-85-0	X							MSDS			MSDS		MSDS	MSDS			R,G,E,C
Petroleum distillates	0	Unknown	Fracturing																		
Polyethoxylated alkanol (1)	0	Unknown	Fracturing																		
Polyethoxylated alkanol (2)	0	Unknown	Fracturing																		
Propylene	0	Unknown	Fracturing	115-07-1	X				S			S		S	S		S	S		S	R,G,E,
Sucrose	0	Unknown	Fracturing	57-50-1		X			S	S	S	S		S	S		S	S			R,G,E,

<http://www.endocrinedisruption.com>

Health Effects Codes		Health Effects Codes		Volatile and Soluble Codes	
S	Suspected	R	Respirator or mask	X	Either soluble or volatile
X	Confirmed	G	Gloves	L	Partially soluble or volatile
P	Promoter	E	Goggles or eye protection	T	Slightly soluble or volatile
MSDS	From a MSDS sheet	C	Coveralls or protective clothing	M	Miscible
MSDS	From a Halliburton MSDS sheet			D	Dispersable

APPENDIX E

EPA

Study List of Chemicals Used in Drilling and Hydraulic Fracturing of Oil and Gas Wells

EPA Study List of Chemicals Used in Drilling and Hydraulic Fracturing of Oil and Gas Wells

Product	Chemical Composition of Existing Products		Concentration of Interest (µg/L)	
	Chemical Compound	Point-of-Injection	MCL, <i>BBC</i> or <i>MCP</i>	
Linear gel delivery system	guar gum derivative			
	diesel, which contains the following:			
	benzene	313.20	5.00	
	toluene	522.00	1,000.00	
	ethylbenzene	522.00	700.00	
	xylene	522.00	10,000.00	
	naphthalene	14,094.00	20.00	
	1-methylnaphthalene	71,340.00	20 / 6,000	
	2-methylnaphthalene	34,974.00	121.67	
	dimethylnaphthalenes	270,570.00	na	
	trimethylnaphthalenes	160,080.00	na	
	fluorenes	31,320.00	2190.00	
	phenanthrenes	7,830.00	300 / 50	
aromatics	574,200.00	200 / 30,000		
Water Gelling Agent	guar gum			
	water	495,049.50	na	
	fumaric acid	132,337.87	na	
Linear Gel Polymer	fumaric acid	529,351.49	na	
	adipic acid	366,257.43	na	
Gelling Agents (BLM Lists)	benzene		5.00	
	ethylbenzene		700.00	
	methyl tert-butyl ether		2.64	
	naphthalene		20.00	
	polynuclear aromatic hydrocarbons (pahs)		na	
	polycyclic organic matter (pom)		na	
	sodium hydroxide		na	
	toluene		1,000.00	
Crosslinker	xylene		10,000.00	
	boric acid	170,998.00	na	
	ethylene glycol	285,788.42	73,000.00	
Crosslinker	monoethanolamine	na	na	
	sodium tetraborate decahydrate		na	
Crosslinker (BLM Lists)	ammonium chloride		na	
	potassium hydroxide		na	
	zirconium nitrate		na	
	zirconium sulfate		na	
Foaming Agent	isopropanol	234,945.16	na	
	salt of alkyl amines	na	na	
	diethanolamine	na	na	
Foaming Agent	ethanol	236,081.75	na	
	2-butoxyethanol	269,641.08	na	
	ester salt	na	na	
	polyglycol ether	na	na	
	water	na	na	
Foamers (BLM)	glycol ethers	na	na	
Acid Treatment	hydrochloric acid	na	na	
Acid Treatment	formic acid	na	73,000.00	
Breaker Fluid	diammonium peroxidisulfate	na	na	
Breaker Fluids (BLM Lists)	ammonium persulfate		na	
	ammonium sulfate		na	
	copper compounds		1,460.00	
	ethylene glycol		na	
	glycol ethers		na	
Microbicide	2-bromo-2-nitro-1,3-propanediol		na	
Bioicide	2,2-dibromo-3-nitropropionamide		na	
	2-bromo-3-nitropropionamide		na	
Bactericides	polycyclic organic matter (pom)		na	
	polynuclear aromatic hydrocarbons (pahs)		na	
Acid Corrosion Inhibitor	methanol	236,070,000.00	18,250.00	
	propargyl alcohol	47,425,000.00	na	
Acid Corrosion Inhibitor	pyridinium, 1-(phenylmethyl)-ethyl methyl deriv.	na	na	
	thiourea	210,750,000.00	na	
	propan-2-ol	39,275,000.00	na	
	poly(oxy-1,2-ethanediyl)-nonylphenyl-hydroxy	na	na	

☐ = Exceeds regulatory standard

MCL = Maximum Contaminant Level - The highest level of a contaminant that is allowed in drinking water.

BBC = EPA's Risk Based Concentration Tables. (<http://www.epa.gov/reg3hwmd/risk/index.html>, developed by Region 3, serving: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia)

MCP = Massachusetts Contingency Plan - Risk-based ground water standards for drinking water protection chosen because Massachusetts has developed standards for many constituents in diesel fuel. Two numbers are given (the first is drinking water standard, the second is standard for groundwater discharging to surface water).

APPENDIX F

Chemicals (from MSDSs) Used by Natural Gas Producers the Pavillion, Wyoming Field

Appendix F
Chemicals (from MSDSs) Used by
Natural Gas Producers
the Pavillion, Wyoming Field

Chemical	CAS Number	Percent of Product Composition
Non Hazardous Blend	1317335	30-60
Non Hazardous Blend	1317653	30-60
Metallic Copper	7440508	10-20
Non Hazardous Blend	7620771	30-60
Non Hazardous Blend	7782435	30-60
Non Hazardous Blend	12001202	30-60
Non Hazardous Blend	14807966	30-60
Petroleum	64742525	60-100
Petroleum	64742536	60-100
Petroleum	64744964	60-100
Poly Anionic Cellulose	?	?
Sawdust	?	100
Hydrotreated Heavy Napht	?	
Alcohols, C6-10, ethoxylated,	?	
Proprietary Blend	?	
Proprietary Blend	?	
sulfomethylated tannin	?	100
Mixed alcohols	?	?
EDTA/copper chelate	?	30
zirconium complex	?	60
alkylated quaternary chloride	?	60
ethoxylated alcohol linear (1)	?	10
ethoxylated alcohol linear (2)	?	10
ethoxylated alcohol linear (3)	?	10
Ester salt	?	60
organic salt	?	100
carbohydrates	?	85
quaternary ammonium salts	?	30
inner salt of alkyl amines	?	30
alkyl hexanol	?	10
cationic polymer	?	30
guar gum derivative	?	60
oxylated alcohol	?	30
Potassium hydroxide	01310-58-3	100
Anionic polyacrylamide copolymer	064742-47-8	24
Ammonium Bisulfite	10192-30-0	10-30
2,2-bidromo-3-nitrilopropionamide	10222-01-2	100
2,2-dibromo-3-nitrilopropionamide	10222-01-2	100
2,2',2"-nitrilotriethanol	102-71-6	100
2-Ethyl Hexanol	104-76-7	10-30
Butanes	106-97-8	<10
Butanes	106-97-8	0-10

Appendix F
Chemicals (from MSDSs) Used by
Natural Gas Producers
the Pavillion, Wyoming Field

Chemical	CAS Number	Percent of Product Composition
propargyl alcohol	107-19-7	10
Ethylene Glycol	107-21-1	90-99.99
Ethylene Glycol	107-21-1	50
Ethylene Glycol	107-21-1	<33
Ethylene Glycol	107-21-1	54-58
Ethylene Glycol	107-21-1	1-5
Ethylene Glycol	107-21-1	<70
Ethylene Glycol	107-21-1	40-70
Ethylene Glycol	107-21-1	50-53
Methyl Isobutyl Ketone	108-10-1	1-5
acetic anhydride	108-24-7	100
Toluene	108-88-3	0-0.5
Toluene	108-88-3	0-0.5
Toluene	108-88-3	3-7
Pentanes	109-66-0	50-60
n-Hexane	110-54-3	35-50
n-Hexane	110-54-3	0.1-1
2-monobromo-3-nitrilopropionamide	1113-55-9	5
Diethylene Glycol	111-46-6	1.5-4.99
Diethylene Glycol	111-46-6	0.01-5
ethylene glycol monobutyl ether	111-76-2	30
2-butoxyethanol	111-76-2	30
2-butoxyethanol	111-76-2	30
ethylene glycol monobutyl ether	111-76-2	100
ethylene glycol monobutyl ether	111-76-2	100
2-Butoxyethanol	111-76-2	<10 %Vol
Ethylene Glycol Monobutyl Ether	111-76-2	<11
Ethylene Glycol Monobutyl Ether	111-76-2	<12
Ethylene Glycol Monobutyl Ether	111-76-2	1-10
Glycol Ethers	111-76-2	5-10
Glycol Ethers	111-76-2	15-40
EB-Butyl Cellosolve	111-76-2	>60
Triethylene Glycol	112-27-6	95-99.9
diethylene glycol	11-46-6	10
potassium aluminum silicates	12001-26-2	97
ammonium chloride	12125-02-9	27
carbon dioxide	124-38-9	100
Lime	1305-78-8	1-5
potassium hydroxide	1310-58-3	5
Petroleum Grease Mix	1310-65-2	30-60
Sodium Hydroxide	1320-73-2	?
Xylene	1330-20-7	40-70

Appendix F
Chemicals (from MSDSs) Used by
Natural Gas Producers
the Pavillion, Wyoming Field

Chemical	CAS Number	Percent of Product Composition
Xylene	133-20-7	confidential
potassium metaborate	13709-94-9	60
potassium metaborate	13709-94-9	10
Heptane	142-82-5	60-70
Talc	14807-96-6	5-10
crystalline silica	14808-60-7	100
crystalline silica	14808-60-7	100
Glutaraldehyde	203-856-5	10-30
Polyethylene Glycol	25322-68-3	50-100
isooctanol	26952-21-6	10
Sodium Carbonate	497-19-8	?
polyepichlorohydrin, trimethyl amine quaternized	51838-31-4	60
2-bromo-2-nitro-1,3-propanediol	52-51-7	100
ethyl octynol	5877-42-9	5
Trimethylamine Hydrochloride	593-81-7	1-5
D-Limonene	5989-27-5	3-7
ammonium acetate	631-61-8	100
ethanol	64-17-5	30
ethanol	64-17-5	60
acetic acid	64-19-7	30
acetic acid	64-19-7	60
Aromatic Solvent	64741-68-0	<75% Vol
Petroleum Grease Mix	64742-01-4	30-60
hydrotreated light petroleum distillates	64742-47-8	60
Distillates(Petroleum)	64742-52-5	10-15
Petroleum Grease Mix	64742-52-5	30-60
Petroleum Grease Mix	64742-53-6	30-60
Petroleum Grease Mix	64742-56-0	30-60
Petroleum Grease Mix	64742-62-7	30-60
heavy aromatic petroleum naptha	64742-94-5	60
heavy aromatic petroleum naptha	64742-94-5	10
heavy aromatic petroleum naptha	64742-94-5	30
methanol	67-56-1	20
Methanol	67-56-1	7-13
Methanol	67-56-1	<8
Methanol	67-56-1	<25
Methanol	67-56-1	1-25
Methyl Alcohol	67-56-1	99.8
Methanol	67-56-1	40-70
Methanol	67-56-1	15-40
MEthanol	67-56-1	10-30
Methanol	67-56-1	15-40

Appendix F
Chemicals (from MSDSs) Used by
Natural Gas Producers
the Pavillion, Wyoming Field

Chemical	CAS Number	Percent of Product Composition
Methanol	67-56-1	20-40
propan-2-ol	67-63-0	30
isopropanol	67-63-0	30
isopropanol	67-63-0	60
Isopropyl Alcohol	67-63-0	10-30
Isopropyl Alcohol	67-63-0	confidential
Isopropanol	67-63-0	<3
isopropanol	67-63-0	1-5
Isopropyl Alcohol	67-63-0	<1
Isopropyl Alcohol	67-63-0	10-30
Isopropanol	67-63-0	1-3
Isopropanol	67-63-0	20-40
Isopropanol	67-63-0	10-30
Acetone	67-64-1	15-40
heavy aromatic petroleum naptha	67891-79-6	50
sulfate, ammonium salts	68037-05-8	<8
dimethyl formamide	68-12-2	30
#2 Diesel	68476-346	100
Diesel fuel	68476-34-6	100
diesel oil #2	68476-34-6	60
diesel fuel	68476-34-6	90
diesel fuel	68476-34-6	60
Petroleum Grease Mix	68783-36-8	30-60
Benzene	71-43-2	0.1-1
Benzene	71-43-2	0.1-1
Copper	7440-50-8	2-7
Sodium bicarbonate	7447-40-7	100
Methane	74-82-8	70-90
Ethane	74-84-0	0-15
Propane	74-98-6	0-10
Petroleum Grease Mix	7620-77-1	30-60
hydrochloric acid	7647-01-0	60
hydrochloric acid	7647-01-0	30
Sodium Chloride	7647-14-05	5-20
Sodium Chloride	7647-14-5	?
sodium chloride	7647-14-5	99
sodium chloride	7647-14-5	10
Nitrogen	7727-37-9	100
Barium Sulfate	7727-43-7	87
diammonium peroxisulphate	7727-54-0	100
Water	7732-15-5	<50
Water	7732-18-5	trace

Appendix F
Chemicals (from MSDSs) Used by
Natural Gas Producers
the Pavillion, Wyoming Field

Chemical	CAS Number	Percent of Product Composition
Dipotassium Phosphate	7758-11-4	<3
sodium acid polyphosphate	7758-16-9	100
sodium persulfate	7775-27-1	100
copper iodide	7861-65-4	5
#1 Diesel	8008-20-6	100
guar gum	9000-30-0	60
Poly anionic cellulose (Cellulose ether)	9004-32-4	?
hemicellulase enzyme	9012-54-8	15
Ethoxylated Alcohol	9016-45-9	1-3
naphthalene	91-20-3	10
naphthalene	91-20-3	1
Naphthalene	91-20-3	0-0.5
Naphthalene	91-20-3	0-0.5
1,2,4-trimethylbenzene	95-63-6	1
Bentinite	na	100
Inorganic Salt	NJST#254504001-5237	1.5-4.99
Alcohol Sulfate Foamer	NL	NL
Raffinates(Petroleum)	NL	30-60
Pretroleum (lubricant base oil)	Various	>87
Additives/Proprietary	?	<12
Poroprietary Blend	?	<8
Anionic Surfactants	?	<20
Proprietary Blend	?	<12
Proprietary Alcohol	?	1-5
Alkylamine Salts	?	40-70
Additives- Trade Secret	?	30-50
Polyether	?	20-40