EXHIBIT 2.04-E3

<u>Geologic Information, Item 9</u> Borehole Abandonment Information

Submitted August 2010 - MR-91

GVB-LW03-01, 02, GVB-LW04-01, 02, 03 GVB-LW07-02, 03, 04 GVB-LW08-01, 02, 03, 04,

Submitted December 2010 – MR-94

DG1 DW1 D2B2 D2B2A D2B2A D2B2B VB-01S-01

Submitted December 2012 – MR-102

GVB-LW10-04 GVB-LW10-05 GVB-LW15-01A GVB-LW15-01B GVB-LW15-02 GVB-LW15-08 GVB-LW16-01B, 01C, 01D, 01E GVB-LW16-02, 02B, 02C GVB-LW16-03 GVB-LW16-03 GVB-LW16-05B, 05C GVB-LW16-06 GVB-LW16-07, 07B, 07C GVB-LW09-01, 01B, 02, 03, 04, 05 GVB-LW10-01, 02, 03, 03B, 03C, GVB-LW11-01A, 01B, 02, 03 GVB-LW12-01

VB-01S-01 Utility GVB-LW15-03 GVB-LW15-04 GVB-LW15-05 GVB-LW15-06 GVB-LW15-07

GVB-LW17-01A, 01B, 01C GVB-LW17-02, 02C GVB-LW17-03 GVB-LW17-04, 04B, 04C, GVB-LW17-05B GVB-LW17-06, 06B GVB-LW17-07 GVB-LW17-09 GVB-LW17-09 GVB-LW18-03B GVB-LW18-07 GVB-LW19-01A GVB-LW19-03

Submitted January 2015 - MR-106

GVB-LW16-05 GVB-LW17-05

Submitted October 2015 - MR-107

Mine Dewater Boreholes: Dewater I, Dewater II Mine Recovery Gas Monitor Boreholes: TGBMPA, TGA, HGA, 5B, HGBMP GVB-16-08 GVB-17-02B, 06C GVB-18-01B, 02, 02B, 03, 04, 04B, 04C, 05, 06, 07B, 08, 09 GVB-19-01B, 01C, 01D, 02, 02B, 03B, 04, 04B, 05, 06, 07, 08, 09

Submitted December 2017 - MR-108

CBM-1,2,3,4,5,6,7,8,9,10,11,12,13,14

Submitted August 2020 – MR-112

ECM: 10-68, 69, 70, 71, 72, 73, 74, 75, 76 TC-1 WELL ABANDONMENT REPORT, TC-2 WELL OWNERSHIP TRANSFER GVB-16-01, GVB-17-08B, GVB-06-02, GVB-12-02, GVB-12-03, GVB-18-01A

Elk Creek Mine

Hole Number			: Elk Creek Mine- G	ob Vent Boreholes	
Lease Number		(State or Federal)) Surface Owner:	BLM	-
Date Commenced	1: 29-Jul-04	Date Completed	: 3-Aug-04		-
0			• <u> </u>		
Contractor			Gardner-Denver		
Geologist		Date :	V		Frank Pichardo
Driller		Truck Driver:		Helper:	
· · · · · · · · · ·	F. Yonnie		B. Roy		C. Delgarito
Coordinates: N		E.			
Location: Townsh			SW 1/4 Sec. 6, T. 1	3 S., R. 90 W.	
Ground Elevation:		_ Collar Elevation:			
Geophysical Log N			Elevation	-··· .	
Total Depth: Casing Type:		Probe Depth:		Fluid Level:	NA
Casing Type.	: Main hole- Solid	steel	Size:	7 5/8"	
Casing Type: Depth:	Bottom hole- slotte		Size:	5 1/2"	
Depth: Depth:		Recovered (Y or N):	<u>N</u>		
Deptn: Bit Information	440-000	Recovered (Y or N):	<u>N</u>		
Surface Casing	1/ 1/// Tri-cone	from 0-40' (12" casing)	·····		· · · · · · · · · · · · · · · · · · ·
Main Hole	9 7/8" Tri-cone fro			·····	·····
Core:	NA	111 40 10 400			
	6 3/4" Tri-cone fro	um 485' to 566'	····		
Building		<u>/////////////////////////////////////</u>			···-
Footage Plugged:	566'	Cored:	0		
Drilling Medium:	the second s	Sta-Foam 202/Water:	-	"a a sur lus in still	
· · · · · · · · · · · · · · · · · · ·	7 311 7		wiua: []	-nam injection:	
Depths:	0-40'	40'-566'		oam Injection:	
Depths:	0-40'	40'-566'			
Depths:	0-40' culation Depths:	40'-566' NA	Rega	ined ? (Y or N):	NA
Depths: Lost Circ Water Invasion De	0-40' culation Depths: epth or Intervals:	40'-566' NA NA	Regai Estimat	·····	NA NA
Depths: Lost Circ Water Invasion De	0-40' culation Depths: epth or Intervals:	40'-566' NA	Regai Estimat	ined ? (Y or N):	
Depths: Lost Cire Water Invasion De Gas Invasion D	0-40' culation Depths: epth or Intervals: Depth or Interval:	40'-566' NA NA unknown-30% @ wellhe	Rega Estimat ead	ined ? (Y or N):	
Depths: Lost Cire Water Invasion De Gas Invasion D	0-40' culation Depths: epth or Intervals: Depth or Interval:	40'-566' NA NA	Rega Estimat ead	ined ? (Y or N):	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor:	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L	Regai Estimat ead	ined ? (Y or N):	
Depths: Lost Cire Water Invasion De Gas Invasion D	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor:	40'-566' NA NA unknown-30% @ wellhe	Regai Estimat ead LLC Neutron:	ined ? (Y or N): ed Inflow Rates:	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X	Regai Estimat ead LLC Neutron: Density:	ined ? (Y or N): ed Inflow Rates:	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X	Regai Estimat ead LLC Neutron: Density: Caliper:	ined ? (Y or N): ed Inflow Rates: 	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X	Regai Estimat ead LLC Neutron: Density: Caliper:	ined ? (Y or N): ed Inflow Rates: 	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X X , Drift, Dep., Sonic): De	Rega Estimat ead LLC Neutron: Density: Caliper: eviation- 20' SE of si	ined ? (Y or N): ed Inflow Rates: X X urface location	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X	Regai Estimat ead LLC Neutron: Density: Caliper: eviation- 20' SE of si No. of Bags: 9 yds	ined ? (Y or N): ed Inflow Rates: X urface location s. Portland for annulus	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X X , Drift, Dep., Sonic): De	Rega Estimat ead LLC Neutron: Density: Caliper: eviation- 20' SE of si	ined ? (Y or N): ed Inflow Rates: X urface location s. Portland for annulus	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X , Drift, Dep., Sonic): De Y	Regal Estimat ead LLC Neutron: Density: Caliper: Caliper: veviation- 20' SE of st No. of Bags: 9 yds Interval: to st	ined ? (Y or N): ed Inflow Rates: X urface location s. Portland for annulus urface	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X , Drift, Dep., Sonic): De Y	Regai Estimat ead LLC Neutron: Density: Caliper: eviation- 20' SE of si No. of Bags: 9 yds	ined ? (Y or N): ed Inflow Rates: X urface location s. Portland for annulus	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To:_	0-40' culation Depths: epth or Intervals Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X , Drift, Dep., Sonic): De Y	Regai Estimat ead LLC Neutron: Density: Caliper: Caliper: eviation- 20' SE of si No. of Bags: 9 yds Interval: to si Rock Sent To:	ined ? (Y or N): ed Inflow Rates: X urface location s. Portland for annulus urface	
Depths: Lost Cire Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: 	0-40' culation Depths: epth or Intervals Depth or Intervals ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X , Drift, Dep., Sonic): Da Y	Regai Estimat ead LLC Neutron: Density: Caliper: Caliper: Caliper: No. of Bags: 9 yds Interval: to st No. of Bags: 9 yds Interval: to st Rock Sent To:	ined ? (Y or N): ed Inflow Rates: 	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: H</u>	0-40' culation Depths: epth or Intervals: Depth or Intervals ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X , Drift, Dep., Sonic): De Y Y	Regai Estimat ead LLC Neutron: Density: Caliper: Caliper: Caliper: No. of Bags: 9 yds Interval: to st No. of Bags: 9 yds Interval: to st Rock Sent To:	ined ? (Y or N): ed Inflow Rates: 	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: H shut off entirely after b</u> came under vacuum fr	0-40' culation Depths: epth or Intervals: Depth or Intervals ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA Hole producing 30% porehole cemented rom mine exhaust f	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X , Drift, Dep., Sonic): De Y %+ CH4 before cementin Broke through into got fan.	Regai Estimat ead LLC Neutron: Density: Caliper: eviation- 20' SE of st No. of Bags: 9 yds Interval: to st No. of Bags: 9 yds Interval: to st Rock Sent To: mg. Gas b @ 565' (6" void), a	ined ? (Y or N): ed Inflow Rates: X urface location s. Portland for annulus urface NA	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: H</u> shut off entirely after b came under vacuum fr 120' of 5 1/2" slotted c	0-40' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA Hole producing 30% porehole cemented com mine exhaust f asing set on bottor	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X , Drift, Dep., Sonic): De Y Y %+ CH4 before cementin b. Broke through into got fan. m of hole to cave along to	Regai Estimat ead LLC Neutron: Density: Caliper: eviation- 20' SE of st No. of Bags: 9 yds Interval: to st No. of Bags: 9 yds Interval: to st Rock Sent To: mg. Gas b @ 565' (6" void), a	ined ? (Y or N): ed Inflow Rates: X urface location s. Portland for annulus urface NA	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: H shut off entirely after b</u> came under vacuum fr	0-40' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA Hole producing 30% porehole cemented com mine exhaust f asing set on bottor	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X , Drift, Dep., Sonic): De Y Y %+ CH4 before cementin b. Broke through into got fan. m of hole to cave along to	Regai Estimat ead LLC Neutron: Density: Caliper: eviation- 20' SE of st No. of Bags: 9 yds Interval: to st No. of Bags: 9 yds Interval: to st Rock Sent To: mg. Gas b @ 565' (6" void), a	ined ? (Y or N): ed Inflow Rates: X urface location s. Portland for annulus urface NA	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: H shut off entirely after b came under vacuum fr 120' of 5 1/2" slotted c Stewart Bros. Drilling:</u>	0-40' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA Hole producing 30% porehole cemented rom mine exhaust f asing set on bottor Colorado water we	40'-566' NA NA unknown-30% @ wellhe Jet West Geophysical, L X , Drift, Dep., Sonic): De Y Y %+ CH4 before cementin b. Broke through into got fan. m of hole to cave along to	Regai Estimat ead LLC Neutron: Density: Caliper: eviation- 20' SE of st No. of Bags: 9 yds Interval: to st No. of Bags: 9 yds Interval: to st Rock Sent To: ng. Gas b @ 565' (6" void), a	ined ? (Y or N): ed Inflow Rates: X X ufface location s. Portland for annulus urface NA after which well b inside 7 5/8".	

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Elk Creek Mine

				a da anna ann an ann ann an an an an an an	
Hole Numbe	r: GVB-LW-03-02	Project ID	: Elk Creek Mine- G	oh Vant Bareholes	
Lease Number	34) Surface Owner:	BLM	
Date Commenced		Date Completed			
Contractor	: Stewart Bros.	Ria Type	Gardner-Denver		
Geologist	: Doug Allen	Date		Toolpusher:	Frank Pichardo
Driller	: J. Barris	Truck Driver:		Helper:	
	F. Yonnie		B. Roy		E.Martinez
Coordinates: N	. 11724.4950	- E.		-	
Location: Townsh	nip, Range & Sect	ion:	SE 1/4 Sec. 6, T. 1	3 S., R. 90 W.	
Ground Elevation:	8056'	Collar Elevation:			
Geophysical Log N	Measured From:	Ground	Elevation		
Total Depth	1990'	Probe Depth:	1993'	Fluid Level:	NA
	Main hole- Solid		Size:	7 5/8"	
	Bottom hole- slotte		Size:	5 1/2"	
Depth:		Recovered (Y or N):			
Depth:	1786'-1946'	Recovered (Y or N):	N		
Bit Information					
Surface Casing		from 0-17' (12" casing)			
Main Hole	9 7/8" Tri-cone fro	om 17' to 1840'			
Core:	NA				
Bottom Hole	6 3/4" Tri-cone fro	om 1840' to 1993'		_	
Footage Plugged:		Cored:	0		
Drilling Medium:	Air:	Sta-Foam 202/Water:	Mud:	oam Injection:	
Depths:	0-20'	20'-1993'			
			_		
	culation Depths:	NA		ined? (Y or N):	NA
Water Invasion De		NA	Estimat	ed Inflow Rates:	NA
Gas Invasion L	Depth or Interval:	NA	•		
Combunical Log	aina Contractor	lat Maat Cambusiaal			
Geophysical Log	ging Contractor:	Jet West Geophysical,			
Logo Duni	Gamma:	Х	Mautuan		
Logs Run:	Temperature:	Λ	Neutron:		
	Resistivity:	X	Density:	<u>X</u>	
0+h			Caliper:	X	
U	iei (57, 100, 2100,	, Drift, Dep., Sonic): [reviation-17.2 at 25	b./5 degrees	
Hole Cemented	(YorN) Type:	Y	No. of Bade: 00 h	ags + 5 yds. for annulus	
			Interval: to s		
				unace	
Coal Core Sent To:	NA		Rock Sent To:	NA	
Coal Cole Sent To.	NA		nuck Sent 10;		
Comments:					
	d on bottom and a	llowed to set to prevent	redi-mix from comin	a un inclide	
7 5/8" casing. 5 yds.				g up inside	
		e drilled to 1990' for log	aing tool rattail Hold	acmonted	
back up to 1946' (11' a			ying toor ratial. Not		
		m loose to cave along v	ith cob- 54 ovorlan	nuido 7 5/0"	
Stewart Bros. Drilling:			au you- 54 overlap		
		emented to surface and	abandonad on Aug	14 1005	
i neumatic piug set @	230 OH AUG. 19, 0	emented to sufface alle	a abanuoneu on Aug	. 24, 2005.	

Elk Creek Mine

Hole Numbe			and an electronic contraction and the second second for each of	والمحمد والمتحد بالمترجي التبينات المحيف بالالكام ال	
	r: GVB-LW-04-01	Project ID.:	Elk Creek Mine- Go	b Vent Boreholes	
Lease Numbe	r: COC-61357	(State or Federal)		BLM	-
Date Commenced	I: 10-Aug-04	Date Completed:			-
		_			
Contracto	r: Stewart Bros.	Rig Type:	Gardner-Denver		
Geologis	L: Doug Allen	Date :	15-Sep-03	Toolpusher:	Frank Pichardo
Driller		Truck Driver:	B. Joe	Helper:	Wilburn
	F. Yonnie		B. Roy	•	C. Delgarito
Coordinates: N		E.	33640.9018		
Location: Townsh		ion:	NW 1/4 Sec. 6, T. 1	3 S., R. 90 W.	
Ground Elevation:		Collar Elevation:			
Geophysical Log I			Elevation		
Total Depth		Probe Depth:	1067	Fluid Level:	NA
Casing Type	Main hole- Solid	steel	Size:	7 5/8"	
	Bottom hole- slotte		Size:	5 1/2"	
Depth	terre and the second se	Recovered (Y or N):	N		
Depth	831'-911'	Recovered (Y or N):	N		
Bit Information					
Surface Casing		rom 0-40' (12" casing)			
Main Hole	9 7/8" Tri-cone fro	m 40' to 910'			
Core:	NA				
Bottom Hole	6 3/4" Tri-cone fro	m 910' to 1075'			
Footage Plugged:	1075'	Cored:	0		
Drilling Medium:		Sta-Foam 202/Water:	Mud: F	oam injection:	
Depths:	0-40'	40-1075'			
Leat On	aulatian Dautha.	N1A	. .		
	culation Depths:	<u>NA</u>		ned ? (Y or N):	NA
Water Invasion De		NA Walkarawa 0.8.0.0%	Estimate	d Inflow Rates:	NA
Gas myasion L	epin or interval:	unknown-0.8-3.2% @ w	elinead		
Geophysical Log	aina Contractor	Jet West Geophysical, L			
deophysical Log		Jet west Geophysical, L	10	·······	
Logs Run:	Gamma:	Х	Neutron:		
Logs nun.		<u>^</u>			
	Temnerature		Doneitru	v	
	Temperature:	<u> </u>	Density:	X	
Oth	Resistivity:	X Drift Den Sonic): De	Caliper:	X	
Oth	Resistivity:	X Drift, Dep., Sonic): De	Caliper:	X	
	Resistivity: er (SP, Foc. Elec.	Drift, Dep., Sonic): De	Caliper:	X ace location	
Oth Hole Cemented (Resistivity: er (SP, Foc. Elec.		Caliper:	X ace location	18
	Resistivity: er (SP, Foc. Elec.	Drift, Dep., Sonic): De	Caliper:	X ace location	15
Hole Cemented (Resistivity: _ er (SP, Foc. Elec. <u>Y</u> or N), Type:	<mark>, Drift, Dep., Sonic):</mark> <u>De</u> Y	Caliper: eviation- 8' N. of suff No. of Bags: 20, + Interval: to su	X ace location ⁶ yds portland for annulu rface	18
	Resistivity: er (SP, Foc. Elec.	<mark>, Drift, Dep., Sonic):</mark> <u>De</u> Y	Caliper:	X ace location	18
Hole Cemented (Coal Core Sent To: _	Resistivity: _ er (SP, Foc. Elec. Y or N), Type: NA	<mark>Prift, Dep., Sonic):</mark> <u>D</u> ε Υ	Caliper: eviation- 8' N. of suff No. of Bags: 20, + Interval: to su Rock Sent To:	X ace location ⁶ yds portland for annult Iface NA	
Hole Cemented (Coal Core Sent To: _ Comments: f	Resistivity: er (SP, Foc. Elec. Y or N), Type: NA	Prift, Dep., Sonic): De Υ Ising dropped to bottom	Caliper: eviation- 8' N. of suff No. of Bags: 20, + Interval: to su Rock Sent To: of hole; retrieved w/	X ace location ⁶ yds portland for annulu Iface NA oilfield spear and o	k to use.
Hole Cemented (Coal Core Sent To: _ Comments: <u>f</u> 20 bags cement place	Resistivity: er (SP, Foc. Elec. Y or N), Type: NA First 80' of 7 5/8" ca d around bottom of	Prift, Dep., Sonic): De Y Ising dropped to bottom 7 5/8" casing, topped o	Caliper: eviation- 8' N. of suffactor No. of Bags: 20, + Interval: to suffactor Rock Sent To:	X ace location fyds portland for annulu iface NA oilfield spear and o ix, all poured from	k to use.
Hole Cemented (Coal Core Sent To: Comments: <u>f</u> 20 bags cement place Bottom hole drilled thr	Resistivity: er (SP, Foc. Elec. Y or N), Type: NA irst 80' of 7 5/8" ca d around bottom of u D seam to verify	Y Y sing dropped to bottom 7 5/8" casing, topped o elevation- survey mistak	Caliper: eviation- 8' N. of suff No. of Bags: 20, + Interval: to su Rock Sent To: of hole; retrieved w/ ff with 6 yds. Redi-m re results in hitting D	X ace location ⁶ yds portland for annulu rface NA oilfield spear and o ix, all poured from seam 63' high.	k to use.
Hole Cemented Coal Core Sent To: Comments: f 20 bags cement place Bottom hole drilled thr Resurvey shows hole	Resistivity: er (SP, Foc. Elec. Y or N), Type: NA irst 80' of 7 5/8" ca d around bottom of u D seam to verify still suitably located	Y Y Sing dropped to bottom 7 5/8" casing, topped o elevation- survey mistak over panel. Bottom of	Caliper: eviation- 8' N. of suff No. of Bags: 20, + Interval: to su Rock Sent To: of hole; retrieved w/ ff with 6 yds. Redi-m te results in hitting D solid casing lies 37'	X ace location Syds portland for annulu Iface NA oilfield spear and o ix, all poured from seam 63' high. above coal (910').	k to use.
Hole Cemented Coal Core Sent To: Comments: f 20 bags cement place Bottom hole drilled thr Resurvey shows hole	Resistivity: er (SP, Foc. Elec. Y or N), Type: NA irst 80' of 7 5/8" ca d around bottom of u D seam to verify still suitably located	Y Y sing dropped to bottom 7 5/8" casing, topped o elevation- survey mistak	Caliper: eviation- 8' N. of suff No. of Bags: 20, + Interval: to su Rock Sent To: of hole; retrieved w/ ff with 6 yds. Redi-m te results in hitting D solid casing lies 37'	X ace location Syds portland for annulu Iface NA oilfield spear and o ix, all poured from seam 63' high. above coal (910').	k to use.
Hole Cemented (Coal Core Sent To: Comments: f 20 bags cement place Bottom hole drilled thr Resurvey shows hole Bottom hole cemented	Resistivity: er (SP, Foc. Elec. Y or N), Type: NA irst 80' of 7 5/8" ca d around bottom of u D seam to verify still suitably located up to 911'; 80' of	Y Y Sing dropped to bottom 7 5/8" casing, topped o elevation- survey mistak over panel. Bottom of	Caliper:	X ace location 6 yds portland for annult fface NA oilfield spear and o ix, all poured from seam 63' high. above coal (910').	k to use. surface.

Elk Creek Mine

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	r: <u>GVB-LW-04-02</u>		Elk Creek Mine- C	aob Vent Boreholes	_
Lease Number		(State or Federal)		BLM	-
Date Commenced	l: 8-Sep-04	Date Completed:	15-Sep-04		-
Contractor	: Stewart Bros.	Pig Type:	Cordner Donver		
			Gardner-Denver	T - shavab av	C
Geologist		- Date :	21-Sep-04		Frank Pichardo
Driller		I RUCK Driver:	B. Joe	Helper:	P.Pizano
- Ilization N	F. Yonnie		B. Roy		E.Martinez
Coordinates: N.			38277.7780		
Location: Townsh			SE 1/4 Sec. 6, T.	13 S., R. 90 W.	
Ground Elevation:		_ Collar Elevation:			
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
	Main hole-Solid		Size:	7"	
Casing Type:	Bottom hole- slot	ted, flush thread	Size:	5 1/2"	
Depui:		Recovered (Y or N):	<u>N</u>		
Depth:	1870'-2030'	Recovered (Y or N):	N		
Bit Information		2.001/408			
Surface Casing	12 1/4" I n-cone	from 0-20' (10" casing)			
Main Hole	9 7/8" Tri-cone fro	om 20' to 1955'			- <u>18</u>
Core:	NA				
Bottom Hole	6 3/4" Tri-cone fro	om 1955' to 2095'			<u></u>
Footage Plugged:		Cored:	0		
Drilling Medium:	The second se	Sta-Foam 202/Water:	Mud:	Foam Injection:	
Depths:	0-20'	20'-2095'			
Last Oliv					
	culation Depths:			ained ? (Y or N):	<u>NA</u>
Water Invasion De	epth or Intervals:	NA		ained ? (Y or N): ated Inflow Rates:	NA NA
Water Invasion De		NA			
Water Invasion De Gas Invasion D	epth or Intervals: Depth or Interval:	NA NA	Estima		
Water Invasion De Gas Invasion D Geophysical Log	epth or Intervals: Depth or Interval: ging Contractor:	NA NA Jet West Geophysical, I	Estima		
Water Invasion De Gas Invasion D	epth or Intervals: Depth or Interval: ging Contractor: Gamma:	NA NA	Estima	ated Inflow Rates:	
Water Invasion De Gas Invasion D Geophysical Log	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA NA Jet West Geophysical, I X	Estima LC Neutron: Density:	ated Inflow Rates:	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jet West Geophysical, I X X	LC Neutron: Density: Caliper:	ated Inflow Rates:	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jet West Geophysical, I X	LC Neutron: Density: Caliper:	ated Inflow Rates:	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA NA Jet West Geophysical, I X X	LC Neutron: Density: Caliper: eviation- 67.1' at 24	ated Inflow Rates:	
Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA NA Jet West Geophysical, I X ., Drift, Dep., Sonic): D	LC Neutron: Density: Caliper: eviation- 67.1' at 24	X X 41.85 degrees yds. Portland for annulus	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA NA Jet West Geophysical, I X X , Drift, Dep., Sonic): D Y	LC Neutron: Density: Caliper: eviation- 67.1' at 2/ No. of Bags: 22 Interval: to	X X 41.85 degrees yds. Portland for annulus surface	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA NA Jet West Geophysical, I X X , Drift, Dep., Sonic): D Y	LC Neutron: Density: Caliper: eviation- 67.1' at 24 No. of Bags: 22	X X 41.85 degrees yds. Portland for annulus	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: Annulus volume calcu	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type: NA	NA NA Jet West Geophysical, I X , Drift, Dep., Sonic): D Y umped 14 yds. down dri	Estima <u>LC</u> <u>Neutron:</u> <u>Density:</u> <u>Caliper:</u> eviation- 67.1' at 2 ⁱ No. of Bags: 22 Interval: to Rock Sent To:	X X 41.85 degrees yds. Portland for annulus surface NA	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: Annulus volume calcu grout shoe, and up arc	epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: NA	NA NA Jet West Geophysical, I X , Drift, Dep., Sonic): D Y y umped 14 yds. down dri sing. 8 yds. placed from	Estima <u>LC</u> <u>Neutron:</u> <u>Density:</u> <u>Caliper:</u> eviation- 67.1' at 24 No. of Bags: 22 Interval: to Rock Sent To:	X X 41.85 degrees yds. Portland for annulus surface NA Iger seated into	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments:</u> <u>Annulus volume calcu</u> grout shoe, and up arc D seam from 2052'- 20	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA lated @ 18 yds., p ound outside of cas 069'. Bottom hole	NA NA Jet West Geophysical, I X , Drift, Dep., Sonic): D Y y umped 14 yds. down dri sing. 8 yds. placed from drilled to 2095' for loggi	Estima <u>LC</u> <u>Neutron:</u> <u>Density:</u> <u>Caliper:</u> eviation- 67.1' at 24 No. of Bags: 22 Interval: to Rock Sent To: <u>Il pipe, through stir</u> surface. ng tool rattail. Hole	X X 41.85 degrees yds. Portland for annulus surface NA iger seated into	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments:</u> <u>Annulus volume calcu</u> grout shoe, and up arc D seam from 2052'- 20	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA lated @ 18 yds., p ound outside of cas 069'. Bottom hole	NA NA Jet West Geophysical, I X , Drift, Dep., Sonic): D Y y umped 14 yds. down dri sing. 8 yds. placed from	Estima <u>LC</u> <u>Neutron:</u> <u>Density:</u> <u>Caliper:</u> eviation- 67.1' at 24 No. of Bags: 22 Interval: to Rock Sent To: <u>Il pipe, through stir</u> surface. ng tool rattail. Hole	X X 41.85 degrees yds. Portland for annulus surface NA iger seated into	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: Annulus volume calcu grout shoe, and up arc D seam from 2052'- 20 to 2047' (5' above sea 4 bags of cement plac	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: NA Ilated @ 18 yds., p ound outside of cas 069'. Bottom hole un) with coal fines.	NA NA Jet West Geophysical, I X X , Drift, Dep., Sonic): D Y Y sing. 8 yds. placed from drilled to 2095' for loggi Plug gel (2 bags, dry) p o 2030'. Bottom of 5.5"	Estima LC Neutron: Density: Caliper: eviation- 67.1' at 2 No. of Bags: 22 Interval: to Rock Sent To: Il pipe, through stir surface. ng tool rattail. Hole blaced on top of com	X X 41.85 degrees yds. Portland for annulus surface NA iger seated into e filled back up al fines to 2044'.	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: Annulus volume calcu grout shoe, and up arc D seam from 2052'- 20 to 2047' (5' above sea 4 bags of cement plac 80' solid) set at 2030',	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: NA llated @ 18 yds., p ound outside of cas 069'. Bottom hole im) with coal fines. red on top of gel, to with 47' overlap in	NA NA Jet West Geophysical, I X , Drift, Dep., Sonic): D Y Y umped 14 yds. down dri sing. 8 yds. placed from drilled to 2095' for loggi Plug gel (2 bags, dry) p o 2030'. Bottom of 5.5" iside 7'.	Estima LC Neutron: Density: Caliper: eviation- 67.1' at 2 No. of Bags: 22 Interval: to Rock Sent To: Il pipe, through stir surface. ng tool rattail. Hole blaced on top of com	X X 41.85 degrees yds. Portland for annulus surface NA iger seated into e filled back up al fines to 2044'.	
Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: Annulus volume calcu grout shoe, and up arc D seam from 2052'- 20 to 2047' (5' above sea 4 bags of cement plac 80' solid) set at 2030', Stewart Bros. Drilling:	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type: NA Ilated @ 18 yds., p ound outside of cas 069'. Bottom hole im) with coal fines. red on top of gel, to with 47' overlap in Colorado water w	NA NA Jet West Geophysical, I X , Drift, Dep., Sonic): D Y Y umped 14 yds. down dri sing. 8 yds. placed from drilled to 2095' for loggi Plug gel (2 bags, dry) p o 2030'. Bottom of 5.5" iside 7'.	Estima LC Neutron: Density: Caliper: eviation- 67.1' at 2 No. of Bags: 22 Interval: to Rock Sent To: Il pipe, through stir surface. ng tool rattail. Hole blaced on top of coa slotted casing (80'	X At .85 degrees yds. Portland for annulus surface NA ger seated into e filled back up al fines to 2044'. slotted below	

		Oxbow Min	ning LLC		
		Elk Cree			
			SV HIIIG		
			an in 1990 (1994) an an an Arian an Arian		
	r: <u>GVB-LW04-03</u>	Project ID.	Elk Creek Mine-G		_
Lease Numbe			Surface Owner:	BLM	•
Date Commence	d:24-Jan-05	Date Completed:	5-Feb-05		
Contracto	r: -limes Drilling, Inc	Ria Type	PortaDrill TKT2000	/ Rig P.9	
Geologis		Date :			Tim/Kevin Himes
	r: Sam Homedew		Kirk Homedew	Helper:	Matt Himes
	······································				
	. 36493.2130	E.			<u> </u>
Ground Elevation:	hip, Range & Section		NE 1/4 Sec. 6, T. 13	3 S., R. 90 W.	
Geophysical Log		Collar Elevation: Ground	Elevation		
Total Depth		Probe Depth:		Fluid Level:	10501
	: Main hole- Solid ste	el. T&C	Size:	7"	1050'
	: Bottom hole- slotted		Size:	5 1/2"	
Depth	: 0-841' R	ecovered (Y or N):			
Depth		ecovered (Y or N):			
Bit Information	10 0/01 T - (-				
Surface Casing Main Hole	9 7/8" Tri-cone from	m 0-65' (10 3/4" casir	1g)		
Core:	NA NA	65' to 841'			
Bottom Hole	6 1/2" Tri-cone from	841' to 1081' Touch	nd D2 soam @ 1090	1	
			20 DZ 30011 @ 1000	·	
Footage Plugged:		Cored:	0		
Drilling Medium:	and the second se	a-Foam 202/Water:	Mud: F	oam Injection:	
Depths:	0-65'	65'-1081'			
Lost Cir	culation Depths:	NA	Dawa		
Water Invasion De		275', 660'	Regal Estimat	ned ? (Yor N):	NA
	Depth or Interval:	NA	LStillat	ed Inflow Rates:	5 gpm, 5 gpm
Geophysical Log	ging Contractor: <u>Jet</u>	West Geophysical, L	LC		[
Logo Duni	Commen	V			
Logs Run:	Gamma: Temperature:	X	Neutron: Density:		
	Resistivity:	X	Caliper:	X	
Oth	er (SP, Foc. Elec., D		eviation- 27.5' at 256	degrees	
				degreed	
Hole Cemented ((Yor N), Type: Redi-		No. of Bags: 9 yds.	Portland for annulus	
	for 7	7" casing	Interval: to su	Irface	
Coal Care Caret T	NIA				
Coal Core Sent To:	NA 7" againg comontod wi	th Quarda radi mit	Rock Sent To:	NA	
	7" casing cemented wi it. Cement level @ 7	11 9 yarus reul-mix p	oniano siurry. Pumpe	ed downhole with	
inside casing account	ed for by extra volume	ordered/ extra water	added to thin mix for	Extra cement	
Bottom hole drilled dr.	, but created water ov	ver time. Water in ho	ttom made placing 1	2' cement	
difficult- effort unsucce	essful with rig. Jetwes	t placed 2.5 sacks ce	ment on bottom with	30' dump	
baler (2 runs) - three h	iours on site. (Himes [Drilling: Colorado wat	er well license #128	5)	
343.3' of 5.5" casing (t	pottom 85' slotted) set	on cement plug-elev	ation 1061' below su	uríace.	
	threaded left-hand.				
neumatic plug set @	74' on Aug. 19, ceme	nted to surface and a	bandoned on Aug 2	4 2005	

		Oxbow Mi	ning LLC		
		Elk Cree	-		
			~17 TTTTC	an direction and the contract of the second seco	
Hole Numbe	r:	2 Project ID.	: Elk Creek Mine Go	b Vent Boreholes	
Lease Numbe			Surface Owner:	USFS	•
Date Commenced	!: 18-Jun-06	Date Completed:	7-Jul-06		•
Contractor	: WDC Drilling, Ir	C. Ria Type:	Gefco 90K		
Geologist	: Ken Ball/ D. Alle	en Date :		Toolpusher:	Kevin Jones
Driller	: Alan Taylor	Truck Driver:	Robert Labahn	Helper:	
	Kevin Lewis		Marvin Eldridge		Bill Spain
Coordinates: N		E.		•	
Location: Townsh			SE 1/4 Sec. 35, T.	12 S., R. 91 W.	
Ground Elevation:		Collar Elevation:			
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	1640'	Fluid Level:	NA
Casing Type:		-	Size:	9 5/8"	
	slotted steel, T8		Size:	7"	
Depth:		Recovered (Y or N):	N- cemented		
Depth: Bit Information	1434-1720'	_ Recovered (Y or N):	N-loose		
Surface Casing	17" Tri pono (14)	Logging) from 0.001			
Main Hole	12 1/4" Tri-cone	' casing) from 0-20'			
Core:	12 1/4 11-0010	10 1494			
	8 3/4" Tri-cone to	17201			
Footage Plugged:	1720'	Cored:	NA		
Drilling Medium:	Air:	Sta-Foam 202/Water:		oam Injection:	
Depths:	0-20'	20-1720'		ourn injection.	
			<u></u>	· ·	
Lost Cire	culation Depths:	NA	Regai	ned? (Yor N):	
Water Invasion De		NA		ed Inflow Rates:	
Gas Invasion D	epth or Interval:	NA			
Geophysical Logo	ing Contractor:	Jet West Geophysical; V	Velenco; Century Ge	ophysical	
Logs Run:	Gamma:	v	Manduan		
Logs nun.	Temperature:	X	Neutron:		
	Resistivity:		Density:	<u>X</u>	
Oth		., Drift, Dep., Sonic): 2	Caliper:	X	
Olin		., Drin, Dep., Somo): <u>2 (</u>	gyro deviation surve	/s: +/- 40' @ 280 de	g.
	Yor N) Type	Y	No. of Bags: 15yd	• • • • • • • • • • • • • • • • • • •	
Hole Cemented (Interval: to su		
Hole Cemented (_ of ((), ())po(-			nace	
Hole Cemented (_ of it), () por -				
				ΝΙΑ	
Hole Cemented (oal Core Sent To: _	NA	F	Rock Sent To:	NA	
oal Core Sent To: _	NA		Rock Sent To:		
oal Core Sent To: Comments: H	NA lole drilled into gol	b post-longwalling. Mine	Rock Sent To:	d. Drilled hole	
oal Core Sent To: _ Comments: H 00' past projected D2	NA lole drilled into gol elevation with no	b post-longwalling. Mine sign of void. Installed 20	Rock Sent To:	d. Drilled hole	
oal Core Sent To: Comments: H 0º past projected D2 lid; 7" casing overlap	NA lole drilled into gol elevation with no ps 62' inside 9 5/8	b post-longwalling. Mine sign of void. Installed 20 " casing.	Rock Sent To: void not encountere	d. Drilled hole	
oal Core Sent To: Comments: H 10' past projected D2 Ilid; 7" casing overlap vo deviation surveys	NA lole drilled into gol elevation with no os 62' inside 9 5/8 two surface re-su	b post-longwalling. Mine sign of void. Installed 20 " casing. urveys confirm correct loc	Rock Sent To: void not encountere 07.5' slotted casing b cation and depth.	d. Drilled hole elow 80'	
oal Core Sent To: Comments: H 00' past projected D2 lid; 7" casing overlap vo deviation surveys alliburton attempts to othane pump set up o	NA lole drilled into gol elevation with no os 62' inside 9 5/8 two surface re-su frac strata at mine on hole, but did no	b post-longwalling. Mine sign of void. Installed 20 " casing.	Rock Sent To: void not encountere 07.5' slotted casing to cation and depth. lons water. No pres of gas to run. Pumr	d. Drilled hole below 80' sure built.	

		Oxbow Min	ning LLC		
		Elk Cree	ek Mine		
					··
Hole Numbe		Project ID.	Elk Creek Mine Ex	ploration	
Lease Number	r: COC-61357	(State or Federal	Surface Owner:	BLM	•
Date Commenced	l: 6-Jan-06	Date Completed	1-Feb-06		
Contractor	:Stewart Bros.	Rig Type:	Gardner-Denver 25	500-Rig #46	
Geologist		Date :		Toolpusher:	Frank Pichardo
Driller		Truck Driver:	Ray Contreras		Paco Pizzano
_	Donn Massey		Javier Gallegos		Mike Lewis
Coordinates: N		Ε.		•	
Location: Townsh			NW 1/4 Sec. 1, T. 1	3 S., R. 91 W.	
Ground Elevation:		Collar Elevation:			
Geophysical Log I			Elevation		
Total Depth		Probe Depth:		Fluid Level:	n/a
Casing Type:		-	Size:	9 5/8"	
	slotted steel, T&		Size:	7"	
Depth:		Recovered (Y or N):	N- cemented		
Depth:	1346'-1549'	Recovered (Y or N):	N-loose		
Bit Information	1				
Surface Casing	1/" auger from C)-10' (14" culvert)			
Main Hole	12 1/4" Tri-cone 1	rom 10' to 1455'			
Core:					
	0.0/41 Tri		·····		
Bottom Hole	8 3/4" Tri-cone fro	om 1445'-1590'			
Bottom Hole		· · · · ·	0		
Bottom Hole Footage Plugged:	1590'	Cored:	0 	Form Injection:	
Bottom Hole Footage Plugged: Drilling Medium:	1590' Air:	Cored: Sta-Foam 202/Water:		Foam Injection:	
Bottom Hole Footage Plugged:	1590'	Cored:		Foam Injection:	
Bottom Hole Footage Plugged: Drilling Medium: Depths:	1590' Air: 0-10'	Cored: _ Sta-Foam 202/Water: 10'-1590'	Mud: F	······································	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cire	1590' Air: 0-10' culation Depths:	Cored:	Mud: F Rega	ined ? (Yor N):	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion De	1590' Air: 0-10' culation Depths: pth or Intervals:	Cored: Sta-Foam 202/Water: 10'-1590' NA NA	Mud: F Rega	······································	·····
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion De	1590' Air: 0-10' culation Depths:	Cored: Sta-Foam 202/Water: 10'-1590' NA NA	Mud: F Rega	ined ? (Yor N):	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D	1590' Air: 0-10' culation Depths: opth or Intervals: epth or Interval:	Cored: Sta-Foam 202/Water: 10'-1590' NA NA	Mud: F Rega Estimat	ined ? (Yor N):	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D	1590' Air: 0-10' culation Depths: pth or Intervals: lepth or Intervals: ging Contractor: Gamma:	Cored: Sta-Foam 202/Water: 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X	Mud: F Rega Estimat	ined ? (Yor N):	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Logo	1590' Air: 0-10' culation Depths: pth or Intervals: lepth or Intervals: ging Contractor: Gamma:	Cored: Sta-Foam 202/Water: 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X	Mud: F Rega Estimat	ined ? (Y or N): ed Inflow Rates:	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Logo	1590' Air: 0-10' culation Depths: pth or Intervals: lepth or Intervals: ging Contractor: Gamma:	Cored: Sta-Foam 202/Water: 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X	Mud: F Rega Estimat LC Neutron: Density:	ined ? (Yor N):	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	1590' Air: 0-10' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	Cored: Sta-Foam 202/Water: 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X	Mud: F Rega Estimat LC Neutron: Density: Caliper:	ined ? (Y or N): ed Inflow Rates: 	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	1590' Air: 0-10' culation Depths: pth or Intervals: lepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	Cored: <u>Sta-Foam 202/Water:</u> 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X X Drift, Dep., Sonic): D	Mud: F Rega Estimat LC Neutron: Density: Caliper: eviation: 23.7' at 118	ined ? (Y or N): ed Inflow Rates: X X 3 degrees	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	1590' Air: 0-10' culation Depths: pth or Intervals: lepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	Cored: <u>Sta-Foam 202/Water:</u> 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X X Drift, Dep., Sonic): D	Mud: F Rega Estimat LC Neutron: Density: Caliper: eviation: 23.7' at 118 No. of Bags: 19yd	ined ? (Y or N): ed Inflow Rates: X 3 degrees ds portland for 9 5/8 annu	lus
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	1590' Air: 0-10' culation Depths: pth or Intervals: lepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	Cored: <u>Sta-Foam 202/Water:</u> 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X X Drift, Dep., Sonic): D	Mud: F Rega Estimat LC Neutron: Density: Caliper: eviation: 23.7' at 118 No. of Bags: 19yd	ined ? (Y or N): ed Inflow Rates: X X 3 degrees	lus
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (1590' Air: 0-10' culation Depths: pth or Intervals: lepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. <u>Y</u> or N), Type:	Cored: <u>Sta-Foam 202/Water:</u> 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X X , Drift, Dep., Sonic): D Y	Mud: F Rega Estimat LC Neutron: Density: Caliper: eviation: 23.7' at 118 No. of Bags: 19 yo Interval: 10 st	ined ? (Y or N): ed Inflow Rates: X X 3 degrees ds portland for 9 5/8 annu urface	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	1590' Air: 0-10' culation Depths: pth or Intervals: lepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. <u>Y</u> or N), Type:	Cored: <u>Sta-Foam 202/Water:</u> 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X X , Drift, Dep., Sonic): D Y	Mud: F Rega Estimat LC Neutron: Density: Caliper: eviation: 23.7' at 118 No. of Bags: 19 yo Interval: 10 st	ined ? (Y or N): ed Inflow Rates: X 3 degrees ds portland for 9 5/8 annu	lus
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirry Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (1590' Air: 0-10' culation Depths: pth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. <u>Y</u> or N), Type: NA	Cored: <u>Sta-Foam 202/Water:</u> 10'-1590' <u>NA</u> <u>NA</u> CH4 1455'-1557' Jet West Geophysical, I <u>X</u> <u>X</u> , Drift, Dep., Sonic): <u>D</u> <u>Y</u>	Mud: F Rega Estimate LC Neutron: Density: Caliper: Caliper: eviation: 23.7' at 118 No. of Bags: 19yo Interval: to su Rock Sent To:	ined ? (Y or N): ed Inflow Rates: X X 3 degrees ds portland for 9 5/8 annu urface NA	lus
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirry Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (1590' Air: 0-10' culation Depths: pth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. <u>Y</u> or N), Type: NA	Cored: <u>Sta-Foam 202/Water:</u> 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X X , Drift, Dep., Sonic): D Y	Mud: F Rega Estimate LC Neutron: Density: Caliper: Caliper: eviation: 23.7' at 118 No. of Bags: 19yo Interval: to su Rock Sent To:	ined ? (Y or N): ed Inflow Rates: X X 3 degrees ds portland for 9 5/8 annu urface NA	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirry Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (1590' Air: 0-10' culation Depths: pth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. <u>Y</u> or N), Type: NA	Cored: <u>Sta-Foam 202/Water:</u> 10'-1590' <u>NA</u> <u>NA</u> CH4 1455'-1557' Jet West Geophysical, I <u>X</u> <u>X</u> , Drift, Dep., Sonic): <u>D</u> <u>Y</u>	Mud: F Rega Estimate LC Neutron: Density: Caliper: Caliper: eviation: 23.7' at 118 No. of Bags: 19yo Interval: to su Rock Sent To:	ined ? (Y or N): ed Inflow Rates: X X 3 degrees ds portland for 9 5/8 annu urface NA	lus
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirre Water Invasion De Gas Invasion De Geophysical Logg Logs Run: Oth Hole Cemented (coal Core Sent To: Comments: L	1590' Air: 0-10' culation Depths: peth or Intervals: peth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. <u>Y</u> or N), Type: NA	Cored: Sta-Foam 202/Water: 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X , Drift, Dep., Sonic): D Y vo deviation logs- cumula	Mud: F Rega Estimat LLC Neutron: Density: Caliper: eviation: 23.7' at 118 No. of Bags: 19yc Interval: to si Rock Sent To: ative drift 23.7' at 11	ined ? (Y or N): ed Inflow Rates: X X 3 degrees ds portland for 9 5/8 annu urface NA	lus
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirre Water Invasion De Gas Invasion De Geophysical Logg Logs Run: Oth Hole Cemented (coal Core Sent To: Comments: L	1590' Air: 0-10' culation Depths: peth or Intervals: peth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. <u>Y</u> or N), Type: NA	Cored: <u>Sta-Foam 202/Water:</u> 10'-1590' <u>NA</u> <u>NA</u> CH4 1455'-1557' Jet West Geophysical, I <u>X</u> <u>X</u> , Drift, Dep., Sonic): <u>D</u> <u>Y</u>	Mud: F Rega Estimat LLC Neutron: Density: Caliper: eviation: 23.7' at 118 No. of Bags: 19yc Interval: to si Rock Sent To: ative drift 23.7' at 11	ined ? (Y or N): ed Inflow Rates: X X 3 degrees ds portland for 9 5/8 annu urface NA	lus
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (oal Core Sent To: Comments: L casing overlaps 99'	1590' Air: 0-10' culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type: NA Jnable to merge tw inside 9 5/8" casir	Cored: Sta-Foam 202/Water: 10'-1590' NA NA CH4 1455'-1557' Jet West Geophysical, I X , Drift, Dep., Sonic): D Y vo deviation logs- cumula	Mud: F Rega Estimate LC Neutron: Density: Caliper: eviation: 23.7' at 118 No. of Bags: 19yc Interval: to si Rock Sent To: 111	ined ? (Y or N): ed Inflow Rates: X X 3 degrees ds portland for 9 5/8 annu urface NA 8 degrees.	lus

		Oxbow Min	ning LLC		North a statistical and the state of the state.
		Elk Cree	-		
Hole Number:		Project ID.	Elk Creek Mine E	xploration	
Lease Number:		(State or Federal)	Surface Owner:	BLM	_
Date Commenced:	4-Feb-06	Date Completed	15-Feb-06		-
Contractor:	Stewart Bros.	Rig Type:	Gardner-Denver 2	500-Rig #46	
Geologist:	Doug Allen	Date :		Toolpusher:	Frank Pichardo
Driller:	Justin Barris	Truck Driver:	Ray Contreras	Helper:	Paco Pizzano
Coordinates: N.	Ferlin Yonnie 14791.18	_ Е.	Javier Gallegos		Mike Lewis
Location: Townshi			31120.93 NE 1/4 Sec. 1, T. 1	3S R Q1W	
Ground Elevation:	6883'	Collar Elevation:	NE 174 000. 1, 1. 1	00., 11. 01 14.	
Geophysical Log M	easured From:	Ground	Elevation		
Total Depth:	785'	Probe Depth:		Fluid Level:	NA
Casing Type:	steel, T&C	7	Size:	9 5/8"	
Depth:	slotted steel, T& 0-640'	Recovered (Y or N):	Size:	7"	
Depth: _	580'-740'	Recovered (Y or N):			
Bit Information	000 / 40		11-10036		
Surface Casing	17" Tri-cone from	n 0-56' (14" steel casing	-welded)		
-	12 1/4" Tri-cone 1	from 56' to 640'		······	······
Core:		0401 7051			
Bottom Hole	3 3/4" Tri-cone fro	om 640'-785'			
Footage Plugged:	785'	Cored:	0		
Drilling Medium:	Air:	Sta-Foam 202/Water:	Mud:	Foam Injection:	
Depths: _	0-35'	35'-785'			
Lost Circ	ulation Depths:	NA	Rega	ainedi? (YorN):	
Water Invasion Dep	•	35'		ted Inflow Rates:	0.5 gpm
Gas Invasion De	pth or Interval:				
Geophysical Loggi	ing Contractor	Jet West Geophysical, I	10		
	ing contractor.				
Logs Run:	Gamma:		Neutron:		
	Temperature:		Density:	<u>X</u>	
Othe	Resistivity:	, Drift, Dep., Sonic): D	Caliper:	X A da grada a	
Othe		., Dint, Dep., Some).	eviation. 12.0 at 20	lo uegrees	
Hole Cemented (Y or N), Type:	Y	No. of Bags: 9 yo	Is for 9 5/8 annulus	
	-		interval: to s	surface	
Cool Corra Corra Tor	NIA		De als Cant Tax		
Coal Core Sent To:	INA	· · · · · · · · · · · · · · · · · · ·	Rock Sent To:	NA	
Comments:					
		· · · · · · · · · · · · · · · · · · ·			
casing overlaps 80' li	IISIQE 9 5/8" CASII	ng (40' slotted, 40' solid)			
5/8" casing abandone	d to surface with	9 cubic yards portland t	ype II cement July	2009.	
Stewart Bros. Colorado			,		

		Outour Mi	nime TTA		
		Oxbow Mi Elk Cre			
				and the second of the second	
Hole Numbe Lease Numbe Date Commenced		(State or Federal	: Elk Creek Mine G) Surface Owner: : 12/2006; 2/2007	USFS	
Contracto Geologis	r: REI/ Target t: Doug Allen r: REI: T. Fields	Rig Type Date : Truck Driver:	Fletcher/ UG Dire	clional Toolpusher :	REI: Alan
Location: Townsh		E.	TGT:Bob/Taylor 2998.18/ 22998.00 SW 1/4 Sec. 35, T	· ·	TGT:Koski/Alex
Ground Elevation: Geophysical Log I Total Depth	Measured From: 840'/ 50'	Collar Elevation: Ground Probe Depth:	Elevation NA	Fluid Level:	NA
Casing Type Casing Type Depth Depth	REI: 40'	Recovered (Y or N):	Size: Size: N N	REI: 10" TGT: 16"	
Bit Information Surface Casing Main Hole	REI: 13 3/4"Tricor	Recovered (Y or N): ne; TGT: 18" reamer ilot, reamed to 5 3/4"	N		
Core: Bottom Hole	NA REI: 3 3/4" PDC p				
Footage Plugged: Drilling Medium: Depths:		Cored: _ Foam/Water:	NA Mud: 0-840'	Foam Injection:	
Water Invasion De		sporadic from 0-840' NA NA	Reg. Estima	ained ? (Y or N): ted Inflow Rates:	<u>N</u>
Geophysical Log	ging Contractor: _	NA			
Logs Run: Oth	Gamma: Temperature: Resistivity: er (SP, Foc. Elec.,	Drift, Dep., Sonic):	Neutron: Density: Caliper:		
Hole Cemented (Y or N), Type:	NA	No. of Bags: Interval:		
Coal Core Sent To: _	NA	1	Rock Sent To:	NA	
V	est end of panel 8.	ble attempted twice to v Both attempts, with d al motor after encounte	ifferent contractors,	eder in failed.	
(drilled post-longwallin Open hole abandoned	ng). Unable to retri- to surface with 4 c	armotor after encounte eve, cemented in place ubic yds. Portland Type drill/ set surface casing	during abandonme Il cement, Decem	ber, 2006.	
occond allempt. Taly		univ set sundue casing	i on proper alignme	ni, aismissea.	

		Oxbow Mi	ning LLC		
		Elk Cree	-		
	ciana an in the Statistic August Marketing	EIV CIG	er Wille	en se fan de fan ferfenske fan de serene se	
		an an affan - '' ha a an an air fan a san an an			
Hole Number Lease Number			Elk Creek Mine Gol		
Date Commenced			Surface Owner:	USFS	
Date Commenced	- 24-Aug-00	Date Completed	20-Sep-00		
Contractor	: WDC/ Himes	Ria Type:	Failing 90K/ Portadr	ill TKT300	
Geologist	and the second se	Date :		Toolpusher:	Kevin Jones
Driller		Truck Driver:			Geoff Sakioka
	Kevin Lewis	—	Marvin Eldridge	•	Greg Olson
Coordinates: N		E.		•	
Location: Townsh			SE 1/4 Sec. 35, T. 1	2 S., R. 91 W.	
Ground Elevation:	7875'	Collar Elevation:			
Geophysical Log N		Ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:		-	Size:	95/8"	
Casing Type: Depth:	slotted steel, T&		Size:	7"	
Depth:	0-1620' 1567.3-1694.7	Recovered (Y or N):	N- cemented		
Bit Information	1007.3-1094.7	Recovered (Y or N):	N-loose		
Surface Casing	17" Tri-cone (1/1	' casing) from 0-20'			······································
Main Hole	12 1/4" Tri-cone t	0 1620'			· · · · · · · · · · · · · · · · · · ·
Core:		0 1020			
	8 3/4" Tri-cone to	1760'	·····	······	······································
Footage Plugged:	1760'	Cored:	0		
Drilling Medium:	Air:	Sta-Foam 202/Water:	Mud: F	oam Injection:	
Depths:	0-20'	20-1760'			
Lost Circ	culation Depths:	NA	Regai	nedi? (YorN):	
Water Invasion De		NA		d Inflow Rates:	
	epth or interval:	NA			
Geophysical Logo	una Contractor:	Jet West Geophysical, I			
deophysical Loge	ing contractor.	oet west deophysical, i			
Logs Run:	Gamma:	Χ	Neutron:		
	Temperature:	X	Density:	X	
	Resistivity:	<u>X</u>	Caliper:	X	
Oth	er (SP, Foc. Elec.	., Drift, Dep., Sonic): D	eviation: 8.2' @ 184 (degrees	
Hole Cemented (Y or N), Type:	Y	No. of Bags: 21 yds	s. portland for annulus	
		·····	Interval: to su	rface	
Coal Core Sent To: _	NA		Rock Sent To:	NA	
Comments: C	Cement plug @ mi	ne roof drilled out by Hir	nes Drilling after WD	C failed to land	
		correctly, WDC mistake			
ocation and 7" landed				<u> </u>	
) overlaps 52.7' inside §			
Bottom hole, 7" casing	completed by Hin	nes Drilling after WDC u		finish hole.	
-limes Drilling Colorad			······		
) 5/8' casing abandone	ed to surface with	23 cubic yds. Portland t	ype II cement July, 20)09.	

			ning LLC		
	y fyr an han a blann yw ar haff yn yf yr yn af ar haf fal ar yn yr yn ar han fal far ar yn ar yw yr yn ar fal a	Elk Cre	ek Mine	ayan daha Talaya kata kata dalam dalam yang menangkan dalam dalam dalam dalam dalam dalam dalam dalam dalam da	a a a a a a a a a a a a a a a a a a a
Hole Numbe		Durtantio			a a an
Lease Numbe			.: Elk Creek Mine Got I) Surface Owner:	BLM	
Date Commenced	and the second se	Date Completed			
			. 00-001-00		
Contracto	r: WDC Drilling, In	c. Rig Type	e: Gefco 90K		
Geologis		Date	: 15-Oct-06	Toolpusher:	Kevin Jones
Drille		Truck Driver	: Robert Labahn		James Timms
	Kevin Lewis	-	Marvin Eldridge		Bill Spain
Coordinates: N		E E			
Ground Elevation:	hi <mark>p, Range & Sect</mark> :	Collar Elevation	SW 1/4 Sec. 36, T. 1	2 S., R. 91 W.	
Geophysical Log		_ Collar Elevation	Elevation		
Total Depth		Probe Depth:		Fluid Level:	NA
Casing Type		-	Size:	9 5/8"	NA
• • • •	slotted steel, T&	ō	Size:	7"	
Depth	: 0-1504' *	Recovered (Y or N):			
Depth	: 1302.5-1720'	Recovered (Y or N):			
Bit Information		-			
Surface Casing	17" Tri-cone (14"	casing) from 0-19'			
Main Hole	12 1/4" Tri-cone t	0 1620'			
Core: Bottom Hole	8 3/4" Tri-cone to	1700			
		1780			
Footage Plugged:		Cored:	0		
Drilling Medium:	1780' Air:		0 Mud: Fo	pam Injection:	
	1780' Air:	Cored:		pam Injection:	
Drilling Medium: Depths:	1780' Air: 0-20'	Cored: Sta-Foam 202/Water: 20-1780'	Mud: Fo		
Drilling Medium: Depths: Lost Cir	1780' Air: 0-20' rculation Depths:	Cored: Sta-Foam 202/Water: 20-1780' NA	Mud: Fo	ech? (Yor N):	
Drilling Medium: Depths: Lost Cir Water Invasion De	1780' Air: 0-20' rculation Depths: epth or Intervals:	Cored: Sta-Foam 202/Water: 20-1780' NA NA	Mud: Fo		
Drilling Medium: Depths: Lost Cir Water Invasion De	1780' Air: 0-20' rculation Depths:	Cored: Sta-Foam 202/Water: 20-1780' NA	Mud: Fo	ech? (Yor N):	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion E	1780' Air: 0-20' rculation Depths: epth or Intervals: Depth or Interval:	Cored: Sta-Foam 202/Water: 20-1780' NA NA	Mud: Fo Regain Estimated	ech? (Yor N):	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	1780' Air: 0-20' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor:	Cored: Sta-Foam 202/Water: 20-1780' NA NA NA Jet West Geophysical,	Mud: Fo Regain Estimate	ech? (Yor N):	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion E	1780' Air: 0-20' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	Cored: Sta-Foam 202/Water: 20-1780' NA NA NA	Mud: Fo Regain Estimate LLC Neutron:	ed ? (Y or N):	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion E Geophysical Log	1780' Air: 0-20' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	Cored: Sta-Foam 202/Water: 20-1780' NA NA NA Jet West Geophysical, X	Mud: Fo Regain Estimated LLC Neutron: Density:	ed ? (Y or N): d Inflow Rates:	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion I Geophysical Log Logs Run:	1780' Air: 0-20' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	Cored: Sta-Foam 202/Water: 20-1780' NA NA Jet West Geophysical, X	Mud: Fo Regain Estimated LLC Neutron: Density: Caliper:	ed ? (Y or N): d Inflow Rates: 	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion I Geophysical Log Logs Run:	1780' Air: 0-20' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	Cored: Sta-Foam 202/Water: 20-1780' NA NA NA Jet West Geophysical, X	Mud: Fo Regain Estimated LLC Neutron: Density: Caliper:	ed ? (Y or N): d Inflow Rates: 	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion I Geophysical Log Logs Run: Oth	1780' Air: 0-20' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	Cored: Sta-Foam 202/Water: 20-1780' NA NA Jet West Geophysical, X	Mud: Fo Regain Estimated LLC Neutron: Density: Caliper: Deviation: 10' @ 208 de	ed ? (Y or N): d Inflow Rates: X 	15
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion I Geophysical Log Logs Run: Oth	1780' Air: 0-20' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	Cored: <u>Sta-Foam 202/Water:</u> 20-1780' NA NA Jet West Geophysical, X , Drift, Dep., Sonic): [Mud: Fo Regain Estimated LLC Neutron: Density: Caliper:	ed ? (Y or N): d Inflow Rates: X 2grees. Videolog. portland for 9 5/8 annul	18
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented (1780' Air: 0-20' reculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type:	Cored: <u>Sta-Foam 202/Water:</u> 20-1780' NA NA Jet West Geophysical, X , Drift, Dep., Sonic): [Mud: Fo Regain Estimated LLC Neutron: Density: Caliper: Deviation: 10' @ 208 do No. of Bags: 4 yds. Interval: to sur	ed ? (Y or N): d Inflow Rates: X 2grees. Videolog. portland for 9 5/8 annul	18
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented (1780' Air: 0-20' reculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type:	Cored: <u>Sta-Foam 202/Water:</u> 20-1780' NA NA Jet West Geophysical, X , Drift, Dep., Sonic): [Mud: Fo Regain Estimated LLC Neutron: Density: Caliper: Deviation: 10' @ 208 de No. of Bags: 4 yds.	ed ? (Y or N): d Inflow Rates: X 2grees. Videolog. portland for 9 5/8 annul	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (1780' Air: 0-20' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type: NA	Cored: <u>Sta-Foam 202/Water:</u> 20-1780' NA NA NA Jet West Geophysical, X , Drift, Dep., Sonic): [Y	Mud: Fo Regain Estimated LLC Neutron: Density: Caliper: Caliper: Deviation: 10' @ 208 de No. of Bags: 4 yds. Interval: to sur Rock Sent To:	ed ? (Y or N): d Inflow Rates: X 2grees. Videolog. portland for 9 5/8 annul face NA	//
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented (bal Core Sent To: Comments: *	1780' Air: 0-20' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type: NA	Cored: <u>Sta-Foam 202/Water:</u> 20-1780' NA NA Jet West Geophysical, X , Drift, Dep., Sonic): [Mud: Fo Regain Estimated LLC Neutron: Density: Caliper: Caliper: Deviation: 10' @ 208 de No. of Bags: 4 yds. Interval: to sur Rock Sent To:	ed ? (Y or N): d Inflow Rates: X 2grees. Videolog. portland for 9 5/8 annul face NA	/8
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (Dal Core Sent To: Comments: *	1780' Air: 0-20' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: NA 9 5/8" casing part	Cored: <u>Sta-Foam 202/Water:</u> 20-1780' <u>NA</u> <u>NA</u> Jet West Geophysical, <u>X</u> , Drift, Dep., Sonic): <u>Y</u> red from 1334-1343'. E	Mud: Fc Regain Estimate LLC Neutron: Density:	ed ? (Y or N): d Inflow Rates: X Digrees. Videolog. portland for 9 5/8 annul face NA s (142')	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (Dal Core Sent To:_ Comments: * Ided 195' above DZ aily report incorrectly	1780' Air: 0-20' reculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 9 5/8" casing part seam. y states casing set	Cored: <u>Sta-Foam 202/Water:</u> 20-1780' NA NA Jet West Geophysical, X , Drift, Dep., Sonic): <u>C</u> Y ed from 1334-1343'. E on bottom @1554', act	Mud: Fc Regain Estimate LLC Neutron: Density: Caliper: Deviation: 10' @ 208 de No. of Bags: 4 yds. Interval: to sur Rock Sent To: Sottom of dropped joint ually @ 1504' including	ed ? (Y or N): d Inflow Rates: z z egrees. Videolog. portland for 9 5/8 annul face NA s (142') 9' parting.	18
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (Dal Core Sent To: Comments: * Ided 195' above DZ illy report incorrectly	1780' Air: 0-20' reculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 9 5/8" casing part seam. y states casing set	Cored: <u>Sta-Foam 202/Water:</u> 20-1780' <u>NA</u> <u>NA</u> Jet West Geophysical, <u>X</u> , Drift, Dep., Sonic): <u>C</u> <u>Y</u> red from 1334-1343'. E	Mud: Fc Regain Estimate LLC Neutron: Density: Caliper: Deviation: 10' @ 208 de No. of Bags: 4 yds. Interval: to sur Rock Sent To: Sottom of dropped joint ually @ 1504' including	ed ? (Y or N): d Inflow Rates: z z egrees. Videolog. portland for 9 5/8 annul face NA s (142') 9' parting.	

Oxb	oow Mining LLC
	k Creek Mine
	Project ID.: Elk Creek Mine Gob Vent Boreholes e or Federal) Surface Owner: BLM
Date Commenced: 26-Sep-06 Date	e Completed: 24-Oct-06
Contractor: -limes Drilling, Inc Geologist: Doug Allen Driller: Sam Homedew T	Rig Type: Portadrill TKT-300 Date : 24-Oct-06 Toolpusher: Kevin Himes Fruck Driver: Helper: Mike
Coordinates: N. <u>16131.33</u> Location: Township, Range & Section:	E. 30131.68 SW 1/4 Sec. 36, T. 12 S., R. 91 W.
Ground Elevation: 7023' Colla	ar Elevation:
	robe Depth:
Depth: 0-820' Recover	red (Y or N): N- cemented red (Y or N): N-loose
Surface Casing 17" Tri-cone (14" casing) from 12 1/4" Tri-cone to 820' Core: 12 1/4" Tri-cone to 820'	'om 0-20'
Bottom Hole 8 3/4" Tri-cone to 960'	
· · · · · · · · · · · · · · · · · · ·	Cored: 0 202/Water: Mud: Foam Injection: -960'
Water Invasion Depth or Intervals:	NA Regained ? (Y or N): NA Estimated Inflow Rates: NA
Geophysical Logging Contractor: Jet West G	Geophysical, LLC
Temperature: Resistivity:X	X Neutron: Density: X X Caliper: X p., Sonic): Deviation: 56' @ 314 degrees
Hole Cemented (<u>Y</u> or N), Type: Y	No. of Bags: 5 yds. portland for 9 5/8 annulus Interval: to surface
Coal Core Sent To: NA	Rock Sent To: NA
Comments: 7" casing overlaps 47' inside 9	9 5/8" casing. 7" landed at 917', 18' above D2 roof.
9 5/8" casing abandoned to surface with 14 cubic ya	ards portland type II cement July, 2009.
Himes Drilling Colorado water well license #1285	

		Orthers Nd.		ai a Taise di malanda da kata ka 194	1
		Oxbow Mi: Elk Cree	-		
	an a	EIK CIG	ek Mine	n a ta an	a nga manan tanèn katana na akai si
		nine indige at the first of the second s			
Hole Numbe Lease Numbe		Project ID. (State or Federal	: Elk Creek Mine Gol) Surface Owner:	Vent Boreholes USFS	
Date Commenced		Date Completed		03F5	
		- Date completed			
Contracto		_ Rig Type:			
Geologis Driller		Date :		Toolpusher:	
Diffe		Truck Driver:	Scott Copley	Helper:	Duane Paul
Coordinates: N		- E.	23056.88	-	i aui
Location: Townsh			SW 1/4 Sec. 35, T.1	2S., R.90W.	
Ground Elevation:		Collar Elevation: Ground			
Geophysical Log I Total Depth		Probe Depth:	Elevation NA	Fluid Level:	NA
Casing Type		-	Size:	6"	11/ 1
	: Sonic FJ, slotted		Size:	4.5"	
Depth: Depth:		Recovered (Y or N):			
Bit Information	4.603-903	Recovered (Y or N):	<u>N</u>		
Surface Casing	13 3/4" Tricone fo	r 10"x50' surface		•	······
Main Hole		eamed to 5 3/4", then re	eamed to 9 3/4", to 74	40'	
Core: Bottom Hole	NA	eamed to 5 3/4", to 904	I		
Dottom Trole		ameu 10 5 5/4 , 10 904			
Footage Plugged:		Cored:	NA		
Drilling Medium:		Foam/Water:	Mud: Fo	oam injection:	
Depths:		0-924'		<u></u>	
Lost Cir	rculation Depths:	0-740'	Regai	ned? (YorN):	Ν
Water Invasion De		580-590'	Estimate	d Inflow Rates:	8-10 gpm
Gas Invasion I	Depth or Interval:	NA			
Geophysical Log	ging Contractor:	NA			
Logs Run:	Gamma:		Neutron		
Logo num.			Neutron: Density:		
	Resistivity:		Caliper:	· · · · · · · · · · · · · · · · · · ·	
Oth	ier (SP, Foc. Elec.,	Drift, Dep., Sonic):			
Hole Cemented	(<u>Y</u> or N), Type:	Y	No. of Bags: 17 yds		
			Interval: see l	pelow	
Coal Core Sent To:	NA		Rock Sent To:	NA	
Comments:	Directional hole laur	nched over headgate of	panel 9. 4" slotted		
casing sits @ 903', 1	5' above D2 seam (@ 918'.		·····	
5.5 yds portland displa	aced from inside ca	sing with rubber pig, 11			
		ment did not return to s			
polyure inane resin ar	iu o sacks cement p	placed @ 50' to stabiliz	e casing at sufface.		
3" casing abandoned	to surface with 6 cu	bic yds. portland type II	cement November, 2	2007.	

		Oxbow Mi	ning LLC	ngay ya kanang nga kanan dan manan di	
		Elk Cre	ek Mine		
			an a		
Hole Number			: Elk Creek Mine Go		
Lease Number) Surface Owner:	USFS	
Date Commenced	: 30-Aug-07	Date Completed	: 7-Sep-07		
Contractor:	Stewart Bros.	Rig Type	Failing 2500 Rig 4	5	
Geologist:	Doug Allen	Date :	15-Jan-08	Toolpusher:	Justin Barris
Driller:		Truck Driver:	S. Platero	Helper:	Z. Asher
	Bryan Tulley	-	T. Martinez	· _	C. Charley
	Earl Martinez	-	D. Hudson		O. Chacho
Coordinates: N.	18345.93	- E.	24931.23		
Location: Townshi	p, Range & Secti	on:	SW 1/4 Sec. 35, T.	12S., R.90W.	
Ground Elevation:	7585'	Collar Elevation:			
Geophysical Log M	easured From:	Ground	Elevation		
Total Depth:	1458'	Probe Depth:	1440' (camera)	Fluid Level:	NA
Casing Type:		•	Size:	9 5/8"	
Casing Type:		•		"(5 slotted, 2 solid)	
	9 5/8": 0-1360'	Recovered (Y or N):		(0 0,000 0, 1 0, 000, 00)	
- 1,	7": 1300-1440'	(,	N		
Bit Information					
	17" Tricone to 20":	(14" surface casing)			
•	12 1/4" Tricone to				•
	NA				
-	8 3/4" Tricone to 1	458'			
•					· · · · · · · · · · · · · · · · · · ·
Footage Plugged:	1458'	Cored:	NA		
Drilling Medium:	Air:	Foam/Water:	Mud:	Foam Injection:	
Depths:	0-20'	20-1458'	······································		
Lost Circ	culation Depths:	NA	Rega	ained? (Y or N):	
Water Invasion De		NA	Estima	ted Inflow Rates:	
Gas Invasion D	epth or Interval:	NA			
Geophysical Logo	jing Contractor:	let West Geophysical,	LLC		
Logs Run:	Gamma:		Neutron:		
Logo Halli	Temperature:		Density:		
	Resistivity:		Caliper:		
Othe		Drift, Dep., Sonic):			
	· · · · · · · · · · · · · · · · · · ·		<u> </u>		
Hole Cemented (<u>Y</u> or N), Type:	Y	No. of Bags: 2 yo	s portland for 9 5/8 annulus	3
			Interval: to a		·······
			<u></u>		
coal Core Sent To:	NA		Rock Sent To:	NA	
Comments: H	lole drilled post-lon	gwalling, into roof gob.	2' void encountere	d@ 1445':	
		asing set on bottom of			
		gh gas to operate. Cas			······
and a second second in		<u> </u>	<u> </u>		
-					
				<u> </u>	
5/8" casing abandon	ed to surface with :	26 cubic yards portland	type II cement July	2009	
		,	71		
an a					

		Oxbow Mi	ning LLC		
	and and any particular spin it was also been	Elk Cree	ek Mine		
				yan da kata a kata ng pinanan kata pangang	
Hole Number		_ Project ID.	Elk Creek Mine G	iob Vent Boreholes	
Lease Number			Surface Owner:	USFS	
Date Commenced	21-Aug-07	_ Date Completed	28-Aug-07		
Contractor	Stewart Bros.	Rig Type:	Failing 2500 Rig 4	15	
Geologist	Doug Allen	Date :		Toolpusher:	Justin Barris
Driller:	Bryan Joe	- Truck Driver:	J. Billy	Helper:	S. Platero
	Bryan Tulley		T. Martinez	· -	C. Charley
	Earl Martinez		D. Hudson	-	O. Chacho
Coordinates: N.		Ε.	26166.41		
Location: Townshi	• •		SE 1/4 Sec.35, T.1	12S., R.90W.	
Ground Elevation:	7644'	Collar Elevation:			
Geophysical Log M		Ground	Elevation		
Total Depth:	1547'	Probe Depth:	1533'	Fluid Level:	NA
Casing Type:	steel, T&C		Size:	9 5/8"	
Casing Type:	steel, FJ			7"(5 slotted, 2 solid)	
Depth:		Recovered (Y or N):	<u>N</u>		
	7": 1384-1524'		N		
Bit Information					
		(14" surface casing)			
Main Hole Core:	12 1/4" Tricone to NA	1440.			*- va
	NA 8 3/4" Tricone to 1	E 171			
Bollotil Hole		<u></u>			
Footage Plugged:	1547'	Cored:	NA		
Drilling Medium:	Air:	Foam/Water:	Mud:	Foam Injection:	
Depths:	0-145'	145-1547'			
	ulation Depths:	NA	Reg	ained ? (Y or N):	
Water Invasion De		NA	Estima	ted Inflow Rates:	
Gas Invasion D	epth or Interval:	1540-1547'			
Geophysical Logo	ing Contractor:	let West Geophysical, I	LC		
Logs Run:	Gamma:	Х	Neutron:		
	Temperature:		Density:	X	
	Resistivity:	X	Caliper:	<u> </u>	
Othe		Drift, Dep., Sonic): D	eviation: 56' @ 286		
Hole Cemented (<u>Y</u> or N), Type:	Y	No. of Bags: 10	yds portland for annulus	
			Interval: to		
Coal Core Sent To:	NA		Rock Sent To:	NA	
-					·····
Comments: D 9' cement plug from 1	2 seam not logged 524-1533'. Botton	due to time constraint	(longwall approach 8' above D2 seam (ing). 1542-1555').	
o vontione plug nom i					
	d to ourface with (Coubiovde Dortland +	una ll comant luite	0000	
		26 cubic yds. Portland t			

Oxbow Mining LLC Elk Creek Mine

Hole Numbe	r: GVB-LW09-03	Project ID	· Elk Creek Mine	Gob Vent Boreholes	
Lease Numbe		(State or Federal)			
Date Commenced		Date Completed			
	**				
Contractor	r: WDC Drilling, Ind	c. Rig Type:	Gefco 90K		
Geologist	t: Doug Allen	Date :	15-Oct-06	Toolpusher:	Kevin Jones
Driller		Truck Driver:	Sam Rivera	Helper:	Max Karish
	Kevin Lewis	_	Marvin Eldridge		Geoff Sakioka
Coordinates: N			27218.33		
Location: Townsh			SE 1/4 Sec. 35, 1	^r . 12 S., R. 91 W.	
Ground Elevation:		_ Collar Elevation:		-	
Geophysical Log I		Ground	Elevation		
Total Depth		_ Probe Depth:		Fluid Level:	NA
Casing Type		č	Size:		
Depth:	slotted steel, T& 0-1840'		Size:	/"	
Depth: Depth:		Recovered (Y or N): Recovered (Y or N):			
Bit Information	1103-2003		INTIOUSE		
Surface Casing	17" Tri-cone (14"	casing) from 0-20'		····	
Main Hole	12 1/4" Tri-cone te			······································	
Core:			· · · · · · · · · · · · · · · · · · ·		·····
Bottom Hole	8 3/4" Tri-cone to	2060'			
Footage Plugged:		Cored:	0		
Drilling Medium:		Sta-Foam 202/Water:	Mud:	Foam Injection:	
Depths:	0-20'	20-2060'			
Lest Oir		NIA	-		
	culation Depths:	NA NA		gained ? (YorN):	
Water Invasion De	Depth or Intervals:	NA NA	Estim	ated Inflow Rates:	
Cas Invasion L	- epin of interval.				
Geophysical Log	ging Contractor:	Jet West Geophysical, I	10		
	9				
Logs Run:	Gamma:	Х	Neutron:		
-	Temperature:		Density:	Х	
	Resistivity:	X	Caliper:	X	
Oth	er (SP, Foc. Elec.	, Drift, Dep., Sonic): D	eviation: 37.7' @ :	237 degrees	
Hole Cemented	(<u>Y</u> or N), Type: _	Y		yds portland for 9 5/8 annu	lus
			Interval: to	surface	
Coal Core Sent To: _	NA	·	Rock Sent To:	NA	
Commont		waaaaful pushad:	ng through and		
		successful- pushed casi			
		06'. 7" casing (244' tota worn out, large hole call			
unite i set trian pla	11100-12 1/4 DILS V	woni out, large note Call		<u>d</u> [].)	
		<u></u>			
9 5/8" casing abandor	red to surface with	21 cubic vards nortland	type II cement du	v 2009	
9 5/8" casing abandor	ed to surface with	21 cubic yards portland	type II cement Ju	ly, 2009.	

	Arborn Mining TTA
	Oxbow Mining LLC Elk Creek Mine
n i kan darama yan menangan kan sangan sangan kan dari dan sangan sangan sangan sangan sangan sangan sangan sa	HIV CLEEN WINE
anne a le man a suada parte en den de fa ^{nne a} nde se la parte de la complete de la sua de se	۵٬۵۳۵ (۱۹۹۹ - ۲۰۰۹) (۱۹۹۹ - ۲۰۰۹) (۱۹۹۹ - ۲۰۰۹) (۱۹۹۹ - ۲۰۰۹) (۱۹۹۹ - ۲۰۰۹) (۱۹۹۹ - ۲۰۰۹) (۱۹۹۹ - ۲۰۰۹) (۱۹۹۹ - ۱۹۹۹ - ۲۰۰۹)
Hole Number: <u>GVB-LW09-04</u> Lease Number: <u>COC-61357</u>	Project ID.: Elk Creek Mine Gob Vent Boreholes
Date Commenced: 17-Aug-06	(State or Federal) Surface Owner: BLM Date Completed: 23-Aug-06
Contractor: WDC Drilling, Inc.	Rig Type: Gefco 90K
Geologist: Doug Allen Driller: Alan Taylor	Date : 15-Oct-06 Toolpusher: Kevin Jones Truck Driver: Jay Ross Helper: Geoff Sakioka
Kevin Lewis	Marvin Eldridge Greg Olson
Coordinates: N. 17294.34	E. 29017.90
Location: Township, Range & Section Ground Elevation: 7424	n: <u>SW 1/4 Sec. 36, T. 12 S., R. 91 W.</u> Collar Elevation:
Geophysical Log Measured From:	Ground Elevation
Total Depth: 1384'	Probe Depth: 1380' Fluid Level: NA
Casing Type: <u>steel, T&C</u> Casing Type: slotted steel, T&C	Size: 95/8" Size: 7"
	Recovered (Y or N): N- cemented
Depth: 1178.5-1332.5' R	ecovered (Y or N): <u>N-loose</u>
Bit Information Surface Casing 17" Tri-cone (14" ca	asian) from 0.201
Main Hole 12 1/4" Tri-cone to 1	
Core:	
Bottom Hole 8 3/4" Tri-cone to 13	
Footage Plugged: 1384'	Cored: 0
Drilling Medium: Air: Sta	a-Foam 202/Water: Mud: Foam Injection:
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths:	a-Foam 202/Water: Mud: Foam Injection: 20-1384' NA Regained ? (Y or N):
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: Water Invasion Depth or Intervals:	a-Foam 202/Water: Mud: Foam Injection: 20-1384' NA Regained ? (Y or N): NA Estimated Inflow Rates:
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths:	a-Foam 202/Water: Mud: Foam Injection: 20-1384' NA Regained ? (Y or N):
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: Water Invasion Depth or Intervals:	a-Foam 202/Water: Mud: Foam Injection: 20-1384'
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: <u></u> Water Invasion Depth or Intervals: Gas Invasion Depth or Interval: <u></u> Geophysical Logging Contractor: Jet	a-Foam 202/Water: Mud: Foam Injection: 20-1384' Regained ? (Y or N): NA Regained ? (Y or N): NA Estimated Inflow Rates: NA Estimated Inflow Rates: NA Estimated Inflow Rates:
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: Water Invasion Depth or Intervals: Gas Invasion Depth or Interval: Geophysical Logging Contractor: <u>Jet</u> Logs Run: Gamma: Temperature:	a-Foam 202/Water: Mud: Foam Injection: 20-1384'
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: <u></u> Water Invasion Depth or Intervals: <u></u> Gas Invasion Depth or Interval: <u></u> Geophysical Logging Contractor: <u>Jet</u> Logs Run: Gamma: <u></u> Temperature: <u></u> Resistivity:	a-Foam 202/Water: Mud: Foam Injection: 20-1384' Regained ? (Y or N): NA Regained ? (Y or N): NA Estimated Inflow Rates: NA Estimated Inflow Rates: NA Density: X Caliper:
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: <u></u> Water Invasion Depth or Intervals: <u></u> Gas Invasion Depth or Interval: <u></u> Geophysical Logging Contractor: <u>Jet</u> Logs Run: Gamma: <u></u> Temperature: <u></u> Resistivity:	a-Foam 202/Water: Mud: Foam Injection: 20-1384' Regained ? (Y or N): NA Regained ? (Y or N): NA Estimated Inflow Rates: NA Estimated Inflow Rates: NA Na West Geophysical, LLC X X Neutron: Density: X
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: <u></u> Water Invasion Depth or Intervals: <u></u> Gas Invasion Depth or Interval: <u></u> Geophysical Logging Contractor: <u>Jet</u> Logs Run: Gamma: <u></u> Temperature: <u></u> Resistivity:	a-Foam 202/Water: Mud: Foam Injection: 20-1384' Regained ? (Y or N): NA Regained ? (Y or N): NA Estimated Inflow Rates: NA Estimated Inflow Rates: NA Density: X Neutron: X Caliper: X Caliper: X Deviation: 11.3' @ 154 degrees Y No. of Bags: 6.5 yds portland for 9 5/8 annulus
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: <u></u> Water Invasion Depth or Intervals: Gas Invasion Depth or Interval: <u></u> Geophysical Logging Contractor: Jet Logs Run: Gamma: Temperature: <u></u> Resistivity: <u></u> Other (SP, Foc. Elec., D	a-Foam 202/Water: Mud: Foam Injection: 20-1384' Regained ? (Y or N): NA Regained ? (Y or N): NA Estimated Inflow Rates: NA Estimated Inflow Rates: NA Density: X Neutron: X Caliper: X Caliper: X Deviation: 11.3' @ 154 degrees
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: Water Invasion Depth or Intervals: <u>Gas Invasion Depth or Interval</u> Geophysical Logging Contractor: <u>Jet</u> Logs Run: <u>Gamma</u> : <u>Temperature</u> : <u>Resistivity</u> : Other (SP, Foc. Elec., D Hole Cemented (<u>Y</u> or N), Type:	a-Foam 202/Water: Mud: Foam Injection: 20-1384' Regained ? (Y or N): NA Estimated Inflow Rates: NA Estimated Inflow Rates: NA Density: X Neutron: X Caliper: X Caliper: Y No. of Bags: 6.5 yds portland for 9 5/8 annulus Interval: 10 surface
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: <u></u> Water Invasion Depth or Intervals: Gas Invasion Depth or Interval: <u></u> Geophysical Logging Contractor: <u>Jet</u> Logs Run: Gamma: <u>Temperature:</u> Resistivity: <u></u> Other (SP, Foc. Elec., D Hole Cemented (<u>Y</u> or N), Type: <u></u> Coal Core Sent To: <u>NA</u>	a-Foam 202/Water: Mud: Foam Injection: 20-1384' Regained ? (Y or N): NA Estimated Inflow Rates: Y Neutron: Y No. of Bags: 6.5 yds portland for 9 5/8 annulus Interval: Io surface Rock Sent To: NA
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: <u></u> Water Invasion Depth or Intervals: Gas Invasion Depth or Interval: <u></u> Geophysical Logging Contractor: <u>Jet</u> Logs Run: Gamma: <u>Temperature:</u> Resistivity: <u></u> Other (SP, Foc. Elec., D Hole Cemented (<u>Y</u> or N), Type: <u></u> Coal Core Sent To: <u>NA</u>	a-Foam 202/Water: Mud: Foam Injection: 20-1384' Regained ? (Y or N): NA Estimated Inflow Rates: NA Estimated Inflow Rates: NA Density: X Neutron: X Caliper: X Caliper: Y No. of Bags: 6.5 yds portland for 9 5/8 annulus Interval: 10 surface
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: <u></u> Water Invasion Depth or Intervals: Gas Invasion Depth or Interval: <u></u> Geophysical Logging Contractor: <u>Jet</u> Logs Run: Gamma: <u>Temperature:</u> Resistivity: <u></u> Other (SP, Foc. Elec., D Hole Cemented (<u>Y</u> or N), Type: <u></u> Coal Core Sent To: <u>NA</u>	a-Foam 202/Water: Mud: Foam Injection: 20-1384' Regained ? (Y or N): NA Estimated Inflow Rates: Y Neutron: Y No. of Bags: 6.5 yds portland for 9 5/8 annulus Interval: Io surface Rock Sent To: NA
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: <u></u> Water Invasion Depth or Intervals: Gas Invasion Depth or Interval: <u></u> Geophysical Logging Contractor: <u>Jet</u> Logs Run: Gamma: <u>Temperature:</u> Resistivity: <u></u> Other (SP, Foc. Elec., D Hole Cemented (<u>Y</u> or N), Type: <u></u> Coal Core Sent To: <u>NA</u>	a-Foam 202/Water: Mud: Foam Injection: 20-1384' Regained ? (Y or N): NA Estimated Inflow Rates: Y Neutron: Y No. of Bags: 6.5 yds portland for 9 5/8 annulus Interval: Io surface Rock Sent To: NA
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: <u></u> Water Invasion Depth or Intervals: <u></u> Gas Invasion Depth or Interval: <u></u> Geophysical Logging Contractor: <u>Jet</u> Logs Run: Gamma: <u>Temperature: Resistivity:</u> Other (SP, Foc. Elec., D Hole Cemented (<u>Y</u> or N), Type: <u>NA</u> Comments: <u>7" casing (5 slotted, 2</u>	a-Foam 202/Water: Mud: Foam Injection: 20-1384'
Drilling Medium: <u>Air: Sta</u> Depths: <u>0-20'</u> Lost Circulation Depths: <u></u> Water Invasion Depth or Intervals: <u></u> Gas Invasion Depth or Interval: <u></u> Geophysical Logging Contractor: <u>Jet</u> Logs Run: Gamma: <u>Temperature: Resistivity:</u> Other (SP, Foc. Elec., D Hole Cemented (<u>Y</u> or N), Type: <u>NA</u> Comments: <u>7" casing (5 slotted, 2</u>	a-Foam 202/Water: Mud: Foam Injection: 20-1384' Regained ? (Y or N): NA Estimated Inflow Rates: Y Neutron: Y No. of Bags: 6.5 yds portland for 9 5/8 annulus Interval: Io surface Rock Sent To: NA

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		Oxbow Mi	ning LLC		
		Elk Cre	ek Mine		
				an an a shi ka sa	
Hole Number		Project ID	.: Elk Creek Mine	Gob Vent Boreholes	
Lease Number		(State or Federa	I) Surface Owner	r: Hotchkiss	
Date Commenced	:3-Jun-07	Date Completed	l: 12-Jun-07		1
Contractor	: Stewart Bros.	Ria Type	Eailing 2500 Rig	18	
Geologist		Date	: 15-Jan-08	Toolpusher:	Danny White
Driller			Austin Martinez	Helper:	
	Kevine Begay	-	N. Brite		J. Trujillo
	Randy McClard	-	L. Smith		A. Sandoval
Coordinates: N.	16832.96	- E	. 31001.74		
Location: Townshi	ip, Range & Secti	- on:	SW1/4 Sec. 36, 7	T.12S., R.90W.	
Ground Elevation:	7581'	Collar Elevation:			
Geophysical Log M		Ground	Elevation	-	
Total Depth:		Probe Depth:	1616'	Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
Casing Type:			Size:	7"(5 slotted, 2 solid)	
Depth:		Recovered (Y or N):			
	7": 1303-1543'		N	•	
Bit Information					
		(14" surface casing)			
	12 1/4" Tricone to	1336'			
_	NA	A 1 71			
Bottom Hole	8 3/4" Tricone to 1	615'			
Footage Plugged:	1615'	Cored:	NA		
Drilling Medium:	Air:	Foam/Water:	Mud:	Foam Injection:	
Depths:	0-300'	300-1615'			
	culation Depths:		Reg	gained ? (Y or N):	
Water Invasion De		NA	Estim	ated Inflow Rates:	
Gas Invasion D	epth or Interval:	1550-1570'			· · · · · · · · · · · · · · · · · · ·
Geophysical Logo	ing Contractor: J	et West Geophysical.	LLC		
	يing Contractor: <u>ا</u>			·····	
Geophysical Logg Logs Run:	 Gamma:	et West Geophysical, X	Neutron:		
	 Gamma: Temperature:	Χ	Neutron: _ Density: _	XX	
Logs Run:	 Gamma: Temperature: Resistivity:	X	Neutron: _ Density: _ Caliper:	X	
Logs Run:	 Gamma: Temperature: Resistivity:	Χ	Neutron: _ Density: _ Caliper:	X	
Logs Run:	Gamma: Temperature: Resistivity: er (SP, Foc. Elec.,	X	Neutron: Density: Caliper: Deviation: 38' @ 23	X 19 deg.	
Logs Run: Othe	Gamma: Temperature: Resistivity: er (SP, Foc. Elec.,	X X Drift, Dep., Sonic): [Neutron: Density: Caliper: Deviation: 38' @ 23	X 19 deg. yds portland for annulus	
Logs Run: Othe Hole Cemented (Gamma: Temperature: Resistivity: er (SP, Foc. Elec., Y or N), Type:	X X Drift, Dep., Sonic): [Neutron: Density: Caliper: Deviation: 38' @ 23 No. of Bags: 7 Interval: to	X 19 deg. yds portland for annulus 9 surface	
Logs Run: Othe	Gamma: Temperature: Resistivity: er (SP, Foc. Elec.,	X X Drift, Dep., Sonic): [Neutron: Density: Caliper: Deviation: 38' @ 23 No. of Bags: 7	X 19 deg. yds portland for annulus	
Logs Run: Othe Hole Cemented (coal Core Sent To: Comments: B	Gamma: Temperature: Resistivity: er (SP, Foc. Elec., <u>Y</u> or N), Type: <u>NA</u> ottom of hole back	X Drift, Dep., Sonic): <u>C</u> Y	Neutron: Density: Caliper: Deviation: 38' @ 23 No. of Bags: 7 Interval: to Rock Sent To:	X 19 deg. yds portland for annulus 9 sulface NA up to 1552'.	
Logs Run: Othe Hole Cemented (coal Core Sent To: Comments: B	Gamma: Temperature: Resistivity: er (SP, Foc. Elec., <u>Y</u> or N), Type: <u>NA</u> ottom of hole back	X X Drift, Dep., Sonic): <u>[</u> Y	Neutron: Density: Caliper: Deviation: 38' @ 23 No. of Bags: 7 Interval: to Rock Sent To:	X 19 deg. yds portland for annulus 9 sulface NA up to 1552'.	
Logs Run: Othe Hole Cemented (coal Core Sent To: <u>Comments: B</u> 9' cement plug from 1	Gamma: Temperature: Resistivity: er (SP, Foc. Elec., <u>Y</u> or N), Type: <u>NA</u> ottom of hole back 552-1543'. Bottom	X Drift, Dep., Sonic): <u>C</u> Y filled with coal fines up	Neutron: Density: Caliper: Deviation: 38' @ 23 No. of Bags: 7 Interval: to Rock Sent To: to 1561', quikrete 3' above D2 seam	X 19 deg. yds portland for annulus o surface NA up to 1552'. (1556'-1570').	
Logs Run: Othe Hole Cemented (coal Core Sent To: <u>Comments: B</u> 9' cement plug from 1	Gamma: Temperature: Resistivity: er (SP, Foc. Elec., <u>Y</u> or N), Type: <u>NA</u> ottom of hole back 552-1543'. Bottom	X Drift, Dep., Sonic): Y filled with coal fines up n of 7" slotted casing 1 S cubic yds. Portland ty	Neutron: Density: Caliper: Deviation: 38' @ 23 No. of Bags: 7 Interval: to Rock Sent To: 0 to 1561', quikrete 3' above D2 seam	X 19 deg. yds portland for annulus o surface NA up to 1552'. (1556'-1570').	
Logs Run: Othe Hole Cemented (coal Core Sent To: <u>Comments: B</u> 9' cement plug from 1	Gamma: Temperature: Resistivity: er (SP, Foc. Elec., <u>Y</u> or N), Type: <u>NA</u> ottom of hole back 552-1543'. Bottom	X Drift, Dep., Sonic): <u>C</u> Y filled with coal fines up	Neutron: Density: Caliper: Deviation: 38' @ 23 No. of Bags: 7 Interval: to Rock Sent To: 0 to 1561', quikrete 3' above D2 seam	X 19 deg. yds portland for annulus o surface NA up to 1552'. (1556'-1570').	

		Oxbow Mil	ning LLC	<u>er en son genet in forstandet son en son helige i de son de so I</u>	
		Elk Cree	ek Mine		
			and a part of a desired second data and		
Hole Number	: GVB 10-01	Project ID	· Elk Creek Mine	Gob Vent Boreholes	
Lease Number		(State or Federal)			
Date Commenced	: 12-Nov-07	Date Completed			
_				_	
Contractor Geologist			Failing 2500 Rig 15-Jan-08		luctin Dorrig
Driller		_ Date : Truck Driver:		Toolpusher: Helper:	Justin Barris
Dimon	Jimson Billy	- HUCK DIIVEL	S. Platero	- Teiper.	C. Valdenegro
	Earl Martinez	-	D. Hudson		O. Chacho
Coordinates: N.	19973.22	- E.	25050.43		
Location: Townsh	• •		NW 1/4 Sec. 35,	T.12S., R.90W.	
Ground Elevation:	8183'	Collar Elevation:		_	
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type: Casing Type:			Size: Size:		
Depth:		Recovered (Y or N):	N Size:	·	
Dopun			N	-	
Bit Information		· -		-	
Surface Casing		; (14" surface casing)		· · · · · · · · · · · · · · · · ·	
Main Hole	NA				
	NA				
Bottom Hole	8 3/4" Tricone to 5	550'			
Footage Plugged:	550'	Cored:	NA		
Drilling Medium:	Air:	Foam/Water:	Mud:	Foam Injection:	
Depths:	0-40'	40-550'			
Lost Cir	culation Depths:	NA	Re	gained ? (Y or N):	
Water Invasion De		NA	Estin	nated Inflow Rates:	· · · · · · · · · · · · · · · · · · ·
Gas Invasion D	epth or Interval:	NA			
Geophysical Log	ging Contractor:	NA			
Logs Run:	Gamma:		Neutron:		
Logs nun.	Temperature:		Density		
	Resistivity:		Caliper:		
Oth	er (SP, Foc. Elec.	, Drift, Dep., Sonic):		······································	
Hole Cemented (Y or N), Type:	NA	No. of Bags:		
	,,,		Interval:		
			-		
Coal Core Sent To: _	NA	······	ROCK Sent To:	NA	
Comments: 2	200' vertical 8 3/4"	hole drilled prior to star	ting directional. N	lumerous	
		r package to operate di			
		to delays, weather, and	l fault in mine whi	ch	
cut panel short, elimin	ating need for vent	ing gob.			
On the local states of the sta	1	have (1150 wellows) wh	un nale O harra (10		
Open noie abandoned	to surface with 70	bags (1150 gallons) plu	ug ger; 3 bags (10) cement.	

		Oxbow Min Elk Cree	-		
		DIV CIG	ev Wing		
Hole Number:	: GVB 10-02	Proiect ID.	: Elk Creek Mine Go	bb Vent Boreholes	
Lease Number:			Surface Owner:	USFS	
Date Commenced:	11-Sep-07	Date Completed	27-Sep-07	······································	
Contractor:	Stewart Bros.	Rig Type:	Failing 2500 Rig 4	5	
Geologist:	Doug Allen	Date :		Toolpusher:	Justin Barris
Driller:	Bryan Joe	Truck Driver:	J. Billy	Heiper:	S. Platero
	Jimson Billy	•	C. Valdenegro		J. Carlos
	Dewayne Hudson	_	O. Chacho	-	S. Delgarito
Coordinates: N.		E.	25640.44		
Location: Townshi	p, Range & Secti	on:	SE 1/4 Sec. 35, T.1	12S., R.90W.	
Ground Elevation:	7638'	Collar Elevation:		_	
Geophysical Log M		Ground	Elevation		
Total Depth:	1592'	Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
Casing Type:	steel, FJ			" (5 slotted, 2 solid)	
Depth:		Recovered (Y or N):	<u>N</u>		
	7": 1424-1564'		N		
Bit Information					
		(14" surface casing)			
	12 1/4" Tricone to	1460'			<u> </u>
	NA	24.0	••••		
	NA 8 3/4" Tricone to 1	592'		······	
Bottom Hole Footage Plugged:		Cored:	NA		
Bottom Hole	8 3/4" Tricone to 1 1592' Air:	Cored: Foam/Water:		Foam Injection:	
Bottom Hole Footage Plugged: Drilling Medium: Depths:	8 3/4" Tricone to 1 1592' Air: 0-20'	Cored: Foam/Water: 20-1592'	Mud:		
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths:	Cored: Foam/Water: 20-1592' NA	Mud: Rega	ained ? (Y or N):	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals:	Cored: Foam/Water: 20-1592' NA NA	Mud: Rega		
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths:	Cored: Foam/Water: 20-1592' NA	Mud: Rega	ained ? (Y or N):	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: epth or Interval:	Cored: Foam/Water: 20-1592' NA NA	Mud: Rega Estima	ained ? (Y or N):	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: epth or Interval:	Cored: Foam/Water: 20-1592' NA NA 1575-1590'	Mud: Rega Estima	ained ? (Y or N):	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: pth or Intervals: ging Contractor: Gamma:	Cored: Foam/Water: 20-1592' NA NA 1575-1590' Jet West Geophysical,	Mud: Rega Estima LLC Neutron:	ained ? (Y or N): ted Inflow Rates:	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature:	Cored: Foam/Water: 20-1592' NA NA 1575-1590' Jet West Geophysical,	Mud: Rega Estima LLC Neutron: Density:	ained ? (Y or N):	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: ging Contractor: Gamma: Temperature: Resistivity:	Cored: Foam/Water: 20-1592' NA NA 1575-1590' let West Geophysical, X	Mud: Rega Estima LLC Neutron: Density: Caliper:	ained ? (Y or N): ted Inflow Rates:	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	Cored: Foam/Water: 20-1592' NA NA 1575-1590' let West Geophysical, X	Mud: Rega Estima LLC Neutron: Density: Caliper: Deviation: 70' @ 203	ained ? (Y or N): ted Inflow Rates: X ideg.	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	Cored: <u>Foam/Water:</u> 20-1592' NA NA 1575-1590' Jet West Geophysical, X X X Drift, Dep., Sonic): [Mud: Rega Estima LLC Neutron: Density: Caliper: Deviation: 70' @ 203	ained ? (Y or N): ted Inflow Rates: X deg.	
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. <u>Y</u> or N), Type:	Cored: <u>Foam/Water:</u> 20-1592' NA NA 1575-1590' Jet West Geophysical, X X X Drift, Dep., Sonic): [Mud: Rega Estima LLC Neutron: Density: Caliper: Caliper: Caliper: 200 No. of Bags: 5 ye Interval: to s	ained ? (Y or N): ted Inflow Rates: X X ideg. ds portland for 9 5/8 annul surface	us
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. <u>Y</u> or N), Type:	Cored: <u>Foam/Water:</u> 20-1592' NA NA 1575-1590' Jet West Geophysical, X X X Drift, Dep., Sonic): [Mud: Rega Estima LLC Neutron: Density: Caliper: Deviation: 70' @ 203 No. of Bags: 5 yd	ained ? (Y or N): ted Inflow Rates: X deg.	US
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (oal Core Sent To: Comments: E	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.) Y or N), Type: NA Bottom of hole back	Cored: Foam/Water: 20-1592' NA NA 1575-1590' Jet West Geophysical, X Jorift, Dep., Sonic): [Y Killed with pea gravel u	Mud: Rega Estima LLC Neutron: Density: Caliper: Caliper: 200 No. of Bags: 5 ye Interval: to set Rock Sent To: 1573'.	ained ? (Y or N): ted Inflow Rates:	US
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (oal Core Sent To: Comments: E	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.) Y or N), Type: NA Bottom of hole back	Cored: Foam/Water: 20-1592' NA NA 1575-1590' Jet West Geophysical, X Lorift, Dep., Sonic): [Y	Mud: Rega Estima LLC Neutron: Density: Caliper: Caliper: 200 No. of Bags: 5 ye Interval: to set Rock Sent To: 1573'.	ained ? (Y or N): ted Inflow Rates:	US
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (oal Core Sent To: Comments: E 9' cement plug from	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.) Y or N), Type: NA Bottom of hole back 1564-1573'. Bottom	Cored: Foam/Water: 20-1592' NA NA 1575-1590' Jet West Geophysical, X Drift, Dep., Sonic): [Y (filled with pea gravel under the second seco	Mud: Rega Estima LLC Neutron: Density: Caliper: Caliper: Caliper: 2003 No. of Bags: 5 ye Interval: to 1 No. of Bags: 5 ye Interval: to 1 Rock Sent To:	ained ? (Y or N): ted Inflow Rates: X deg. surface NA 1576-1587').	US
Bottom Hole Footage Plugged: Drilling Medium: Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (oal Core Sent To: Comments: E Cement plug from	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.) Y or N), Type: NA Bottom of hole back 1564-1573'. Bottom	Cored: Foam/Water: 20-1592' NA NA 1575-1590' Jet West Geophysical, X Jorift, Dep., Sonic): [Y Killed with pea gravel u	Mud: Rega Estima LLC Neutron: Density: Caliper: Caliper: Caliper: 2003 No. of Bags: 5 ye Interval: to 1 No. of Bags: 5 ye Interval: to 1 Rock Sent To:	ained ? (Y or N): ted Inflow Rates: X deg. surface NA 1576-1587').	US
Footage Plugged: Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Dal Core Sent To: Comments: E	8 3/4" Tricone to 1 1592' Air: 0-20' culation Depths: pth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.) Y or N), Type: NA Bottom of hole back 1564-1573'. Bottom	Cored: Foam/Water: 20-1592' NA NA 1575-1590' Jet West Geophysical, X Drift, Dep., Sonic): [Y (filled with pea gravel under the second seco	Mud: Rega Estima LLC Neutron: Density: Caliper: Caliper: Caliper: 2003 No. of Bags: 5 ye Interval: to 1 No. of Bags: 5 ye Interval: to 1 Rock Sent To:	ained ? (Y or N): ted Inflow Rates: X deg. surface NA 1576-1587').	US

		Oxbow Mi	-		
		Elk Cre	ek Mine		in an
Hole Number	: GVB 10-03	Project ID.	: Elk Creek Mine G	iob Vent Boreholes	n ya tikini di tikini da taka a
Lease Number:) Surface Owner:	USFS	
Date Commenced:	27-Jul-07	Date Completed	: <u>11-Aug-07</u>		
Contractor:			: Failing 2500 Rig 4		
Geologist:		Date		Toolpusher:	
Driller:		Truck Driver		Helper:	S. Platero
	Bryan Tulley	_	T. Martinez	_	C. Charley
Conveligentees, N	Earl Martinez		D. Hudson		O. Chacho
Coordinates: N.		Ε.			
Location: Townshi Ground Elevation:	ip, Hange & Secti 8167'	on: Collar Elevation:	SE 1/4 Sec.35, T.	12S., R.90W.	
Geophysical Log M		-	Elevation		
Total Depth:	2180'	Ground Probe Depth:		Fluid Level:	٨١٨
Casing Type:		. Flobe Depth:	Size:	9 5/8"	NA
Casing Type:	steel, FJ			7" (5 slotted, 2 solid)	
Depth:		Recovered (Y or N):		(5 Slotted, 2 Solid)	
bohan.	7": 1971-2111		<u>N</u>		
Bit Information	7.10712111				
	17" Tricone to 20"	(14" surface casing)	****		
	(Reamed) 12 1/4"	Tricone to 2020'		· · · · · · · · · · · · · · · · · · ·	
•	NA				
Bottom Hole	8 3/4" Tricone to 2	180'			
-	······				
Footage Plugged:	2180'	Cored:	NA		
Drilling Medium:	Air:	Foam/Water:	NA Mud:	Foam Injection:	
Drilling Medium: Depths:	Air: 0-286'	Foam/Water: 286-2180'	Mud:		
Drilling Medium: Depths: Lost Circ	Air: 0-286' culation Depths:	Foam/Water: 286-2180' NA	Mud: Reg	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circ Water Invasion De	Air: 0-286' culation Depths: pth or Intervals:	Foam/Water: 286-2180' NA NA	Mud: Reg		
Drilling Medium: Depths: Lost Circ Water Invasion De	Air: 0-286' culation Depths:	Foam/Water: 286-2180' NA	Mud: Reg	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D	Air: 0-286' culation Depths: pth or Intervals: epth or Interval:	Foam/Water: 286-2180' NA NA	Mud: Reg Estima	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma:	Foam/Water: 286-2180' NA NA 2125-2135'	Mud: Reg Estima LLC Neutron:	ained ? (Y or N): ated Inflow Rates:	
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature:	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X	Mud: Reg Estima LLC Neutron: Density:	ained ? (Y or N): ated Inflow Rates: X	
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run:	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X X	Mud: Reg Estima LLC Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: 	
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X	Mud: Reg Estima LLC Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: 	
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X X	Mud: Reg Estima LLC Neutron: Density: Caliper: Deviation: 73' @ 256 No. of Bags: 18	ained ? (Y or N): ated Inflow Rates: X 3 deg. yds portland for 9 5/8 annuli	JIS
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X X , Drift, Dep., Sonic):	Mud: Reg Estima LLC Neutron: Density: Caliper: Deviation: 73' @ 256	ained ? (Y or N): ated Inflow Rates: X 3 deg. yds portland for 9 5/8 annuli	18
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X X , Drift, Dep., Sonic):	Mud: Reg Estima LLC Neutron: Density: Caliper: Deviation: 73' @ 256 No. of Bags: 18	ained ? (Y or N): ated Inflow Rates: X 3 deg. yds portland for 9 5/8 annuli	J8
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe Hole Cemented (Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type: NA	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X X Drift, Dep., Sonic): [Y	Mud: Reg Estima LLC Neutron: Density: Caliper: Caliper: Deviation: 73' @ 256 No. of Bags: 18 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: X G deg. yds portland for 9 5/8 annulu surface	ц <u>я</u>
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe Hole Cemented (Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type: NA NA	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X X Drift, Dep., Sonic): [Y ole to verify mineable for the second seco	Mud: Reg Estima LLC Neutron: Density: Caliper: Caliper: Deviation: 73' @ 256 No. of Bags: 18 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: X 6 deg. yds portland for 9 5/8 annulr surface NA	US
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe Hole Cemented (oal Core Sent To: Comments: D 2 1/4" to 2020' for 9 5	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type: NA NA Drilled 8 3/4" pilot h 5/8" casing. Cuttin	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X X Drift, Dep., Sonic): [Y ole to verify mineable to gs filled bottom hole du	Mud: Reg Estima LLC Neutron: Density: Caliper: Caliper: Deviation: 73' @ 256 No. of Bags: 18 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: X 3 deg. yds portland for 9 5/8 annuli surface NA ned ned out to 2120'.	JS
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe Hole Cemented (coal Core Sent To: Comments: D 2 1/4" to 2020' for 9 5	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type: NA NA Drilled 8 3/4" pilot h 5/8" casing. Cuttin	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X X Drift, Dep., Sonic): [Y ole to verify mineable for the second seco	Mud: Reg Estima LLC Neutron: Density: Caliper: Caliper: Deviation: 73' @ 256 No. of Bags: 18 Interval: to Rock Sent To: thickness, then rean uring reaming, clean	ained ? (Y or N): ated Inflow Rates: X 3 deg. yds portland for 9 5/8 annuli surface NA ned ned out to 2120'.	Ц8
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe Hole Cemented (oal Core Sent To: Comments: D 2 1/4" to 2020' for 9 5	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type: NA NA Drilled 8 3/4" pilot h 5/8" casing. Cuttin	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X X Drift, Dep., Sonic): [Y ole to verify mineable to gs filled bottom hole du	Mud: Reg Estima LLC Neutron: Density: Caliper: Caliper: Deviation: 73' @ 256 No. of Bags: 18 Interval: to Rock Sent To: thickness, then rean uring reaming, clean	ained ? (Y or N): ated Inflow Rates: X 3 deg. yds portland for 9 5/8 annuli surface NA ned ned out to 2120'.	US
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe Hole Cemented (oal Core Sent To: Comments: D 2 1/4" to 2020' for 9 5	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type: NA NA Drilled 8 3/4" pilot h 5/8" casing. Cuttin	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X X Drift, Dep., Sonic): [Y ole to verify mineable to gs filled bottom hole du	Mud: Reg Estima LLC Neutron: Density: Caliper: Caliper: Deviation: 73' @ 256 No. of Bags: 18 Interval: to Rock Sent To: thickness, then rean uring reaming, clean	ained ? (Y or N): ated Inflow Rates: X 3 deg. yds portland for 9 5/8 annuli surface NA ned ned out to 2120'.	US
Drilling Medium: Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe Hole Cemented (oal Core Sent To: Comments: D 2 1/4" to 2020' for 9 5 ' cement plug from 2	Air: 0-286' culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.) Y or N), Type: NA Drilled 8 3/4" pilot h 5/8" casing. Cuttin 2111-2120'. Bottor	Foam/Water: 286-2180' NA NA 2125-2135' Jet West Geophysical, X X Drift, Dep., Sonic): [Y ole to verify mineable to gs filled bottom hole du	Mud: Reg Estima LLC Neutron: Density: Caliper: Deviation: 73' @ 256 No. of Bags: 18 Interval: to Rock Sent To: thickness, then rean uring reaming, clean 3' above D2 seam (ained ? (Y or N):	JIS

	در در در د	Oxbow Mi	ning LLC		
		Elk Cree	-		
			and a subscription of the		
Hole Number	: GVB 10-03B	Proiect ID.	: Elk Creek Mine (Gob Vent Boreholes	
Lease Number		(State or Federal			
Date Commenced	: 20-Apr-08	Date Completed			
Contractor	: Boart Longyear	Rig Type	: LK38A		
Geologist		_ Ing Type: Date:		- Toolpusher:	Paul Breider
Driller				Helper:	J. Hamilton
	J. Jessop	-	R. Ostler	-	P. Cramer
Coordinates: N		– E.	10000 C		
Location: Townsh	ip, Range & Sect	ion:	SE 1/4 Sec.35, T.	.12S., R.90W.	
Ground Elevation:	8171'	Collar Elevation:		·····	
Geophysical Log N	leasured From:	ground	Elevation	•	
Total Depth:	to the second se	Probe Depth:	NA	Fluid Level:	NA
Casing Type:			Size:	14"	
Casing Type:		-	Size:	9 5/8"	
Depth:		Recovered (Y or N):			
Depth:	0-2217'	Recovered (Y or N):	N		
Bit Information				· · ·	
Surface Casing	16" Tricone to 20		· · · · · · · · · · · · · · · · · · ·		
Main Hole	12.319" Hammer	to 723' / 12 1/4" Tricon	e to 2217'		
Core:	0				
Bottom Hole	8" Hammer to 232	28'		. <u></u>	
Footage Plugged:	2328'	Cored:	0		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-20'	20-2328'			
Lost Circ	culation Depths:	NA	Rec	gained? (Y or N):	
Water Invasion De		NA		ated Inflow Rates:	
	epth or Interval:	NA			
Geophysical Logo	jing Contractor:	NA			
Logs Run:	Gamma:		Neutron:		
	Temperature:		Density:		
	Resistivity:		Caliper:		
Oth		, Drift, Dep., Sonic):			
	V or N) Turner	-	No. of Down d		
Hole Cemented (<u>Y</u> or N), type: _	Y	No. of Bags: 1		
			Interval: to	suriace	
coal Core Sent To:	١	NA	Rock Sent To:	NA	
~					
		ng below 38' solid 7" ca			
/	" overlaps 42' insi	ue 9 5/8" casing.			
		<u></u>			
5/8" onging chanden	od to surface with	25 cubic yards portland	type II coment to	by 2009	
Jo Casing abandon	eu lo sundee Wilh	20 cubic yarus portiario	a type it cement ju	iy, ∠000.	

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an an ann an		Elk Cre	ek Mine	nder en flygelige fan an en en skienen gegen in de kener oar en en en	n ng ng kangangan ng kang kang kang kang
Hole Number	: GVB 10-03C	Drojaat ID	· Elk Crook Mino (Pah Vant Barabalas	<u>, and a subsequent of the subsequence of the subse</u>
Lease Number			Surface Owner:	Bob Vent Boreholes USFS	
Date Commenced		Date Completed			
				-	
	Boart Longyear			. Ta aluvrah ana i	Davit Dusislau
Geologist Driller:	X	Date : Truck Driver:		Toolpusher: Helper:	C. Lull
Dimor	J. Jessop		R. Ostler		P. Cramer
Coordinates: N.	18914.00	- E.		-	
Location: Townsh	• •		SE 1/4 Sec.35, T.	12S., R.90W.	
Ground Elevation:	8170'	Collar Elevation:	Flourstion		
Geophysical Log N Total Depth:		ground Probe Depth:	Elevation NA	Fluid Level:	NA
Casing Type:		- i ione nehili'	Size:	14"	
Casing Type:		-	Size:		
Depth:		Recovered (Y or N):			
Depth:		Recovered (Y or N):			
Bit Information Surface Casing	16" Tricone to 20'				······
Main Hole		0 415' / 12 1/4" Tricone	to 1627'		
Core:					
Bottom Hole					
Footage Plugged:	1627'	Cored:	0		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam injection:	
Depths:	0-20'	00 1007		· · · · · · · · · · · · · · · · · · ·	
	0 20	20-1627'			
			Doc	ained 2 (V or N):	
Lost Circ	culation Depths:	NA		ained ? (Y or N):	
Lost Circ Water Invasion De	culation Depths:			ained?(Y or N):	
Lost Ciro Water Invasion De Gas Invasion D	culation Depths: pth or Intervals: epth or Interval:	NA NA NA			
Lost Circ Water Invasion De	culation Depths: pth or Intervals: epth or Interval:	NA NA NA			
Lost Circ Water Invasion De Gas Invasion D Geophysical Logo	culation Depths: pth or Intervals: epth or Interval: ging Contractor:	NA NA NA	Estim		
Lost Ciro Water Invasion De Gas Invasion D	culation Depths: opth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature:	NA NA NA	Estim Neutron: Density:	ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run:	culation Depths: opth or Intervals epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA	Estim Neutron: Density:	ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run:	culation Depths: opth or Intervals epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA	Estim Neutron: Density:	ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth	culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	NA NA NA , Drift, Dep., Sonic): _	Estim Neutron: Density: Caliper:	ated Inflow Rates:	v(ds.)
Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run:	culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	NA NA NA , Drift, Dep., Sonic): _	Estim Neutron: Density: Caliper:	ated Inflow Rates:	yds.)
Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth Hole Cemented (culation Depths: opth or Intervals epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type:	NA NA NA , Drift, Dep., Sonic): _ Y	Neutron: Density: Caliper: No. of Bags: un Interval: to	ated Inflow Rates:	yds.)
Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth	culation Depths: opth or Intervals epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type:	NA NA NA , Drift, Dep., Sonic): _	Estim Neutron: Density: Caliper: No. of Bags: un	ated Inflow Rates:	yds.)
Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (oal Core Sent To: _	culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type:	NA NA NA , Drift, Dep., Sonic): _ Y	Estim Neutron: Density: Caliper: No. of Bags: un Interval: to Rock Sent To:	ated Inflow Rates: k # Supersacks(= 49 cubic; Surface NA	yds.)
Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth Hole Cemented (oal Core Sent To: Comments: H	culation Depths: pth or Intervals: epth or Intervals ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. <u>Y</u> or N), Type:	NA NA NA , Drift, Dep., Sonic): _ Y	Estim Neutron: Density: Caliper: No. of Bags: un Interval: to Rock Sent To:	ated Inflow Rates:	yds.)
Lost Cira Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth Hole Cemented (oal Core Sent To: Comments: H	culation Depths: opth or Intervals epth or Intervals ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type: Nole not completed by driller with unkno	NA NA NA NA , Drift, Dep., Sonic): _ Y NA	Estim Neutron: Density: Caliper: No. of Bags: un Interval: to Rock Sent To: ne. Open hole cem cks of portland type	ated Inflow Rates:	yds.)
Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (coal Core Sent To: Comments: H	culation Depths: opth or Intervals epth or Intervals ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type: Nole not completed by driller with unkno	NA NA NA NA , Drift, Dep., Sonic): _ Y VA i to depth- ran out of tin own number of supersa	Estim Neutron: Density: Caliper: No. of Bags: un Interval: to Rock Sent To: ne. Open hole cem cks of portland type	ated Inflow Rates:	

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		Oxbow Mi	-		
		Elk Cre	ek Mine		
Hole Number	: GVB 11-01A	Project ID	: Elk Creek Mine Gol	Vent Boreholes	
Lease Number) Surface Owner:	USFS	
Date Commenced	: 2-Aug-07	Date Completed			
	: Stewart Bros.		Failing 2500 Rig 48		
Geologist		Date :		Toolpusher:	the second s
Driller		_ Iruck Driver:	Austin Martinez	Helper:	A Torrez
	Kevine Begay	-	J. Trujillo	_	J. Long
Coordinates: N	Randy McClard		A. Sandoval	-	N. Brite
Location: Townsh		E.	Tellee		
Ground Elevation:	8227'	Collar Elevation:	NE 1/4 Sec. 35, T.12	25., H.90W.	
Geophysical Log N		- Ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NIA
Casing Type:		- Hobe Depui.	Size;	9 5/8"	NA
Casing Type:			Size:	<u> </u>	
Depth:		Recovered (Y or N):	N 5120.		
1	7": 1293-1455'	,	N		
Bit Information					
Surface Casing	17" Tricone to 20';	(14" surface casing)			
Main Hole	(Reamed) 12 1/4"	Tricone to 2130'	······································		·······
Core:	NA				
Bottom Hole	8 3/4" Tricone to 2	230'			
. . .					
Footage Plugged:	2220'	Cored:	NA		
Drilling Medium:	Air:	Foam/Water:	Mud: Fo	am Injection:	
Depths:	0-20' culation Depths:	20-2230'	Dent		.,
Water Invasion De		260-600' NA		ed ? (Y or N): d Inflow Rates:	<u>Y</u>
	epth or Interval:	2250-2265'	Esumale	a innow Rates:	
	opar of interval.	2200-2200			
Geophysical Log	jing Contractor: <u>ا</u>	let West Geophysical,	LLC		
Lana Duni	0	· · ·			
Logs Run:	Gamma:		Neutron:		1
	Temperature: Resistivity:	v	Density:	<u>X</u>	
Oth	resistivity:	Drift, Dep., Sonic): D	Caliper:	X	l l
Oth	er (SF, FOC. Elec.,	Dint, Dep., Sonic): D	eviation: 55 @ 229 d	eg,	
Hole Cemented (YorN), Type:	Y	No. of Bags: 2 vds	portland for 9 5/8 annulus	、
,		· · · · · · · · · · · · · · · · · · ·	Interval: to su		
				nace	
Coal Core Sent To:	NA		Rock Sent To:	NA	
-	**************************************	<u> </u>		·····	
		ole to verify mineable t			
		gs filled bottom hole du			
9' cement plug from 2	2240-2249'. Botton	n of 7" slotted casing 1	1' above D2 seam (22		
Unable to get dumpbai	ler past 1437'- plug	g placed by driller throu	gh drill pipe.		
3 5/8" casing abandon	ed to surface with 3	32 cubic yards portland	type II cement May, 2	008.	

		Oxbow Mi	ning LLC	ang kanalakan din kana ang kanala di kanalakan sa	نائ نیز روی وروی که می ایندان این اینداز اینداز اینداز اینداز اینداز اینداز اینداز اینداز ایندان اینداز اینداز اینداز اینداز اینداز اینداز اینداز
		Elk Cre	ek Mine		
ana ginga ang ang ang ang ang ang ang ang ang					
Hole Number:		Project ID.	: Elk Creek Mine (Bob Vent Boreholes	
Lease Number:		_ (State or Federal) Surface Owner:	USFS	
Date Commenced:	: 11-Aug-07	Date Completed	: <u>1-Sep-07</u>		
Contractor:	Stewart Bros.	Ria Type	: Failing 2500 Rig	45	
Geologist:	Doug Allen		: 15-Jan-08	Toolpusher:	Justin Barris
Driller:	Bryan Joe	- Truck Driver		Helper:	
	Bryan Tulley	-	T. Martinez	- ····-	C. Charley
	Earl Martinez	-	D. Hudson	· –	O. Chacho
Coordinates: N.			27335.57	· –	
Location: Townshi	p, Range & Section	on:	NE 1/4 Sec. 35, T	.12S., R.90W.	
Ground Elevation:	8193'	Collar Elevation:	······································		
Geophysical Log M		Ground	Elevation		
Total Depth:		Probe Depth:	2212'	Fluid Level:	NA
	steel, T&C	-	Size:	9 5/8"	
Casing Type:			Size:	7"(5 slotted, 5 solid)	
Depth:	9 5/8": 0-2000'	Recovered (Y or N):	N		
_	7": 1952-2152'		N		
Bit Information					
	17" Tricone to 20';	(14" surface casing)			
Main Hole	(Reamed) 12 1/4"	Tricone to 2000'			
Core: T	NA			······································	······································
Bottom Hole	8 3/4" Tricone to 2	220'			······································
Footage Plugged:	2220'	Cored:	NA		
Drilling Medium:	Air:	Foam/Water:	Mud:	Foam Injection:	
Depths:	0.001				
	0-20'	20-2220'			
Lost Circ	ulation Depths:	20-2220' NA	Reg	ained ? (Y or N):	
	ulation Depths:		Reg Estim	ained ? (Y or N): ated Inflow Rates:	
Lost Circ Water Invasion Dep	ulation Depths:	NA	Reg Estima	ained ? (Y or N): ated Inflow Rates:	
Lost Circ Water Invasion Dep Gas Invasion De	culation Depths: pth or Intervals: epth or Interval:	NA NA	Estim	ained ? (Y or N): ated Inflow Rates:	
Lost Circ Water Invasion Dep Gas Invasion De Geophysical Logg	culation Depths: pth or Intervals: _ epth or Interval: jing Contractor:	NA NA 2180-2195' et West Geophysical,	Estim	ained ? (Y or N): ated Inflow Rates:	
Lost Circ Water Invasion Dep Gas Invasion De	culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: J Gamma: _	NA NA 2180-2195'	Estima	ated Inflow Rates:	
Lost Circ Water Invasion Dep Gas Invasion De Geophysical Logg	culation Depths: pth or Intervals: epth or Interval: jing Contractor: J Gamma: Temperature:	NA NA 2180-2195' et West Geophysical, X	Estima LLC Neutron: Density:	ated Inflow Rates:	
Lost Circ Water Invasion Der Gas Invasion De Geophysical Logg Logs Run:	culation Depths: pth or Intervals: epth or Interval: jing Contractor: J Gamma: Temperature: Resistivity:	NA NA 2180-2195' et West Geophysical, X X	Estima LLC Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Circ Water Invasion Der Gas Invasion De Geophysical Logg Logs Run:	culation Depths: pth or Intervals: epth or Interval: jing Contractor: J Gamma: Temperature: Resistivity:	NA NA 2180-2195' et West Geophysical, X	Estima LLC Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Circ Water Invasion Der Gas Invasion De Geophysical Logg Logs Run:	culation Depths: pth or Intervals: epth or Interval: jing Contractor: J Gamma: Temperature: Resistivity: er (SP, Foc. Elec.,	NA NA 2180-2195' et West Geophysical, X X	Estima LLC Neutron: Density: Caliper: Deviation: 45' @ 238	Ated Inflow Rates:	
Lost Circ Water Invasion Dep Gas Invasion De Geophysical Logg Logs Run: Othe	culation Depths: pth or Intervals: epth or Interval: jing Contractor: J Gamma: Temperature: Resistivity: er (SP, Foc. Elec.,	NA NA 2180-2195' et West Geophysical, X Drift, Dep., Sonic): D	Estima LLC Neutron: Density: Caliper: Peviation: 45' @ 233 No. of Bags: 10	Ated Inflow Rates:	18
Lost Circ Water Invasion Dep Gas Invasion De Geophysical Logg Logs Run: Othe	culation Depths: pth or Intervals: epth or Interval: jing Contractor: J Gamma: Temperature: Resistivity: er (SP, Foc. Elec.,	NA NA 2180-2195' et West Geophysical, X Drift, Dep., Sonic): D	Estima LLC Neutron: Density: Caliper: Deviation: 45' @ 238	Ated Inflow Rates:	18
Lost Circ Water Invasion Der Gas Invasion De Geophysical Loggi Logs Run: Othe Hole Cemented (culation Depths: pth or Intervals: epth or Intervals: jing Contractor: J Gamma: Temperature: Resistivity: er (SP, Foc. Elec., <u>Y</u> or N), Type:	NA NA 2180-2195' et West Geophysical, X Drift, Dep., Sonic): D	Estima LLC Neutron: Density: Caliper: Deviation: 45' @ 234 No. of Bags: 10 Interval: to	Ated Inflow Rates:	IS
Lost Circ Water Invasion Der Gas Invasion De Geophysical Loggi Logs Run: Othe Hole Cemented (culation Depths: pth or Intervals: epth or Interval: jing Contractor: J Gamma: Temperature: Resistivity: er (SP, Foc. Elec.,	NA NA 2180-2195' et West Geophysical, X Drift, Dep., Sonic): D	Estima LLC Neutron: Density: Caliper: Peviation: 45' @ 233 No. of Bags: 10	Ated Inflow Rates:	18
Lost Circ Water Invasion Dep Gas Invasion De Geophysical Logg Logs Run: Othe Hole Cemented (<u>)</u>	culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: J Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec., Y or N), Type: NA	NA NA 2180-2195' et West Geophysical, X Drift, Dep., Sonic): D	Estima LLC Neutron: Density: Caliper: Deviation: 45' @ 234 No. of Bags: 10 Interval: to Rock Sent To:	Ated Inflow Rates:	18
Lost Circ Water Invasion Dep Gas Invasion De Geophysical Logg Logs Run: Othe Hole Cemented (Comments: Dr	culation Depths: pth or Intervals: epth or Intervals: jing Contractor: J Gamma: Temperature: Resistivity: er (SP, Foc. Elec., Y or N), Type: NA NA	NA NA 2180-2195' et West Geophysical, X Drift, Dep., Sonic): D Y	Estima LLC Neutron: Density: Caliper: Deviation: 45' @ 233 No. of Bags: 10 Interval: to Rock Sent To:	x X 5 deg. yds portland for 9 5/8 annulu surface NA	18
Lost Circ Water Invasion Dep Gas Invasion De Geophysical Loggi Logs Run: Othe Hole Cemented (Commente: Dr Comments: Dr 2 1/4" to 2000' for 9 5/	culation Depths: pth or Intervals: epth or Intervals: jing Contractor: J Gamma: Temperature: Resistivity: er (SP, Foc. Elec., Y or N), Type: NA <u>NA</u> <u>rilled 8 3/4" pilot hc</u> /8" casing. Cutting	NA NA 2180-2195' et West Geophysical, X Drift, Dep., Sonic): D Y ole to verify mineable t is filled bottom hole du	Estima LLC Neutron: Density: Caliper: Peviation: 45' @ 233 No. of Bags: 10 Interval: to Rock Sent To: hickness, then rean ring reaming, clear	X X 5 deg. yds portland for 9 5/8 annulu sulface NA ned ued out to 2180'.	18
Lost Circ Water Invasion Dep Gas Invasion De Geophysical Logg Logs Run: Othe Hole Cemented (Commente: Dr Comments: Dr 2 1/4" to 2000' for 9 5/	culation Depths: pth or Intervals: epth or Intervals: jing Contractor: J Gamma: Temperature: Resistivity: er (SP, Foc. Elec., Y or N), Type: NA <u>NA</u> <u>rilled 8 3/4" pilot hc</u> /8" casing. Cutting	NA NA 2180-2195' et West Geophysical, X Drift, Dep., Sonic): D Y	Estima LLC Neutron: Density: Caliper: Peviation: 45' @ 233 No. of Bags: 10 Interval: to Rock Sent To: hickness, then rean ring reaming, clear	X X 5 deg. yds portland for 9 5/8 annulu sulface NA ned ued out to 2180'.	IS
Lost Circ Water Invasion Dep Gas Invasion De Geophysical Loggi Logs Run: Othe Hole Cemented (<u>)</u> toal Core Sent To: <u>Comments: Dr</u> 2 1/4" to 2000' for 9 5/ 9' cement plug from 2	culation Depths: pth or Intervals: epth or Intervals: jing Contractor: J Gamma: Temperature: Resistivity: er (SP, Foc. Elec., Y or N), Type: NA rilled 8 3/4" pilot hc /8" casing. Cutting 152-2161'. Bottom	NA NA 2180-2195' et West Geophysical, X Drift, Dep., Sonic): D Y ole to verify mineable t is filled bottom hole du n of 7" slotted casing 3	Estima LLC Neutron: Density: Caliper: Deviation: 45' @ 234 No. of Bags: 10 Interval: to Rock Sent To: hickness, then rean ring reaming, clear 0' above D2 seam (X X 5 deg. yds portland for 9 5/8 annulu sulface NA ned ned ed out to 2180'. (2182-2193').	18
Lost Circ Water Invasion Dep Gas Invasion De Geophysical Loggi Logs Run: Othe Hole Cemented (<u>)</u> toal Core Sent To: <u>Comments: Dr</u> 2 1/4" to 2000' for 9 5/ 9' cement plug from 2	culation Depths: pth or Intervals: epth or Intervals: jing Contractor: J Gamma: Temperature: Resistivity: er (SP, Foc. Elec., Y or N), Type: NA rilled 8 3/4" pilot hc /8" casing. Cutting 152-2161'. Bottom	NA NA 2180-2195' et West Geophysical, X Drift, Dep., Sonic): D Y ole to verify mineable t is filled bottom hole du	Estima LLC Neutron: Density: Caliper: Deviation: 45' @ 234 No. of Bags: 10 Interval: to Rock Sent To: hickness, then rean ring reaming, clear 0' above D2 seam (X X 5 deg. yds portland for 9 5/8 annulu sulface NA ned ned ed out to 2180'. (2182-2193').	18
Lost Circ Water Invasion Dep Gas Invasion De Geophysical Logg Logs Run: Othe Hole Cemented () oal Core Sent To: <u>Comments: Dr</u> 2 1/4" to 2000' for 9 5/ d' cement plug from 2	culation Depths: pth or Intervals: epth or Intervals: jing Contractor: J Gamma: Temperature: Resistivity: er (SP, Foc. Elec., Y or N), Type: NA rilled 8 3/4" pilot hoc /8" casing. Cutting 152-2161'. Bottom 20 to begin GVB 08	NA NA 2180-2195' et West Geophysical, X Drift, Dep., Sonic): D Y ole to verify mineable t is filled bottom hole du n of 7" slotted casing 3	Estima LLC Neutron: Density: Caliper: Deviation: 45' @ 233 No. of Bags: 10 Interval: to Rock Sent To: hickness, then rean ring reaming, clear 0' above D2 seam pleted by Rig 48 or	X X 5 deg. X 5 deg. X 9 deg. X 9 deg. X 10 deg.	18

Oxbow Mining LLC Elk Creek Mine

Hole Number:	GVB 11-02	Proiect ID.:	Elk Creek Mine G	ob Vent Boreholes	
Lease Number:		(State or Federal)			•
Date Commenced:		Date Completed:			•
				-	
Contractor:	Stewart Bros.	Ria Type:	Failing 2500 Rig 4	19	
Geologist:		Date :			Danny White
Driller:			Austin Martinez		
Without	Kevine Begay	HUCK DIVEN	N. Brite	, inciper.	J. Trujillo
	Randy McClard	,	L. Smith	•	A. Sandoval
Coordinates: N.		Ε.	29236.65	•	A. Salluovai
Location: Townshi			29236.65 N.1/2 Sec. 36, T.1	00 D 01W	
Ground Elevation:	7444'	Collar Elevation:	N. 1/2 Sec. 30, 1.1	25., R .91 W.	
Geophysical Log M			Elevation		
Geopliysical Log m Total Donth	easured Fiom.			Child Lavak	A1 A
Total Depth:		Probe Depth:	1548'	Fluid Level:	NA
Casing Type:			Size:		
Casing Type:				7" (5 slotted, 3 solid)	
Depth:		Recovered (Y or N):	<u> </u>		
	7": 1317-1482'		N		
Bit Information					
Surface Casing		(14" surface casing)		<u>,,, .=</u>	·
Main Hole	(Reamed) 12 1/4"	Tricone to 1408			
Core:	NA				
Bottom Hole	8 3/4" Tricone to 1	548'			
		·			
Footage Plugged:	1548'	Cored:	<u>NA</u>		
Duilling Madiumu	Air:	Foam/Water:	Mud:	Econ Injections	
Drilling Medium:			muu.	Foam Injection:	
Depths:	0-617'	617-1548'			
Depths: Lost Cir	0-617' culation Depths:	617-1548' NA	Re	gained ? (Y or N):	
Depths: Lost Cir Water Invasion De	0-617' culation Depths: _ epth or Intervals:	617-1548' NA NA	Re		
Depths: Lost Cir Water Invasion De	0-617' culation Depths:	617-1548' NA	Re	gained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D	0-617' culation Depths: ppth or Intervals: Depth or Interval:	617-1548' NA NA 1500-1515'	Re Estin	gained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D	0-617' culation Depths: ppth or Intervals: Depth or Interval:	617-1548' NA NA	Re Estin	gained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	0-617' culation Depths: _ epth or Intervals: _ Depth or Interval: _ ging Contractor: _	617-1548' NA NA 1500-1515' Jet West Geophysical, I	Re Estin	gained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D	0-617' culation Depths: _ epth or Intervals: _ Depth or Interval: _ ging Contractor: _ Gamma: _	617-1548' NA NA 1500-1515'	Re Estin LLC Neutron:	gained ? (Y or N): _ nated Inflow Rates: _	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	0-617' culation Depths: _ epth or Intervals: _ ging Contractor: _ Gamma: _ Temperature: _	617-1548' NA NA 1500-1515' Jet West Geophysical, I X	Re Estin LLC Neutron: _ Density: _	gained ? (Y or N): _ nated Inflow Rates: _ X	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-617' culation Depths: _ epth or Intervals: _ ging Contractor: _ Gamma: _ Temperature: _ Resistivity:	617-1548' NA NA 1500-1515' Jet West Geophysical, I X	Re Estin LLC Neutron: _ Density: _ Caliper:	gained ? (Y or N): _ nated Inflow Rates: _ 	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-617' culation Depths: _ epth or Intervals: _ ging Contractor: _ Gamma: _ Temperature: _ Resistivity:	617-1548' NA NA 1500-1515' Jet West Geophysical, I X	Re Estin LLC Neutron: _ Density: _ Caliper:	gained ? (Y or N): _ nated Inflow Rates: _ 	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oti	0-617' culation Depths: _ epth or Intervals: _ ging Contractor: _ Gamma: _ Temperature: _ Resistivity: _ her (SP, Foc. Elec.	617-1548' NA NA 1500-1515' Jet West Geophysical, I X , Drift, Dep., Sonic): _	Re Estin LLC Neutron: Density: Caliper: Devia trian i	agained ? (Y or N): nated Inflow Rates: X X 39 ' @ 186	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oti	0-617' culation Depths: _ epth or Intervals: _ ging Contractor: _ Gamma: _ Temperature: _ Resistivity:	617-1548' NA NA 1500-1515' Jet West Geophysical, I X	Re Estin LLC Neutron: Density: Caliper: Deviation: No. of Bags: 5	igained ? (Y or N): nated Inflow Rates: X 39 * @ / 86* 5.5 yds portland for 9 5/8 an	Inulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oti	0-617' culation Depths: _ epth or Intervals: _ ging Contractor: _ Gamma: _ Temperature: _ Resistivity: _ her (SP, Foc. Elec.	617-1548' NA NA 1500-1515' Jet West Geophysical, I X , Drift, Dep., Sonic): _	Re Estin LLC Neutron: Density: Caliper: Devia trian i	igained ? (Y or N): nated Inflow Rates: X 39 * @ / 86* 5.5 yds portland for 9 5/8 an	inulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented	0-617' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	617-1548' NA NA 1500-1515' Jet West Geophysical, I X , Drift, Dep., Sonic): _	Re Estin LLC Neutron: Density: Caliper: Caliper: No. of Bags: e Interval: <u>T</u>	igained ? (Y or N): nated Inflow Rates: X 39 * @ 186* 5.5 yds portland for 9 5/8 an to surface	Inulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oti	0-617' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	617-1548' NA NA 1500-1515' Jet West Geophysical, I X , Drift, Dep., Sonic): _	Re Estin LLC Neutron: Density: Caliper: Deviation: No. of Bags: 5	igained ? (Y or N): nated Inflow Rates: X 39 * @ 186* 5.5 yds portland for 9 5/8 an to surface	Inulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	0-617' culation Depths: _ epth or Intervals: _ ging Contractor: _ Gamma: _ Temperature: _ Resistivity: _ her (SP, Foc. Elec. (<u>Y</u> or N), Type: _ NA	617-1548' NA NA 1500-1515' Jet West Geophysical, X X , Drift, Dep., Sonic): _ Y	Re Estin LLC Neutron: Density: Caliper: Caliper: Devia trian i No. of Bags: 5 Interval: T Rock Sent To:	rgained ? (Y or N): nated Inflow Rates: X 39 ° @ 186° 5.5 yds portland for 9 5/8 an to surface NA	Inulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	0-617' culation Depths: _ epth or Intervals: _ Depth or Intervals: _ ging Contractor: _ Gamma: _ Temperature: _ Resistivity: _ her (SP, Foc. Elec. (<u>Y</u> or N), Type: _ NA Drilled 8 3/4" pilot h	617-1548' NA NA 1500-1515' Jet West Geophysical, I X ., Drift, Dep., Sonic): _ Y	Re Estin LLC Neutron: Density: Caliper: Devia Hieri No. of Bags: 5 Interval: 1 Rock Sent To:	rgained ? (Y or N): nated Inflow Rates: X 39'@186 5.5 yds portland for 9 5/8 an to surface NA med	inulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 1 12 1/4" to 1408' for 9	0-617' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA Drilled 8 3/4" pilot h 5/8" casing. Cutting	617-1548' NA NA 1500-1515' Jet West Geophysical, I X , Drift, Dep., Sonic): _ Y nole to verify mineable to gs filled bottom hole du	Re Estin LLC Neutron: Density: Caliper: Devia Hierzi No. of Bags: 5 Interval: 1 Rock Sent To: hickness, then rea ring reaming, clear	igained ? (Y or N): nated Inflow Rates:	inulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 1 12 1/4" to 1408' for 9	0-617' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA Drilled 8 3/4" pilot h 5/8" casing. Cutting	617-1548' NA NA 1500-1515' Jet West Geophysical, I X ., Drift, Dep., Sonic): _ Y	Re Estin LLC Neutron: Density: Caliper: Devia Hierzi No. of Bags: 5 Interval: 1 Rock Sent To: hickness, then rea ring reaming, clear	igained ? (Y or N): nated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 1 12 1/4" to 1408' for 9	0-617' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA Drilled 8 3/4" pilot h 5/8" casing. Cutting	617-1548' NA NA 1500-1515' Jet West Geophysical, I X , Drift, Dep., Sonic): _ Y nole to verify mineable to gs filled bottom hole du	Re Estin LLC Neutron: Density: Caliper: Devia Hierzi No. of Bags: 5 Interval: 1 Rock Sent To: hickness, then rea ring reaming, clear	igained ? (Y or N): nated Inflow Rates:	Inulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>12 1/4" to 1408' for 9</u> 9' cement plug from	0-617' culation Depths: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA Drilled 8 3/4" pilot h 5/8" casing. Cutting 1478-1487'. Bottor	617-1548' NA NA 1500-1515' Jet West Geophysical, I X , Drift, Dep., Sonic): Y ole to verify mineable t gs filled bottom hole du n of 7" slotted casing 2	Re Estin	agained ? (Y or N): nated Inflow Rates:	Inulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>12 1/4" to 1408' for 9</u> 9' cement plug from	0-617' culation Depths: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA Drilled 8 3/4" pilot h 5/8" casing. Cutting 1478-1487'. Bottor	617-1548' NA NA 1500-1515' Jet West Geophysical, I X , Drift, Dep., Sonic): _ Y nole to verify mineable to gs filled bottom hole du	Re Estin	agained ? (Y or N): nated Inflow Rates:	Inulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>12 1/4" to 1408' for 9</u> 9' cement plug from	0-617' culation Depths: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA Drilled 8 3/4" pilot h 5/8" casing. Cutting 1478-1487'. Bottor	617-1548' NA NA 1500-1515' Jet West Geophysical, I X , Drift, Dep., Sonic): Y ole to verify mineable t gs filled bottom hole du n of 7" slotted casing 2	Re Estin	agained ? (Y or N): nated Inflow Rates:	Inulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>12 1/4" to 1408' for 9</u> 9' cement plug from	0-617' culation Depths: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA Drilled 8 3/4" pilot h 5/8" casing. Cutting 1478-1487'. Bottor	617-1548' NA NA 1500-1515' Jet West Geophysical, I X , Drift, Dep., Sonic): Y ole to verify mineable t gs filled bottom hole du n of 7" slotted casing 2	Re Estin	agained ? (Y or N): nated Inflow Rates:	

1		Oxbow Mi	ning LLC		
		Elk Cre	ek Mine		na ma ann a 1020 an 111 an 111 an
		a a na ann an tha tha ann an tha tha ann an t		and <mark>the and the second states of the second states and the second states and the second states and the second s</mark>	A Distant and the second second second
Hole Number: Lease Number:		Project ID.	Elk Creek Mine G	Gob Vent Boreholes	
Date Commenced:) Surface Owner:	Hotchkiss	
Date Commenced:	21-Jun-07	Date Completed	: <u>13-Jul-07</u>	-	
	Stewart Bros.	Rig Type	: Failing 2500 Rig	48	
Geologist:		Date	15-Jan-08	Toolpusher:	Danny White
Driller:	Gabe Armijo	Truck Driver	Austin Martinez		G. Gutierrez
	Kevine Begay	-	N. Brite	· · ·	J. Trujillo
Occurlington, N	Randy McClard	. _	L. Smith	-	A. Sandoval
Coordinates: N.	18921.76	. Е.	00020.07		
Location: Townshi Ground Elevation:	p, nange & Sectio 7500'	on: Collar Elevation:	N.1/2 Sec. 36, T.1	2S., R.91W.	
Geophysical Log M		Ground	Elevation		
Total Depth:	1643'	Probe Depth:		Fluid Laval	NEA
Casing Type:		Tione Deptil.	Size:	Fluid Level: _ 9 5/8"	NA
Casing Type:				7" (5 slotted, 9 solid)	
Depth:	9 5/8": 0-1300'	Recovered (Y or N):	N 0.1201 2		
_	7": 1265-1565'	· · ·	N		
Bit Information					
		(14" surface casing)			
	2 1/4" Tricone to	1340'			
	VA				
Bottom Hole	3/4" Tricone to 16	543'			
Footage Plugged:	1643 [!]	Cored:	NA		
Drilling Medium:	Air:	Foam/Water:		Foam injection:	
Depths:	0-92'	92-1643'	·····		
	ulation Depths:	NA	Rega	ained? (Y or N):	
Water Invasion Dep		NA	Estima	ted Inflow Rates:	
Gas Invasion De	pth or interval:	1585-1600'			
Geophysical Loggi	ng Contractor: Je	et West Geophysical, I	LC		
Logs Run:	Gamma:	Х	Neutron:		_
·	Temperature:	·····	Density:	X	
	Resistivity:	Х	Caliper:	X	
Other	: (SP, Foc. Elec.,	Drift, Dep., Sonic): D	eviation: 42' @ 219	deg. Video 9 5/8"cas	ing
Hole Cemented (<u>Y</u>	(orN), Type:	Ŷ	No. of Bags: 40 s	acks for annulue	
			Interval: to s		
cal Care Cant Ta					
oal Core Sent To:	NA		Rock Sent To:	NA	
Comments: Bo	ttom of hole ceme	nted off and drilled out	to 1565'.		
lottom of 7" slotted cas	sing 23' above D2	seam (1588-1600').			
	nows separations a	at 866',1040' and 1207	'. Cemented off an	d milled out.	
deo of 9 5/8" casing sl					
deo of 9 5/8" casing sl	to surface with 6	cubic vde Portland tur	all coments 4 and	a holo nlum	
deo of 9 5/8" casing sl 5/8' casing abandoned	to surface with 6	cubic yds. Portland typ 10') cement Septembe	e II cement; 4 sack	s hole plug;	

		Oxbow Mi	ning LLC	n program in provinský ministry na positi na král na predstava na positi na predstava na positi na positi na p	
and the second state of the product of the second state of the sec		Elk Cree	ek Mine		
	an a				
Hole Number		_ Project ID.	Elk Creek Mine G	ob Vent Boreholes	
Lease Number		(State or Federal)	Surface Owner:	Hotchkiss	•
Date Commenced	: 16-Aug-07	Date Completed:	1-Sep-07		
	: Stewart Bros.	Rig Type:	Failing 2500 Rig 4	8	
	: Doug Allen	Date :	15-Jan-08	Toolpusher:	Danny White
Driller		Truck Driver:	Austin Martinez	Helper:	J. Rose
	Kevine Begay		J. Trujillo		J. Long
Coordinates, N	Randy McClard		A. Sandoval	-	N. Brite
Coordinates: N.		E.			
Location: Townsh Ground Elevation:	ip, Range & Section 8211'		NE 1/4 Sec. 35, T.1	12S., R.90W.	
Geophysical Log M		Collar Elevation: Ground	Elevation		
Total Depth:		Probe Depth:	2270'	Fluid Level:	N1 A
Casing Type:		Lione Dehill.	Size:	9 5/8"	NA
Casing Type:				"(6 slotted, 2 solid)	
		Recovered (Y or N):	N 0120. 7	10 0101104, 2 0014)	
	7": 2082-2252'	· · · · · · · · · · · ·	N		
Bit Information			······································		
Surface Casing	17" Tricone to 20';	(14" surface casing)			
	(Reamed) 12 1/4"	Tricone to 2155'			
Core:	NA			······································	
Bottom Hole	(Reamed) 8 3/4" Tr	1cone to 2261'			
Footage Plugged:	2275'	Cored:	NA		
Drilling Medium:	Air:	Foam/Water:		Foam Injection:	
Depths:	0-20'	20-2275'			
	ulation Depths:	NA	Rega	ined ? (Y or N):	
Water Invasion De		NA	Estimat	ed Inflow Rates:	
Gas Invasion D	epth or Interval:	2260-2270'		_	
Geophysical Logg	ing Contractor: Je	et West Geophysical, L	LC	<u> </u>	
Logs Run:	Gamma:	Х	Neutron:		
-	Temperature:	······································	Density:	X	
	Resistivity:	Х	Caliper:	X	
04	r (SP, Foc. Elec.,	Drift, Dep., Sonic): De	eviation: 32' @ 239	deg.	
Othe					
Hole Cemented (<u>Y</u> or N), Type:	Y	No. of Bags: 17 yo	is portland for annulus	
	Y_ or N_), Type:	Y	No. of Bags: 17 yc Interval: to st	· · · ·	
	<u>Y</u> or N), Type:		Interval: to su	· · · ·	
Hole Cemented (NA	ł	Interval: to su	Inface NA	
Hole Cemented (Dal Core Sent To: Comments: D	NA rilled 6 3/4" pilot ho	le to verify mineable th	Interval: to su	NA	
Hole Cemented (bal Core Sent To: Comments: D 1/4" to 2145' for 9 5	NA rilled 6 3/4" pilot ho /8" casing. Cuttings	le to verify mineable th s filled bottom hole duri	Interval: to su	NA NA Id d out to 2261'	
Hole Cemented (bal Core Sent To: <u>Comments: D</u> 1/4" to 2145' for 9 5 ' cement plug from 2	NA rilled 6 3/4" pilot ho /8" casing. Cuttings 252-2261'. Bottom	le to verify mineable th s filled bottom hole dur of 7" slotted casing 7"	Interval: to su Rock Sent To:	Iríace NA Id d out to 2261'. 59-2269').	
Hole Cemented (bal Core Sent To: <u>Comments: D</u> 1/4" to 2145' for 9 5 ' cement plug from 2	NA rilled 6 3/4" pilot ho /8" casing. Cuttings 252-2261'. Bottom	le to verify mineable th s filled bottom hole duri	Interval: to su Rock Sent To:	Iríace NA Id d out to 2261'. 59-2269').	
Hole Cemented (pal Core Sent To: Comments: D 1/4" to 2145' for 9 5, ' cement plug from 2 nel 12 abandoned du	NA rilled 6 3/4" pilot ho '8" casing. Cuttings 252-2261'. Bottom ie to fault encounte	le to verify mineable th s filled bottom hole dur of 7" slotted casing 7"	Interval: to su Rock Sent To: ickness, then reame ing reaming, cleaned above D2 seam (22) never used to vent c	Inface NA Ind Ind out to 2261'. 59-2269'). Job.	

Date Commenced: 22-Nov-10 Contractor: Harriman Drilling Engineer: Doug Smith Driller: Dennis Harriman Coordinates: N. 14129.87 Location: Township, Range & Section: Ground Elevation: 6382'	(State or Federal) Date Completed: Rig Type: Date : Truck Driver: E.	: Hubbard Creek Fa Surface Owner : 23-Nov-10 Gardner Denver 18 15-Dec-10	BLM	Bruce Jones
Lease Number: COC-61357 Date Commenced: 22-Nov-10 Contractor: Harriman Drilling Engineer: Doug Smith Driller: Dennis Harriman Coordinates: N. 14129.87 Location: Township, Range & Section: Ground Elevation: 6382'	(State or Federal) Date Completed: Rig Type: Date : Date : Truck Driver: E.	Surface Owner: 23-Nov-10 Gardner Denver 15 15-Dec-10 24183.63	BLM 5W Toolpusher: _	Bruce Jones
Lease Number: COC-61357 Date Commenced: 22-Nov-10 Contractor: Harriman Drilling Engineer: Doug Smith Driller: Dennis Harriman Coordinates: N. 14129.87 Location: Township, Range & Section: Ground Elevation: 6382'	(State or Federal) Date Completed: Rig Type: Date : Date : Truck Driver: E.	Surface Owner: 23-Nov-10 Gardner Denver 15 15-Dec-10 24183.63	BLM 5W Toolpusher: _	Bruce Jones
Date Commenced: 22-Nov-10 Contractor: Harriman Drilling Engineer: Doug Smith Driller: Dennis Harriman Coordinates: N. 14129.87 Location: Township, Range & Section:	Date Completed: Rig Type: Date : Truck Driver: E.	23-Nov-10 Gardner Denver 15 15-Dec-10 24183.63	5W Toolpusher:_	Bruce Jones
Engineer: Doug Smith Driller: Dennis Harriman Coordinates: N. 14129.87 Location: Township, Range & Section: Ground Elevation: 6382'	Date : Truck Driver: E.	15-Dec-10 24183.63	Toolpusher:	Bruce Jones
Engineer: Doug Smith Driller: Dennis Harriman Coordinates: N. 14129.87 Location: Township, Range & Section: Ground Elevation: 6382'	Date : Truck Driver: E.	15-Dec-10 24183.63	Toolpusher:	Bruce Jones
Coordinates: N. <u>14129.87</u> Location: Township, Range & Section: Ground Elevation: <u>6382</u> '	Truck Driver: E.	24183.63		Bruce Jones
Location: Township, Range & Section: Ground Elevation: 6382'			-	
Location: Township, Range & Section: Ground Elevation: 6382'				
			3S. R.91 W	
Geophysical Log Measured From:				
		Elevation		
Total Depth: 55' Casing Type: steel T&C	Probe Depth:	NA Size:	Fluid Level: 7 5/8"	NA
Casing Type:		Size:	/ 3/0	
Depth: 0-55' Rec	overed (Y or N):			
Depth: Rec	overed (Y or N):			
Bit Information Surface Casing				
Main Hole 12 1/4" Tricone from 0-	55'			
Core:				
Bottom Hole			•	
				· · · · · · · · · · · · · · · · · · ·
Footage Plugged: 0-55' Drilling Medium: Air: Fo	_ Cored: oam /Water:	0	-	
Depths: 0-55'	Ualli / Water:	Mud: F	oam Injection:	
Lost Circulation Depths:	NA	Rega	ined ? (Yor N):	
Water Invasion Depth or Intervals:	NA	 Estimate 	ed Inflow Rates:	
Gas Invasion Depth or Interval:	NA			
Geophysical Logging Contractor: NA				
Logs Run: Gamma:		Neutron:		
Temperature:		Density:		
Resistivity:		Caliper:		
Other (SP, Foc. Elec., Drift	, Dep., Sonic):			
Hole Cemented (<u>Y</u> or N), Type:	Y	No. of Bags: 15	cubic yds portland slu	irn/
	**********	interval: to su	urface	
oal Core Sent To: NA		Rock Sent To:	NA	·····
Comments: Drilled into D seam mine	for communication	s/ utility lines		
		ior duity in 60.		
le abandoned to surface with 1.5 cubic yard	s portland slurry J	une, 2006.		
			and the standard of the standard standard standard standard standard standard standard standard standard standa	

1		Oxbow Mi	ning LLC		
		Elk Cre	ek Mine		
Hole Number	: DW1	Project ID	- Hubbard Creak		
Lease Number		(State or Federa	.: Hubbard Creek	r: BLM	
Date Commenced	: 18-Nov-05	Date Completed			
Contractor	: Harriman Drilling		: Gardner Denver	15W	
Engineer		Date	: 15-Dec-10	Toolpusher:	
Driller:	Dennis Harriman	Truck Driver		Helper:	Bruce Jones
Coordinates: N.		E	24184.72		
Location: Townsh			NW1/4 Sec. 2, T.	13S, R.91 W	
Ground Elevation: Geophysical Log N	6382'	Collar Elevation	·	_	
Total Depth:	55'	ground Probe Depth:	Elevation NA	Fluid Level:	NA
Casing Type:		i i obe beptili	Size:		NA
Casing Type:	steel T&C		Size:		
Depth:	0-19'	Recovered (Y or N):	. N		
Depth:	0-55'	Recovered (Y or N):	N		
Bit Information	10 1/4 7 (·	
	12 1/4" Tricone fro 6 3/4" Tricone from				•
Core:		1 19-00			
Bottom Hole	·····				
-	·····				
Footage Plugged:	0-55'	Cored:	0		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-19'	19-55'			
Lost Circ	ulation Depths:	NA	De		
Water Invasion Dep		NA		gained ? (Y or N): ated inflow Rates:	
Gas Invasion De		NA	Louin	ateu milow hates:	
Geophysical Logg	ing Contractor: <u>N</u>	IA			
Logs Run:	Gamma:		Neutron:		
J	Temperature:		Density:	· · · · · · · · · · · · · · · · · · ·	
	Resistivity:		Caliper:		
Othe	er (SP, Foc. Elec.,	Drift, Dep., Sonic):		· · · · · · · · · · · · · · · · · · ·	
Hole Cemented (<u>Y</u> or N), Type:	Y	No. of Bags: 4	hole plug, 1 cement	
			· _		
oal Core Sent To:	N/	4	Rock Sent To:	NA	
Comments: D	rilled into D seam n	nine for extraction of n	nine sump water		
			and camp haton		
					· <u></u>
la ab and an a d ta a d		ala alexa d			
le abandoned to sur	ace with 4 sacks h	ole plug, 1 sack ceme	nt November, 2010		

		Oxbow Mi	-		
		Elk Cre	ek Mine	an a sanaga sa kasaranga da kasara da sanaga sa sa sa sa	
Hole Number	D2B2	Proiect ID.	: Hubbard Creek Fa	an H20 Wells	nakan la Kanan napada ka kematak sagar
Lease Number:			Surface Owner:		
Date Commenced:	26-Oct-10	Date Completed	31-Oct-10		
	Harriman Drilling	Rig Type	Gardner Denver 1	5W	
Engineer:		Dates		Toolpusher:	
Driller:	Dennis Harriman	Truck Driver:		Heiper:	Tex Piele
Coordinates: N.		E.	24210.81	-	. <u></u>
Location: Townshi			NW1/4 Sec. 2, T. 1	3S, R.91 W	
Ground Elevation: Geophysical Log M	6382'	Collar Elevation:	Claustin		
Total Depth;	336'	ground Probe Depth:	Elevation NA	Fluid Level:	NA
Casing Type:		ribbe Deptil.	Size:	8 5/8"	INA
Casing Type:	steel T&C		Size:	4 1/2"	
Depth:	0-19'	Recovered (Y or N):			
Depth: Bit Information	0-297'	Recovered (Y or N):	<u>N</u>		
	12 1/4" Tricone fro	m 0-19'		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
	3/4" Tricone from		<u></u>		
Core:					
Bottom Hole	6" Tricone from 29	7-336'			
Footage Plugged:	0-336'	Cored:	0		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths: _	0-19'	19-336'			
Lost Circ	ulation Depths:	NA	Rega	lined ? (Yor N):	
Water Invasion Dep	th or Intervals:	220'		ted Inflow Rates:	50 gpm
Gas Invasion De	pth or Interval:	NÁ			go gon
Geophysical Loggi	ng Contractor: <u>N</u>	A			
Logs Run:	Gamma:		Neutron:		**************************************
	Temperature:	······································	Density:	<u> </u>	
	Resistivity:		Caliper:		
Othe	r (SP, Foc. Elec.,	Drift, Dep., Sonic):			
Hole Cemented (<u>(</u> or N), Type:	Y	No. of Bags: 18 I Interval: to s	hole plug, 2 cement	
					- <u></u>
oal Core Sent To:	N/	<u> </u>	Rock Sent To:	NA	
Comments: 3	ubber shale packe	ers set at 280' and ann	ulus cemented to su	urface.	
illed into old B seam	mine workings to in	nject D seam mine sun	np water.		
atic water level @ 13	5'.				
leabandoned to surf	ace with 18 eache	hole plug, 2 sacks cen	iont May 2010		

	Nillian an Francisco ann agus bharann a shaire an 1900 a ann				
Hole Numbe Lease Numbe Date Commence	r: COC-61357		.: Hubbard Creek F I) Surface Owner: I: 17-Oct-05		
Enginee	r: Harriman Drilling : Doug Smith : Dennis Harrimar	Date		15W Toolpusher: Helper: _	Tex Piele
Coordinates: N Location: Townsh Ground Elevation: Geophysical Log I	ni <mark>p, Range & Sect</mark> 6382'	E ion: Collar Elevation ground	NW1/4 Sec. 2, T.		
Total Depth Casing Type Casing Type Depth	357' steel 	Probe Depth Recovered (Y or N):	: NA Size: Size: N	Fluid Level: 8 5/8"	NA
Depth: Bit Information Surface Casing Main Hole Core: Bottom Hole	12 1/4" Tricone fro 6 3/4" Tricone fror				
Footage Plugged: Drilling Medium: Depths:	0-57' Air: 0-20'	Cored: Foam /Water: 20-357'	0 Mud:	Foam Injection:	
Water Invasion De	culation Depths: pth or Intervals: epth or Interval:	NA NA NA	Reg Estima	ained ? (Y or N): ated Inflow Rates:	
	ging Contractor: <u>/</u>	VA			
Logs Run: Oth	Gamma: _ _ Temperature: _ _ Resistivity: _ er (SP, Foc. Elec.,	Drift, Dep., Sonic):	Neutron: Density: Caliper:		
Hole Cemented (Y or N), Type:	Y	No. of Bags: 1.0 Interval: to		
	N	Α	Rock Sent To:	NA	
oal Core Sent To:		vreact old B coam min	e workings for water	injection.	
oal Core Sent To: Comments: F tatic water level @ 1	ailed attempt to ine 38'.	Sect OIU D Seath Millie			

		Oxbow Mi	ning LLC		MATOO STRATEGY CONTRACTOR
		Elk Cre	ek Mine		
Hole Number		Project ID.	: Hubbard Creek F	an H2O Wells	
Lease Number) Surface Owner:		
Date Commenced	: 20-Oct-05	Date Completed	: 25-Oct-05		
Contractor	: Harriman Drilling	Rig Type	: Gardner Denver 1	5W	
Engineer		Date	15-Dec-10	Toolpusher:	
Driller	: Dennis Harriman	Truck Driver:		Helper:	Tex Piele
Coordinates: N	. 14133.09	Е.	24206.31		
Location: Townsh			NW1/4 Sec. 2, T.	135 B 91 W	
Ground Elevation:	6382'	Collar Elevation:	1111/1/000.2,11		
Geophysical Log N		ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	8 5/8"	
Casing Type: Depth:		Decovered (V or N);	Size:	······································	
Depth:		Recovered (Y or N): Recovered (Y or N):			
Bit Information		necovered (1 of 14).	IN		
Surface Casing	12 1/4" Tricone fro	m 0-19'			
Main Hole	6 1/2" Tricone from	n 19-302'			
Core:			***		
Bottom Hole	6" Tricone from 30	2-357'			
Footage Plugged:	0-357	Cored:	0		
Drilling Medium:	Air: 0-19'	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-19	19-357'			
Lost Cir	culation Depths:	NA	Reg	ained ? (YorN):	
Water Invasion De		NA		ted Inflow Rates:	
Gas Invasion D	epth or Interval:	NA			
Geophysical Logo	ging Contractor: <u>N</u>	IA	· · · · · · · · · · · · · · · · · · ·		
Logs Run:	Gamma:		Neutron:		
	Temperature:		Density:		
	Resistivity:		Caliper:		
Oth	er (SP, Foc. Elec.,	Drift, Dep., Sonic):			
Hole Cemented (Y or N), Type:	Y	No. of Bags: 0.5	cubic yards	
			Interval: to s	surface	
oal Core Sent To:	N/	Δ	Rock Sent To:	NA	
Comments: F	ailed attempt to ine	rsect old B seam mine	workings for water	injection.	
ole cemented to surf	ace with 0.5 cubic y	ards cement slurry Jur	ne, 2006.		
					_
			که در میکند میکند و این که این میکند و بین این میکند و بینی میکند و بینی میکند و بینی میکند و بین میکند و بینی میکند این میکند و بینی میکند و بین و بر میکند و بینی می		

Oxbow M	ining LLC
Elk Cr	eek Mine
Lease Number: COC-61357 (State or Feder	ID.: Elk Creek Mine Methane Ventilation ral) Surface Owner:BLM ed: 15-Nov-08
Contractor: <u>Himes Drilling</u> Rig Typ Geologist: <u>Doug Allen</u> Dat Driller: <u>Kevin Himes</u> Truck Drive	pe: Portadrill TKT Rig 7 e : 13-Dec-08 Toolpusher: er: Aaron Bucheim Helper: Will Juusola
Location: Township, Range & Section: Ground Elevation: 7024' Collar Elevatio Geophysical Log Measured From: ground Total Depth: 430' Probe Dept	Elevation
Casing Type: <u>steel</u> Casing Type: <u>steel T&C</u> Depth: <u>0-40'</u> Recovered (Y or N Depth: <u>0-435'</u> Recovered (Y or N Bit Information	Size: 14" Size: 10 3/4"): N
Surface Casing 16" Tricone to 40' Main Hole 13 3/4" Tricone to 440' Core:	
Footage Plugged:440'CoredDrilling Medium:Air:Foam /Water:Depths:0-440'	:0 Mud: Foam Injection:
Lost Circulation Depths: NA Water Invasion Depth or Intervals: NA Gas Invasion Depth or Interval: NA	Regained ? (Y or N): Estimated Inflow Rates:
Geophysical Logging Contractor: <u>NA</u> Logs Run: Gamma: Temperature: Resistivity: Other (SP, Foc. Elec., Drift, Dep., Sonic):	Neutron: Density: Caliper:
Hole Cemented (<u>Y</u> or N), Type:Y	No. of Bags: 6 hole plug, 16 plug gel,2 cement Interval: to surface
coal Core Sent To: NA	Rock Sent To: NA
Comments: Also drilled 6 1/4" hole 15' east of vent we eel T&C casing for communications/ utility. Both strings of c	ell and cased off with 4.5" asing cemented to surface.
3 3/4" drilled to mine floor; 10 3/4" casing held back 5' to acco) 3/4" casing abandoned to surface with 6 sacks hole plug, 2- vo sacks cement September, 2009. mes Drilling Colorado water well license #1285	ommodate valve assembly. 400 gallons plug gel, and

	Oxbow Mining LLC				
n na na manga Manga Kanga K Manga Kanga Kang	Elk Creek Mine				
Hole Number: VB-01S-01 Lease Number: COC-613 Date Commenced: 16-Nov-	357 (State or Federal) Surface Owner: BLM				
Contractor: Himes Dril Geologist: Doug All Driller: Kevin Him	en Date : 13-Dec-10 Toolpusher:				
Coordinates: N. 4720.60 Location: Township, Range & S Ground Elevation: 7024' Geophysical Log Measured Fro	Section: SE 1/4 Sec. 12, T.13S., R.91W. Collar Elevation: m: ground Elevation				
Total Depth:429'Casing Type:steel T&CCasing Type:steel T&CDepth:0-40'Depth:0-430'	Probe Depth: NA Fluid Level: NA Size: 7.0" Size: 7.0" Recovered (Y or N): N N N Recovered (Y or N): N N N				
Bit Information Surface Casing 8 3/4" Tricone Main Hole 6 1/4" Tricone Core:					
Footage Plugged:440'Drilling Medium:Air:Depths:0-440'	Cored: 0 Foam /Water: Mud: Foam Injection:				
Lost Circulation Dept Water Invasion Depth or Interva Gas Invasion Depth or Interv	als: <u>NA</u> Estimated Inflow Rates:				
Logs Run: Gamm Temperatur Resistivit	re: Density:				
Hole Cemented (\underline{Y} or N), Typ	e: Y No. of Bags: 1.25 cubic yds cement slurry Interval: to surface				
Coal Core Sent To:					
Iridge plug set at 400' and casing ca ortland cement September, 2010.	emented to surface with 1.25 cubic yards				
limes Drilling Colorado water well lic					
		Oxbow Mi	ning TTC		
---	--	--	--	---	------------
		Elk Cre			
		DIY CIG	er mine		
Hole Number		Proiect ID.	: Elk Creek Mine Go	h Vent Boreholes	
Lease Number:		(State or Federal) Surface Owner:	Hotchkiss	
Date Commenced:	23-Oct-09	Date Completed	27-Oct-09		
Contractor:	Himes Drilling	Rig Type	: Atlas Copco RD20		
Geologist:		_ Date :	13-Nov-09	Toolpusher:	Matt Himes
Driller:	Jim Weatherton		Will Juusola	Helper:	Beau O.
Coordinates: N.	Sam Homedew	-	Tommy Dennis		Sean V.
Location: Townshi	15546.70	Ε.			
Ground Elevation:	p, range & Secti 7501!	on: Collar Elevation:	SW 1/4, Sec. 31, T.	12 S., R. 90 W.	
Geophysical Log M			Elevation		
Total Depth:	1540'	Probe Depth:	1542'	Fluid Level:	NIA
Casing Type:			Size:	9 5/8"	NA
Casing Type:	sol/slot steel T&C		Size:	<u> </u>	
Depth:	0-1340'	Recovered (Y or N):	N	· · · · · · · · · · · · · · · · · · ·	
Depth:	1300-1510'	Recovered (Y or N):	N		
Bit Information					
Surface Casing Main Hole	6" I ricone to 40'	(14" surface casing)			
Core:	2 1/4" PDC from	40-1340			
Bottom Hole 7	3/4" Tricono from	1240 1540			
Bottom Hole $\frac{1}{2}$	3/4" Tricone from	1340-1540'		·····	
Footage Plugged:	3 3/4" Tricone from 0-1540'	1340-1540' Cored:	NA		·····
Footage Plugged: Drilling Medium:	0-1540' Air:	Cored: _ Foam /Water:	NA F	oam injection:	
Footage Plugged:	0-1540'	Cored:	and the second	oam Injection:	
Footage Plugged: Drilling Medium: Depths:	0-1540' Air: 0-107'	Cored:	Mud: F		
Footage Plugged: Drilling Medium: Depths:	0-1540' Air: 0-107' ulation Depths:	Cored:	Mud: F	ined ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Circo Water Invasion Dep	0-1540' Air: 0-107' ulation Depths: _ th or Intervals:	Cored:	Mud: F		
Footage Plugged: Drilling Medium: Depths: Lost Circe Water Invasion Dep Gas Invasion De	0-1540' Air: 0-107' ulation Depths: th or Intervals: pth or Interval:	Cored:	Mud: F	ined ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Circo Water Invasion Dep	0-1540' Air: 0-107' ulation Depths: th or Intervals: pth or Interval:	Cored:	Mud: F	ined ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Circe Water Invasion Dep Gas Invasion De	0-1540' Air: 0-107' ulation Depths: th or Intervals: pth or Interval: ng Contractor: J Gamma:	Cored:	Mud: F	ined ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Circo Water Invasion Dep Gas Invasion De Geophysical Loggi	0-1540' Air: 0-107' ulation Depths: th or Intervals: pth or Interval: ng Contractor: J Gamma: Temperature:	Cored:	Mud: F Regai Estimat	ined ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Circo Water Invasion Dep Gas Invasion De Geophysical Loggi Logs Run:	0-1540' Air: 0-107' ulation Depths: th or Intervals: pth or Interval: ng Contractor: J Gamma: Temperature: Resistivity:	Cored:	Mud: F Regai Estimat Neutron: Density: Caliner:	ined ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Circo Water Invasion Dep Gas Invasion De Geophysical Loggi Logs Run:	0-1540' Air: 0-107' ulation Depths: th or Intervals: pth or Interval: ng Contractor: J Gamma: Temperature: Resistivity:	Cored:	Mud: F Regai Estimat Neutron: Density: Caliner:	ined ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Circo Water Invasion Dep Gas Invasion De Geophysical Loggi Logs Run:	0-1540' Air: 0-107' ulation Depths: _ th or Intervals: _ pth or Interval: _ ng Contractor: _J Gamma: _ Temperature: _ Resistivity: _ r (SP, Foc. Elec.,	Cored:	Mud: F Regai Estimat Neutron: Density: Caliper: ment dump bailer No. of Bags:	ined ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Circo Water Invasion Dep Gas Invasion De Geophysical Loggi Logs Run:	0-1540' Air: 0-107' ulation Depths: _ th or Intervals: _ pth or Interval: _ ng Contractor: _J Gamma: _ Temperature: _ Resistivity: _ r (SP, Foc. Elec.,	Cored: Foam /Water: 107-1540' NA NA etwest Geophysical Y Prift, Dep., Sonic): ce	Mud: F Regal Estimat Density: Caliper: ment dump bailer	ined ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Circo Water Invasion Dep Gas Invasion De Geophysical Loggi Logs Run:	0-1540' Air: 0-107' ulation Depths: th or Intervals: pth or Intervals: ng Contractor: J Gamma: Temperature: Resistivity: r (SP, Foc. Elec., or N), Type:	Cored: Foam /Water: 107-1540' NA NA NA etwest Geophysical Y Prift, Dep., Sonic): ce N	Mud: F Regai Estimat Neutron: Density: Caliper: ment dump bailer No. of Bags:	ined ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Circa Water Invasion Dep Gas Invasion De Geophysical Loggi Logs Run: Othe Hole Cemented (<u>)</u> oal Core Sent To: Comments: 7" (0-1540' Air: 0-107' Ulation Depths: th or Intervals: pth or Intervals: ng Contractor: Gamma: Temperature: Resistivity: r (SP, Foc. Elec., or N), Type: NA casing overlaps 4(Cored: Foam /Water: 107-1540' NA NA NA etwest Geophysical Y Drift, Dep., Sonic): ce N ' inside 9 5/8" casing.	Mud: F Regai Estimat Neutron: Density: Caliper: ment dump bailer No. of Bags: Interval: Rock Sent To:	ined ? (Y or N): ed Inflow Rates: Y	
Footage Plugged: Drilling Medium: Depths: Lost Circu Water Invasion Dep Gas Invasion Dep Gas Invasion De Geophysical Loggi Logs Run: Othe Hole Cemented (<u>)</u> oal Core Sent To: <u>Comments: 7"</u>	0-1540' Air: 0-107' Ulation Depths: th or Intervals: pth or Intervals: ng Contractor: _J Gamma: Temperature: Resistivity: r (SP, Foc. Elec., (or N), Type: NA casing overlaps 4(d with 30 bags plus	Cored:	Mud: F Regai Estimat Neutron: Density: Caliper: ment dump bailer No. of Bags: Interval: Rock Sent To:	ined ? (Y or N): ed Inflow Rates: Y	
Footage Plugged: Drilling Medium: Depths: Lost Circa Water Invasion Dep Gas Invasion De Geophysical Loggi Logs Run: Othe Hole Cemented (<u>)</u> oal Core Sent To: Comments: 7" (0-1540' Air: 0-107' Ulation Depths: th or Intervals: pth or Intervals: ng Contractor: _J Gamma: Temperature: Resistivity: r (SP, Foc. Elec., (or N), Type: NA casing overlaps 4(d with 30 bags plus	Cored:	Mud: F Regai Estimat Neutron: Density: Caliper: ment dump bailer No. of Bags: Interval: Rock Sent To:	ined ? (Y or N): ed Inflow Rates: Y	
Footage Plugged: Drilling Medium: Depths: Lost Circu Water Invasion Dep Gas Invasion Dep Gas Invasion De Geophysical Loggi Logs Run: Othe Hole Cemented (<u>)</u> oal Core Sent To: <u>Comments: 7" (</u> 5/8" annulus cemented	0-1540' Air: 0-107' Ulation Depths: th or Intervals: pth or Intervals: Ing Contractor: Gamma: Temperature: Resistivity: r (SP, Foc. Elec., or N), Type: NA Casing overlaps 40 With 30 bags plus tagged cement plue	Cored: Foam /Water: 107-1540' NA NA etwest Geophysical Y Drift, Dep., Sonic): ce N ' inside 9 5/8" casing. s 3 yds neat cement slu Ig at 1510'.	Mud: F Regal Estimation Neutron: Density: Caliper: Caliper: Caliper: Interval: Interval:	ined ? (Y or N): ed Inflow Rates: Y	
Footage Plugged: Drilling Medium: Depths: Lost Circu Water Invasion Dep Gas Invasion Dep Gas Invasion De Geophysical Loggi Logs Run: Othe Hole Cemented (<u>)</u> oal Core Sent To: <u>Comments: 7" (</u> 5/8" annulus cemented	0-1540' Air: 0-107' Ulation Depths: th or Intervals: pth or Intervals: Ing Contractor: Gamma: Temperature: Resistivity: r (SP, Foc. Elec., or N), Type: NA Casing overlaps 40 With 30 bags plus tagged cement plue	Cored:	Mud: F Regal Estimation Neutron: Density: Caliper: Caliper: Caliper: Interval: Interval:	ined ? (Y or N): ed Inflow Rates: Y	
Footage Plugged: Drilling Medium: Depths: Lost Circu Water Invasion Dep Gas Invasion Dep Gas Invasion De Geophysical Loggi Logs Run: Othe Hole Cemented (<u>)</u> oal Core Sent To: <u>Comments: 7" (</u> 5/8" annulus cemented agged gravel at 1517',	0-1540' Air: 0-107' Ulation Depths: th or Intervals: pth or Intervals: ng Contractor: J Gamma: Temperature: Resistivity: r (SP, Foc. Elec., for N), Type: NA Casing overlaps 40 with 30 bags plus tagged cement plu to surface with 22	Cored: Foam /Water: 107-1540' NA NA NA etwest Geophysical Y Prift, Dep., Sonic): ce N ' inside 9 5/8" casing. s 3 yds neat cement slu Ig at 1510'. 2 cubic yards portland t	Mud: F Regal Estimation Neutron: Density: Caliper: Caliper: Caliper: Interval: Interval:	ined ? (Y or N): ed Inflow Rates: Y	

Geophysical Log Measured From: ground Elevation Total Depth: 1775' Probe Depth: 1777' Fluid Level: 600' Casing Type: steel T&C Size: 9 5/8" Casing Type: sol/slot steel T&C Size: 7" Depth: 0-1652' Recovered (Y or N): N Depth: 1564-1742' Recovered (Y or N): N Bit Information Size: 100' 100'	.	n da mandar da manya da arte da	Orbor Mi			
Hole Number: GVB 15-04 Project ID.: Elk Creek Mine Gob Vent Boreholes Lease Number: COC.61357 (State or Federal) Surface Owner: Hotchkiss Date Commenced: 3-Nov-09 Date Completed: 6-Nov-09 Contractor: Himes Drilling Rig Type: Atta Copco RD20 Dates: Interval: Matt Himes Date: 13:Nov-09 Toolpusher: Matt Himes Coordinates: N. 15332127 E. 35686.64 Shaun L. Location: Township, Range & Section: SE 1/4, Sec. 31, T. 12.S, R. 30 W. Shaun L. Goophysical Log Measured From: ground Elevation: State: 7" Total Depth: 1775 Probe Depth: 1777 Fluid Level: 600' Casing Type: stel TAC Size: 7" 5/6" Size: 7" Depth: 0-1652 Recovered (Y or N): N N Size: 7" Suface Casing 16" Tricone from 1652-1775' Size: 7" Size: 7" Sotatom Hole 8 3/4" Tricone from 1652-1775' Cored: NA						
Lease Number: COC-61367 (State or Federal) Striface Owner: Hotchkiss Date Commenced: 3-Nov-09 Date Completed: 6-Nov-09 Toolpusher: Matt Himes Geologist: Doug Allen Date: 13-Nov-09 Toolpusher: Matt Himes Drill: Jim Weatherton Truck Driver: Will Juusola Helper: Beau 0. Sam Homedew Truck Driver: Will Juusola Helper: Beau 0. Coordinates: N. 15312.12 E. 35666.54 Coordinates: 7734' Collar Elevation: Strift.4. Sec. 31, T. 12 S., R. 90 W. Geophysical Log Measured From: ground Elevation: Size: 7" Depth: 1775 Probe Depth: 1777 Fluid Level: 600' Casing Type: Sitel T&C Size: 7" Depth: 6167 Size: 7" Depth: 0-1652 Recovered (Y or N): N N N Size: 7" Depth: 1541/472 Recovered (Y or N): N N Size: 7" Depth: 0-1652 <	nin maar na amaa yaan gagan Balala kun yan daga gara da may mayo		DIK CIE	er mine		
Lease Number: COC-61367 (State or Federal) Striface Owner: Hotchkiss Date Commenced: 3-Nov-09 Date Completed: 6-Nov-09 Toolpusher: Matt Himes Geologist: Doug Allen Date: 13-Nov-09 Toolpusher: Matt Himes Drill: Jim Weatherton Truck Driver: Will Juusola Helper: Beau 0. Sam Homedew Truck Driver: Will Juusola Helper: Beau 0. Coordinates: N. 15312.12 E. 35666.54 Coordinates: 7734' Collar Elevation: Strift.4. Sec. 31, T. 12 S., R. 90 W. Geophysical Log Measured From: ground Elevation: Size: 7" Depth: 1775 Probe Depth: 1777 Fluid Level: 600' Casing Type: Sitel T&C Size: 7" Depth: 6167 Size: 7" Depth: 0-1652 Recovered (Y or N): N N N Size: 7" Depth: 1541/472 Recovered (Y or N): N N Size: 7" Depth: 0-1652 <	Hole Number (Des la CD			
Date Commenced: 3-Nov-09 Date Completed: 6-Nov-09 Contractor: Himes Drilling Geologist: Doug Allen Dug Allen Differ: Rig Type: Attac Copco RD20 Sam Homedew Coordinates: N. 15312.12 E. Beau 0. Sam Homedew Coordinates: N. 15312.12 E. Beau 0. Sam Homedew Coordinates: N. 15312.12 E. State Complexity Location: Tormy Dennis 35666.54 State Complexity Shaun L. Geophysical Log Measured From: Ground Elevation: Collar Elevation: State: 9 5/8' Casing Type: sole T&C State: 9 5/8' Casing Type: sole T&C State: 7" Depth: 168-1742 Recovered (Y or N): N Suface Casing 16" Tricone to 20' (14" surface casing) Main Hole 8 3/4" Tricone from 1652-1775' Footage Plugged: 0-1775' Cored: NA Drilling Medium: Air: Foam //Water: Mud: Drilling Medium: Air: Foam //Water: Mud: Drilling Medium: Air: Foam //Water: Mud: Depths: 0-410' (175') Cored: NA Bas Invasion Depth or Intervals: 410' T			Project ID (State or Federal	Elk Creek Mine G	Ob Vent Boreholes	
Contractor: Himes Drilling Doig Allen Driller: Rig Type: Atlas Copco RD20 Date: Toolpusher: Matt Himes Beau 0. Coordinates: N. 15312.12 E. 35666.54 Location: Tormy Dennis Shaun L. Shaun L. Goolysical Log Measured From: Ground Elevation: 7734' Collar Elevation: Ground Elevation: SE 1/4, Sec. 31, T. 12 S., R. 30 W. Casing Type: stel T&C Stel T&C Stel 1/4, Sec. 31, T. 12 S., R. 30 W. Casing Type: stel T&C Stel 1/4, Sec. 31, T. 12 S., R. 30 W. Casing Type: stel T&C Stel 1/4, Sec. 31, T. 12 S., R. 30 W. Casing Type: stel T&C Stel 1/4, Sec. 31, T. 12 S., R. 30 W. Casing Type: stel T&C Stel 1/4, Sec. 31, T. 12 S., R. 30 W. Casing Type: stel T&C Stel 1/4, Sec. 31, T. 12 S., R. 30 W. Casing Type: stel T&C Stel 1/4, Sec. 31, T. 12 S., R. 30 W. Casing Type: stel T&C Stel 1/4, Sec. 31, T. 12 S., R. 30 W. Casing Type: stel T&C Stel 1/4, Sec. 31, T. 12 S., R. 30 W. Casing Type: stel T&C Stel 1/4, Sec. 31, T. 12 S., R. 30 W. Sufface Casing The Secovered (Y or N): N N <td></td> <td></td> <td>Date Completed</td> <td>: 6-Nov-09</td> <td>HULGHNISS</td> <td></td>			Date Completed	: 6-Nov-09	HULGHNISS	
Geologist: Doug Allen Driller: Date Toolpusher: Matt Himes Beau 0. Sam Homedew Coordinates: N. 15312.12 E. 36666.54 Location: Tormym Dennis Sam Homedew Ground Elevation: SE 1/4, Sec. 31, T. 12 S, R. 30 W. Shaun L. Ground Elevation: 7734' Collar Elevation: SE 1/4, Sec. 31, T. 12 S, R. 30 W. Shaun L. Ground Elevation: 7734' Collar Elevation: SE 1/4, Sec. 31, T. 12 S, R. 30 W. Shaun L. Geophysical Log Measured From: Total Depth: 7734' Collar Elevation: Size: 9 5/6" 9/6" Casing Type: sitel T&C Size: 9 5/6" 9/6" 600' Depth: 0-1652 Recovered (Y or N): N N N Bit Information 1564-1742' Recovered (Y or N): N N N Surface Casing 16" Tricone from 1652-1775' Cored: NA NA Potter: 0-410' 410-1775' Cored: NA Drilling Medium: Air: 0-410' Foam /Water: Mud: Foam Injection: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y <td< td=""><td></td><td>· · · · · · · · · · · · · · · · · · ·</td><td></td><td></td><td></td><td></td></td<>		· · · · · · · · · · · · · · · · · · ·				
Driller: Jim Weatherton Sam Homedew Truck Driver: Will Juusola Tormy Dennis Helper: Beau O. Shaun L. Coordinates: N. 15312.12 E. 35686.54 Location: Township, Range & Section: SE 1/4, Sec. 31, T. 12 S., R. 90 W. Shaun L. Gound Elevation: 7734' Colar Elevation: SE 1/4, Sec. 31, T. 12 S., R. 90 W. Goophysical Log Measured From: ground Elevation SE 1/4, Sec. 31, T. 12 S., R. 90 W. Goophysical Log Measured From: ground Elevation: 5/6'' Casing Type: steel T&C Size: 9.5/8' Casing Type: steel T&C Size: 7'' Depth: 0-1652' Recovered (Y or N): N Bufface Casing 16'' Tricone to 20' (14'' surface casing) Nain Hole 12.1/4'' PDC from 20-1652' Core: 33/4'' Tricone from 1652-1775' Coret: NA NA Drilling Medium: Air: Foam //Water: Mud: Foam Injection: Deth:: 0-410' 410-1775' Coret: NA Segained ? (Y or N): Lost Circulation Depths: NA Regained ? (Y or N):						
Sam Homedew Tommy Dennis Tommy Dennis Outdot Coordinates: N. 15312.12 E. 35666.54 Shaun L. Scation: Tomship, Range & Section: Ground Elevation: 7734 Collar Elevation: ground Elevation: SE 1/4, Sec. 31, T. 12.S., R. 90 W. Geophysical Log Measured From: Total Depth: 1775' Probe Depth: 1777' Fluid Level: 600' Casing Type: steel T&C Size: 7' Fluid Level: 600' Casing Type: steel T&C Size: 7' Fluid Level: 600' Depth: 0.1652' Recovered (Y or N): N N Size: 7' Depth: 1654.1742' Recovered (Y or N): N N Size: 7' Surface Casing 16" Tricone to 20' (14" surface casing) M M M 121/4" PDC from 20-1652' Core: 324" Tricone from 1652-1775' Cored: NA Regained ? (Y or N): Size: 25 gpm Footage Plugged: 0-1775' Cored: NA Regained ? (Y or N): Size: 25 gpm Gas Invasion Depth or Intervals: 410' 410-1775' Estimated In					-	
Coordinates: N 15312.12 E. 35660.54 Location: Township, Range & Section: SE 1/4, Sec. 31, T. 12 S, R. 90 W. Goldard L. Ground Elevation: T734' Collar Elevation: SE 1/4, Sec. 31, T. 12 S, R. 90 W. Goldard L. Ground Elevation: arguid Section: ground Elevation Goldard Level: 600' Casing Type: steel T&C Size: 7" Fluid Level: 600' Casing Type: steel T&C Size: 7" Fluid Level: 600' Depth: 0-1652' Recovered (Y or N): N Size: 7" Depth: 1564-1742' Recovered (Y or N): N Size: 7" Bit Information 16" Tricone to 20' (14" surface casing) Main Hole 12 1/4" PDC from 20-1662' Core: Size: 7" Sottom Hole 8 3/4" Tricone from 1652-1775' Cored: NA Setimated Inflow Rates: 25 gpm Gotage Plugged: 0-1775' Cored: NA Regained ? (Y or N): Setimated Inflow Rates: 25 gpm <td></td> <td></td> <td>. I ruck Driver</td> <td></td> <td>Helper:</td> <td></td>			. I ruck Driver		Helper:	
Location: Township, Range & Section: SE 1/4, Sec. 31, T. 12 S., R. 90 W. Ground Elevation: 7734' Collar Elevation: Elevation Total Depth: 1775' Probe Depth: 1777' Fluid Level: 600' Casing Type: sol/slot steel T&C Size: 95/8'' Casing Type: sol/slot steel T&C Size: 7'' Depth: 0-1652' Recovered (Y or N): N Depth: 0-1775' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-410' 410-1775' Lost Circulation Depths: NA Kater Invasion Depth or Intervals: 410' Gas Invasion Depth or Intervals: 410' Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Resistivity: Y Cother (SP, Foc. Elec., Drift, Dep., Sonic): cement dump baller Hole Cemented (Y or N), Type: N No. of Bags: Intervals: 7'' casing overlaps 88' inside 9 5/8'' casing. 58'' annulus cemented with 30 bags plus 8 yds neat cement slurry. Solved careval 41750' lacode cement of und 1 72''			F			Snaun L.
Ground Elevation: 7734' Collar Elevation: ground Elevation Geophysical Log Measured From: ground Elevation 600' Total Depth: 1775' Probe Depth: 1777' Fluid Level: 600' Casing Type: steel T&C Size: 9 5/8' 600' Depth: 0-1652' Recovered (Y or N): N N N Depth: 16" Tricone to 20' (14" surface casing) 10" 10" N N Surface Casing 16" Tricone to 20' (14" surface casing) 10" 10" N N Surface Casing 16" Tricone to 20' (14" surface casing) N N N N Surface Casing 16" Tricone to 20' (14" surface casing) N N N N Surface Casing 0-1775' Coret: NA				00000101	12 S. R. 90 W	
Total Depth: 1775' Probe Depth: 1777' Fluid Level: 600' Casing Type: siteel T&C Size: 9 5/8" Casing Type: sol/slot steel T&C Size: 7" Depth: 0.1652' Recovered (Y or N): N Depth: 1564-1742' Recovered (Y or N): N Bit Information Surface Casing 16" Tricone to 20' (14" surface casing) Wain Hole 12 1/4' PDC from 20-1852' Corea: Core: 33/4" Tricone from 1652-1775' Cored: NA Potage Plugged: 0-1775' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-410' 410-1775' Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Intervals: 410' Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Intervals: Y Caliper: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: No. of Bags: Hole Cemented (Y or N), Type: N	Ground Elevation:					
Casing Type: isteel T&C Size: 95/8" Casing Type: solvalot steel T&C Size: 7" Depth: 0.16522 Recovered (Y or N): N Depth: 1564-1742 Recovered (Y or N): N Bit Information 1564-1742 Recovered (Y or N): N Surface Casing 16" Tricone to 20" (14" surface casing) 1 121/4" PDC from 20-1652' Corea: Softee Sottom Hole 8 3/4" Tricone from 1652-1775' Footage Plugged: 0-1775' Footage Plugged: 0-1775' Cored: NA Depths: 0-410' 410-1775' Foam Injection: Lost Circulation Depths: NA Regained ? (Y or N): Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Interval: NA Regained ? Y or N): Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Neutron: Temperature: Y Caliper: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump baller Hole Cemented (Y or N), Type: <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Casing Type: sol/slot steel T&C Size: 7" Depth: 0.1652 Recovered (Y or N): N Depth: 1564-1742 Recovered (Y or N): N Surface Casing 16" Tricone to 20' (14" surface casing) Wain Hole 12' 1/4" PDC from 20-1652" Core: 3/4" Tricone from 1652-1775' Footage Plugged: 0-1775' Cored: NA Drilling Medium: Air: Footage Plugged: 0-1775' Cored: NA Drilling Medium: Air: Footage Plugged: 0-1775' Cored: NA Regained ? (Y or N): Lost Circulation Depths: NA Regained ? (Y or N): Gas Invasion Depth or Intervals: 410' Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump baller Hole Cemented (Y or N), Type: No. of Bags: <			Probe Depth:	the second s		600'
Depth: 0-1652'' Recovered (Y or N): N Depth: 1564-1742'' Recovered (Y or N): N Bit Information Surface Casing 16" Tricone to 20" (14" surface casing) Main Hole 12 1/4" PDC from 20-1652' Core: 3 Bottom Hole 8 3/4" Tricone from 1652-1775' Footage Plugged: 0-1775' Cores: NA Drilling Medium: Air: Foam /Water: Mud: Depths: 0-410' 410-1775' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: 410'' Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: N No. of Bags: Interval: Interval: Interval: Correstent To: NA Rock Sent To: Other (SP, Fo						
Depth: 1564-1742' Recovered (Y or N): N Bit Information 16" Tricone to 20' (14" surface casing) 12 Main Hole 12 12 12 Core: 12 12 12 12 Bottom Hole 8 3/4" Tricone from 1652-1775' Cored: NA Footage Plugged: 0-1775' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-410' 410-1775' Lost Circulation Depths: NA Regained ? (Y or N): Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Intervals: 410' Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Estimated Inflow Rates: 25 gpm Hole Cemented (SP, Foc. Elec., Drift, Dep., Sonic): Cement dump bailer Y Caliper: Y Hole Cemented (Y or N), Type: N No. of Bags: Interval: Interval: Interval: Sinterval: Sinterval: Sint			Bosovarad (V or N)		7"	
Bit Information	•					
Main Hole 12 1/4" PDC from 20-1652" Core: 8 3/4" Tricone from 1652-1775' Bottom Hole 8 3/4" Tricone from 1652-1775' Footage Plugged: 0-1775' Coret: NA Drilling Medium: Air: Foam /Water: Mud: Depths: 0-410' 410' 410-1775' Lost Circulation Depths: NA Regained ? (Y or N): Gas Invasion Depth or Intervals: 410' Gas Invasion Depth or Intervals: 410' Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Resistivity: Y Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: N No. of Bags: Interval:	Bit Information	1001 11 12		14		
Core: 8 3/4" Tricone from 1652-1775' Footage Plugged: 0-1775' Corred: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-410' 410-1775' Mud: Foam Injection: Lost Circulation Depths: NA Regained ? (Y or N): Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Interval: NA Regained ? (Y or N): Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Estimated Inflow Rates: 25 gpm Mater: Gamma: Y Neutron: Y Y Resistivity: Y Caliper: Y Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Interval: Interval: Interval: oal Core Sent To: NA Rock Sent To: NA Sile annulus cemented with 30 bags plus 8 yds neat cement slury. Sile annulus cemented with 30 bags plus 8 yds neat cement slury.	Surface Casing 16	" Tricone to 20' ((14" surface casing)		·····	
Bottom Hole 8 3/4" Tricone from 1652-1775' Footage Plugged: 0-1775' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-410' 410-1775' Mud: Foam Injection: Lost Circulation Depths: NA Regained ? (Y or N): Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Interval: NA Regained ? Y or N): Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Density: Y Caliper: Y Geophysical Logs Run: Gamma: Y Neutron: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer No. of Bags: Interval: Interval: oal Core Sent To: NA Rock Sent To: NA Na Solar Comments: 7" casing overlaps 88' inside 9 5/8" casing. Solar casing. Solar casing. S/8" annulus cemented with 30 bags plus 8 yds neat cement slury. Ma Ma Ma		1/4" PDC from 2	20-1652'			······································
Footage Plugged: 0-1775' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-410' 410-1775' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: 410' Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Interval: NA Regained ? (Y or N): Gas Invasion Depth or Interval: NA Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Neutron: Temperature: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: N No. of Bags: Interval: colspan="2">oal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 88' inside 9 5/8" casing. 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry. Na <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td></th<>						
Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0.410' 410-1775' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: 410' Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Interval: NA Regained ? (Y or N): 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Estimated Inflow Rates: 25 gpm Logs Run: Gamma: Y Neutron: Y Temperature: Density: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: N No. of Bags: Interval: oal Core Sent To: NA Rock Sent To: NA NA Standard	Bottom Hole 83	3/4" Tricone from	1652-1775'			
Depths: 0-410' 410-1775' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: 410' Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Interval: NA Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Estimated Inflow Rates: 25 gpm Logs Run: Gamma: Y Neutron: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer No. of Bags: Hole Cemented (Y or N), Type: N No. of Bags: Interval: oal Core Sent To: NA Rock Sent To: NA 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry. 30 bags plus 8 yds neat cement slurry.				NA		
Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: 410' Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Interval: NA Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Estimated Inflow Rates: 25 gpm Logs Run: Gamma: Y Neutron: P Temperature: Y Density: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer P Hole Cemented (Y or N), Type: N No. of Bags: Interval: oal Core Sent To: NA Rock Sent To: NA Star annulus cemented with 30 bags plus 8 yds neat cement slurry. A A	-			Mud:	Foam Injection:	
Water Invasion Depth or Intervals: 410' Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Interval: NA Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Image: Contractor: 25 gpm Logs Run: Gamma: Y Neutron: Provide Caliper: Y Temperature: Density: Y Caliper: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Interval:	Depths:	0-410'	410-1775'			
Water Invasion Depth or Intervals: 410' Estimated Inflow Rates: 25 gpm Gas Invasion Depth or Interval: NA Estimated Inflow Rates: 25 gpm Geophysical Logging Contractor: Jetwest Geophysical Image: Contractor: 25 gpm Logs Run: Gamma: Y Neutron: Image: Contractor: Y Temperature: Density: Y Caliper: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Interval: Interval: Image: Contractor: Interval: oal Core Sent To: NA Rock Sent To: NA NA Si8" annulus cemented with 30 bags plus 8 yds neat cement slurry. 30 agg plus 8 yds neat cement slurry. 30 agg plus 4 1740' 30 agg plus 4 1740'	Lost Circul	ation Denths:	NΔ	Pog	ained 2 (Var N).	
Gas Invasion Depth or Interval: NA Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Temperature: Density: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: N No. of Bags: Interval: Interval: Interval: Interval: Interval: Interval: oal Core Sent To: NA Rock Sent To: NA Sector of the sector						25 apm
Logs Run: Gamma: Y Neutron: Temperature: Density: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: N No. of Bags: Hole Cemented (Y or N), Type: N No. of Bags: Interval: Interval: oal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 88' inside 9 5/8" casing. 5/8" casing. 5/8" casing. 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry. agged gravel at 1750', tagged cement plug at 1742'				Lotinio		20 gpm
Logs Run: Gamma: Y Neutron: Temperature: Density: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: N No. of Bags: Hole Cemented (Y or N), Type: N No. of Bags: Interval: Interval: oal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 88' inside 9 5/8" casing. 5/8" casing. 5/8" casing. 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry. agged gravel at 1750', tagged cement plug at 1742'		-				
Temperature: Density: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: N No. of Bags: Hole Cemented (Y or N), Type: N No. of Bags: Interval: Interval: oal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 88' inside 9 5/8" casing. 5/8" casing. 5/8" casing. 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry. agged gravel at 1750', tagged cement plug at 1742' agged gravel at 1750', tagged cement plug at 1742'	Geophysical Loggin	g Contractor: J	etwest Geophysical			······
Temperature: Density: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: N No. of Bags: Interval: Interval: oal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 88' inside 9 5/8" casing. 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry. accent gravel at 1750', targeed cement plug at 1742'		Gamma:	Y			
Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: N No. of Bags: Interval: Interval: N oal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 88' inside 9 5/8" casing. 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry. agged gravel at 1750; tagged cement plug at 1742'	•	Temperature:		Density:	Y	
Hole Cemented (Y or N), Type: N No. of Bags: Interval: Interval: oal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 88' inside 9 5/8" casing. 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry. agged gravel at 1750; tagged cement plug at 1742'	0.1	Resistivity:	Y	Caliper:	Y	
Interval: oal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 88' inside 9 5/8" casing. Sile Sile 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry. Sile Sile Sile agged gravel at 1750; tagged cement plug at 1742' Sile Sile Sile	Other	(SP, FOC. Elec.,	Drift, Dep., Sonic):	ement dump bailer		
coal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 88' inside 9 5/8" casing. 5/8" casing. 5/8" casing. 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry. comment slurry. comment slurry.	Hole Cemented (\underline{Y}	or N), Type:	N			
Comments: 7" casing overlaps 88' inside 9 5/8" casing. 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry. agged gravel at 1750', tagged cement plug at 1742'				Interval:		
Comments: 7" casing overlaps 88' inside 9 5/8" casing. 5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry.	oal Core Sent To:	NA		Rock Sent To:	NA	
5/8" annulus cemented with 30 bags plus 8 yds neat cement slurry.	Comments: 7" c	asing overlaps 8	8' inside 9 5/8" casing		·	
HOURD DI AVELACT / DU TRODED CEMENT DIUD RET / 42	5/8" annulus cemented	with 30 bags plu	s 8 yds neat cement s	lurry.		
	agged gravel at 1750', ta	agged cement pl	ug at 1742'.			
5/8" casing abandoned to surface with 39 cubic yards portland type II cement October, 2010.	5/8" casing abandoned	to surface with 3	9 cubic yards portland	type II cement Octo	ber, 2010.	· · · · · · · · · · · · · · · · · · ·
mes Drilling Colorado water well license #1285	mes Drilling Colorado w	ater well license	#1285			

1		Oxbow Mi	ning LLC		
		Elk Cre			
				anden bie weit der eine geführt. Die eine eine geführt im eine einig aller eine	
Hole Numbe	r: GVB 15-05	Project ID	: Elk Creek Mine Go	h Vont Pershalaa	
Lease Numbe	r: COC-61357	(State or Federal) Surface Owner:	Hotchkiss	
Date Commenced	1: 9-Sep-09	Date Completed	: 19-Sep-09	TIOLOIIKI33	
Contracto		_			
Geologist	r: Himes Drilling t: Doug Allen	_ Rig Type Date:	: Atlas Copco RD20	- · ·	
	r: Jim Weatherton	_ Date : Truck Driver:		Toolpusher:	Matt Himes
Dinio	Sam Homedew		: Shaun L. Tommy Dennis	Helper:	Dave T.
Coordinates: N	14997.10	- E.			Eldon S.
Location: Townsh		on:	SW 1/4, Sec. 31, T.	12 S P 00 W	
Ground Elevation:	8132'	Collar Elevation:	011 11-1, 000. 01, 11.	12 0., 14. 30 14.	
Geophysical Log N		ground	Elevation		
Total Depth		Probe Depth:	- 2190'	Fluid Level:	NA
Casing Type:	steel T&C		Size:	9 5/8"	
	: sol/slot steel T&C		Size:	7"	
Depth: Depth:		Recovered (Y or N):	<u> </u>		
Bit Information	1909-2104	Recovered (Y or N):	N		
Surface Casing	16" Tricone to 20'	(14" surface casing)	······································		
Main Hole	12 1/4" PDC from	20-2065'	· · · · · · · · · · · · · · · · · · ·		
Core:		20 2000			
Bottom Hole	8 3/4" Tricone from	1 2065-2190'	· · · · · · · · · · · · · · · · · · ·		
			· · · · · · · · · · · · · · · · · · ·	······································	
Footage Plugged:		Cored:	NA		
Drilling Medium:		Foam /Water:	Mud: F	oam injection:	
Donthe	0 170	170 0100			
Depths:	0-470'	470-2190'			
• •			Renai	ned 2 (V or N);	
Lost Cir	culation Depths:	NA	Regai	ned ? (Y or N):	
Lost Cir Water Invasion De	culation Depths: _		Regai Estimate	ned ? (Y or N): ed Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval:	NA NA NA	Regai Estimate	ned?(Y or N): ed Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval:	NA NA	Regai Estimate	ned ? (Y or N): ed Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma:	NA NA NA	Regai Estimate Neutron:	ned ? (Y or N): ed Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature:	NA NA NA etwest Geophysical Y	Estimate	ned ? (Y or N): ed Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	NA NA NA letwest Geophysical Y	Estimate Neutron: Density: Caliper:	ned ? (Y or N): ed Inflow Rates: Y	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	NA NA NA etwest Geophysical Y	Estimate Neutron: Density: Caliper:	ned ? (Y or N): ed Inflow Rates: Y	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth	culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.,	NA NA NA letwest Geophysical Y Y Drift, Dep., Sonic): ce	Estimate Neutron: Density: Caliper: ement dump bailer	ned ? (Y or N): ed Inflow Rates: Y	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	NA NA NA letwest Geophysical Y Y Drift, Dep., Sonic): ce	Estimate Neutron: Density: Caliper:	ned ? (Y or N): ed Inflow Rates: Y	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type:	NA NA NA letwest Geophysical Y Y Drift, Dep., Sonic): ca N	Estimate Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval:	ed Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec., (Y or N), Type: NA	NA NA NA letwest Geophysical Y Y Drift, Dep., Sonic): ca N	Estimate Neutron: Density: Caliper: ement dump bailer No. of Bags:	ned ? (Y or N): ed Inflow Rates: Y Y NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7	culation Depths: apth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec., (Y or N), Type: NA NA	NA NA NA letwest Geophysical Y Prift, Dep., Sonic): ca N 6' inside 9 5/8" casing.	Estimate Neutron: Density: Caliper: ment dump bailer No. of Bags: Interval:	ed Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7 5/8" annulus cement	culation Depths: peth or Intervals: Depth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA NA Casing overlaps 90 red with 30 bags plu	NA NA NA NA Vetwest Geophysical Y Drift, Dep., Sonic): <u>ce</u> N 6' inside 9 5/8" casing. s 6 yds neat cement sl	Estimate Neutron: Density: Caliper: ment dump bailer No. of Bags: Interval:	ed Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (coal Core Sent To: Comments: 7	culation Depths: peth or Intervals: Depth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA NA Casing overlaps 90 red with 30 bags plu	NA NA NA NA Vetwest Geophysical Y Drift, Dep., Sonic): <u>ce</u> N 6' inside 9 5/8" casing. s 6 yds neat cement sl	Estimate Neutron: Density: Caliper: ment dump bailer No. of Bags: Interval:	ed Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (coal Core Sent To: <u>Comments: 7</u> 5/8" annulus cement agged gravel at 2163	culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA "Casing overlaps 9 ed with 30 bags plu	NA NA NA NA NA Metwest Geophysical Y Drift, Dep., Sonic): <u>ca</u> N 6' inside 9 5/8" casing. s 6 yds neat cement sli ug at 2154'.	Estimate Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To:	Ped Inflow Rates: Y Y NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (oal Core Sent To: <u>Comments: 7</u> 5/8" annulus cement agged gravel at 2163	culation Depths: apth or Intervals: Depth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA "Casing overlaps 9 ed with 30 bags plu t, tagged cement plu ed to surface with 2	NA NA NA Petwest Geophysical Y Drift, Dep., Sonic): ca N 6' inside 9 5/8" casing. is 6 yds neat cement sl ug at 2154'. 4 cubic yards portland	Estimate Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To:	Ped Inflow Rates: Y Y NA	

1		Oxbow Mi	ning LLC		
		Elk Cre	_	· · ·	
Hole Numbe Lease Numbe	r: <u>GVB 15-06</u> r: <u>COC-61357</u>	Project ID.	Elk Creek Mine Gc		
Date Commence		_ (State or Federal) Surface Owner:	BLM	
		Date Completed	20-Aug-09		
Contracto		Rig Type	: Atlas Copco RD20		
Geologis		_ Date	: 13-Nov-09	Toolpusher:	Matt Himes
Drille	r: Jim Weatherton	Truck Driver		Helper:	Dave T.
Coordinates: N	Sam Homedew 1. 14997.87		Tommy Dennis		Eldon S.
	nip, Range & Section	E.			· · · · · · · · · · · · · · · · · · ·
Ground Elevation:	8003'	Collar Elevation:	NW 1/4, Sec. 5, T.	13 S., R. 90 W.	
Geophysical Log		ground	Elevation		
Total Depth		Probe Depth:		Fluid Level:	NA
	steel T&C	·	Size:	9 5/8"	
	sol/slot steel T&C	_	Size:	7"	
Depth: Depth:		Recovered (Y or N):	<u>N</u>		
Bit Information	1921-2061'	Recovered (Y or N):	N		
Surface Casing	16" Tricone to 20'	(14" surface casing)			
Main Hole	12 1/4" PDC from 2	20-1960'			
Core:					
Bottom Hole	8 3/4" Tricone from	1960-2100'			
Fratewa DI -					
	A A / BA				
Footage Plugged:		Cored:	NA		
Drilling Medium:	Air:	Foam /Water:		oam Injection:	
	Air:			oam Injection:	
Drilling Medium: Depths: Lost Cir	Air: 0-1960' culation Depths:	Foam /Water:	Mud: F		
Drilling Medium: Depths: Lost Cir Water Invasion De	Air: 0-1960' culation Depths: ppth or Intervals:	Foam /Water: 1960-2100'	Mud: F	ned? (YorN):	
Drilling Medium: Depths: Lost Cir Water Invasion De	Air: 0-1960' culation Depths:	Foam /Water: 1960-2100' NA	Mud: F		
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D	Air: 0-1960' culation Depths: pepth or Intervals: Depth or Interval:	Foam /Water: 1960-2100' NA NA NA	Mud: F	ned? (YorN):	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	Air: 0-1960' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Je	Foam /Water: 1960-2100' NA NA NA etwest Geophysical	Mud: F Regai Estimato	ned? (YorN):	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D	Air: 0-1960' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Je Gamma:	Foam /Water: 1960-2100' NA NA NA	Mud: F Regai Estimato Neutron:	ned? (YorN):	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	Air: 0-1960' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Ja Gamma: Temperature:	Foam /Water: 1960-2100' NA NA NA etwest Geophysical Y	Mud: F Regai Estimate Neutron: Density:	ned? (YorN):	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	Air: 0-1960' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Ja Gamma: Temperature: Resistivity:	Foam /Water: 1960-2100' NA NA NA etwest Geophysical Y Y	Mud: F Regai Estimate Neutron: Density: Caliper:	ned? (YorN):	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	Air: 0-1960' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Je Gamma: Temperature: Resistivity: her (SP, Foc. Elec.,	Foam /Water: 1960-2100' NA NA NA etwest Geophysical Y Drift, Dep., Sonic): ce	Mud: F Regai Estimate Neutron: Density: Caliper: ement dump bailer	ned? (YorN):	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	Air: 0-1960' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Ja Gamma: Temperature: Resistivity:	Foam /Water: 1960-2100' NA NA NA etwest Geophysical Y Drift, Dep., Sonic): ce	Mud: F Regai Estimate Neutron: Density: Caliper:	ned? (YorN):	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	Air: 0-1960' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Ja Gamma: Temperature: Resistivity: ler (SP, Foc. Elec., Y or N), Type:	Foam /Water: 1960-2100' NA NA NA etwest Geophysical Y Y Drift, Dep., Sonic): ce N	Mud: F Regai Estimato Neutron: Density: Caliper: ement dump bailer No. of Bags:	ned ? (Y or N): ed Inflow Rates: Y	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (oal Core Sent To: _	Air: 0-1960' culation Depths: pepth or Intervals: pepth or Interval: ging Contractor: Ja Gamma: Temperature: Resistivity: ler (SP, Foc. Elec., Y or N), Type: NA	Foam /Water: 1960-2100' NA NA NA etwest Geophysical Y Prift, Dep., Sonic): ce N	Mud: F Regai Estimate Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval:	ned ? (Y or N): ed Inflow Rates: Y	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (oal Core Sent To: Comments: 7	Air: 0-1960' culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Ja Gamma: Temperature: Resistivity: er (SP, Foc. Elec., Y or N), Type: NA " casing overlaps 39	Foam /Water: 1960-2100' NA NA NA etwest Geophysical Y Drift, Dep., Sonic): N	Mud: F Regai Estimate Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To:	ned ? (Y or N): ed Inflow Rates: Y	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (oal Core Sent To: <u>Comments: 7</u> 5/8" annulus cement ravel backfill bridged	Air: 0-1960' culation Depths: apth or Intervals: bepth or Intervals: ging Contractor: Je Gamma: Temperature: Resistivity: ler (SP, Foc. Elec., Y or N), Type: NA " casing overlaps 39 ed with 30 bags plus dump bailer tagged	Foam /Water: 1960-2100' NA NA NA etwest Geophysical Y Drift, Dep., Sonic): ce N P inside 9 5/8" casing. 3 yds neat cement slu 1 at 2044'. Trip in bit ar	Mud: F Regai Estimate Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To:	ned ? (Y or N): ed Inflow Rates: Y	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (oal Core Sent To: <u>Comments: 7</u> 5/8" annulus cement ravel backfill bridged it hole to 2064'. 7" ci	Air: 0-1960' culation Depths: apth or Intervals: bepth or Intervals: ging Contractor: Je Gamma: Temperature: Resistivity: ler (SP, Foc. Elec., Y or N), Type: NA " casing overlaps 39 ed with 30 bags plus dump bailer tagged asing tagged cemen	Foam /Water: 1960-2100' NA NA NA etwest Geophysical Y Drift, Dep., Sonic): ce N ' inside 9 5/8" casing. 3 yds neat cement slt 1 at 2044'. Trip in bit ar t plug at 2061'.	Mud: F Regai Estimate Neutron: Density: Caliper: ment dump bailer No. of Bags: Interval: Rock Sent To: urry.	ned ? (Y or N): ed Inflow Rates: Y Y NA	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (oal Core Sent To: <u>Comments: 7</u> 5/8" annulus cement ravel backfill bridged it hole to 2064'. 7" ci	Air: 0-1960' culation Depths: apth or Intervals: bepth or Intervals: ging Contractor: Je Gamma: Temperature: Resistivity: ler (SP, Foc. Elec., Y or N), Type: NA " casing overlaps 39 ed with 30 bags plus dump bailer tagged asing tagged cemen	Foam /Water: 1960-2100' NA NA NA etwest Geophysical Y Drift, Dep., Sonic): ce N P inside 9 5/8" casing. 3 yds neat cement slu 1 at 2044'. Trip in bit ar	Mud: F Regai Estimate Neutron: Density: Caliper: ment dump bailer No. of Bags: Interval: Rock Sent To: urry.	ned ? (Y or N): ed Inflow Rates: Y Y NA	
Drilling Medium: Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (oal Core Sent To: <u>Comments: 7</u> 5/8" annulus cement avel backfill bridged thole to 2064'. 7" ci	Air: 0-1960' culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Ja Gamma: Temperature: Resistivity: her (SP, Foc. Elec., Y or N), Type: NA " casing overlaps 39 ed with 30 bags plus - dump bailer tagged asing tagged cemen ed to surface with 30	Foam /Water: 1960-2100' NA NA NA etwest Geophysical Y Prift, Dep., Sonic): ce N ' inside 9 5/8" casing. 3 yds neat cement slut 1 at 2044'. Trip in bit ar t plug at 2061'. Cubic yards portland t	Mud: F Regai Estimate Neutron: Density: Caliper: ment dump bailer No. of Bags: Interval: Rock Sent To: urry.	ned ? (Y or N): ed Inflow Rates: Y Y NA	

		Oxbow Mi	ning LLC	alektronia internationalista and a statement of the statement of the	مع <u>فعن الربوع محمد النابة المعمد المام الم</u>
an a		Elk Cre	ek Mine		
Hole Numbe	r: GVB 15-07	Project ID			a di serang di di serang di se
Lease Numbe		(State or Federal	: Elk Creek Mine Go Surface Owner:	DD Vent Borenoles	
Date Commence		Date Completed	: 4-Sep-09	BLM	
	X		·		
	r: Himes Drilling	_ Rig Type	: Atlas Copco RD20	1	
Geologis		Date :	13-Nov-09	Toolpusher:	Matt Himes
Drille	r: Jim Weatherton		Shaun L.	Helper:	Dave T.
Coordinates: N	Sam Homedew	-	Tommy Dennis		Eldon S.
	I. 14620.78 nip, Range & Section	Ε.			
Ground Elevation	8089'	Collar Elevation:	NW 1/4, Sec. 5, T.	13 S., R. 90 W.	
Geophysical Log		ground	Elevation		
Total Depth		Probe Depth:		Fluid Level:	NA
Casing Type		i i i i i i i i i i i i i i i i i i i	Size:	9 5/8"	NA
	: sol/slot steel T&C	•	Size:	7"	
Depth	the second se	Recovered (Y or N):	N		
Depth	1981-2150'	Recovered (Y or N):	N		
Bit Information					
Surface Casing	16" Tricone to 20'	(14" surface casing)	······································		
Main Hole Core:	12 1/4" PDC from :	20-2060'			
Rottom Hole	9 2/4" Tricono from	0000 01001			
Bottom Hole	8 3/4" Tricone from	2060-2190'			·
			NΔ		·
Bottom Hole Footage Plugged: Drilling Medium:	0-2190'	Cored:	NA Mud:	Form Injection:	*,,
Footage Plugged:	0-2190' Air:		the second s	Foam Injection:	
Footage Plugged: Drilling Medium: Depths:	0-2190' Air: 0-2190'	Cored: _ Foam /Water:	the second s	Foam injection:	
Footage Plugged: Drilling Medium: Depths: Lost Cir	0-2190' Air: 0-2190' culation Depths:	Cored: _ Foam /Water: NA	Mud: Rega	ained ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion D	0-2190' Air: 0-2190' rculation Depths: _ epth or Intervals:	Cored: Foam /Water: NA NA	Mud: Rega	Foam Injection: 	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion D	0-2190' Air: 0-2190' culation Depths:	Cored: _ Foam /Water: NA	Mud: Rega	ained ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I	0-2190' Air: 0-2190' rculation Depths: epth or Intervals: Depth or Interval:	Cored: Foam /Water: NA NA NA	Mud: Rega	ained ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log	0-2190' Air: 0-2190' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J	Cored: Foam /Water: NA NA NA etwest Geophysical	Mud: Rega Estima	ained ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I	0-2190' Air: 0-2190' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma:	Cored: Foam /Water: NA NA NA	Mud: Rega Estima Neutron:	ained ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log	0-2190' Air: 0-2190' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature:	Cored: Foam /Water: NA NA NA etwest Geophysical	Mud: Rega Estima Neutron: Density:	ained ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-2190' Air: 0-2190' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	Cored:	Mud: Rega Estima Neutron: Density: Caliner	ained ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	0-2190' Air: 0-2190' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec.,	Cored:	Mud: Rega Estima Density: Caliper: ement dump bailer	ained ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	0-2190' Air: 0-2190' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	Cored:	Mud: Rega Estima Neutron: Density: Caliper: ement dump bailer No. of Bags:	ained ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	0-2190' Air: 0-2190' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec.,	Cored:	Mud: Rega Estima Density: Caliper: ement dump bailer	ained ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	0-2190' Air: 0-2190' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type:	Cored: Foam /Water: NA NA etwest Geophysical Y Y Drift, Dep., Sonic): ce N	Mud: Rega Estima Neutron: Density: Caliper: ement dump bailer No. of Bags:	ained ? (Y or N):	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented oal Core Sent To: Comments: 7	0-2190' Air: 0-2190' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec., (Y or N), Type: NA '' casing overlaps 75	Cored: Foam /Water: NA NA etwest Geophysical Y Drift, Dep., Sonic): ca N 9' inside 9 5/8" casing.	Mud: Rega Estimat Neutron: Density: Caliper: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To:	ained ? (Y or N): ted Inflow Rates: Y	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented oal Core Sent To: Comments: <u>7</u> 5/8" annulus cemen	0-2190' Air: 0-2190' Coulation Depths: pepth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec., (Y or N), Type: NA Casing overlaps 75 ed with 30 bags plue	Cored:	Mud: Rega Estimat Neutron: Density: Caliper: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To:	ained ? (Y or N): ted Inflow Rates: Y	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented oal Core Sent To: Comments: <u>7</u> 5/8" annulus cemen	0-2190' Air: 0-2190' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec., (Y or N), Type: NA '' casing overlaps 75	Cored:	Mud: Rega Estimat Neutron: Density: Caliper: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To:	ained ? (Y or N): ted Inflow Rates: Y	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion Dr Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented oal Core Sent To: <u>Comments: 7</u> 5/8" annulus cemen	O-2190' Air: O-2190' Culation Depths: Pepth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: Per (SP, Foc. Elec., (Y or N), Type: NA Culation Depth 30 bags plue (', tagged cement plue)	Cored:	Mud: Rega Estimat Neutron: Density: Caliper: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To:	ained ? (Y or N): ted Inflow Rates: Y	
Footage Plugged: Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented oal Core Sent To: Comments: 7 5/8" annulus cemen agged gravel at 2161	O-2190' Air: O-2190' Culation Depths: Pepth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: Per (SP, Foc. Elec., (Y or N), Type: NA Culation Depth 30 bags plue (', tagged cement plue)	Cored: Foam /Water: NA NA NA etwest Geophysical Y Drift, Dep., Sonic): ce N 9' inside 9 5/8" casing. s 2 yds neat cement shug at 2150'. 0 cubic yards portland to	Mud: Rega Estimat Neutron: Density: Caliper: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To:	ained ? (Y or N): ted Inflow Rates: Y	

		Oxbow Min	•		
		Elk Cree	ek Mine		
Hole Number:		Project ID.	Elk Creek Mine Go	b Vent Boreholes	
Lease Number:			Surface Owner:	BLM	
Date Commenced:	26-Jul-07	Date Completed:	1-Aug-07		
	Stewart Bros.	Rig Type:	Failing 2500 Rig 48		
	Doug Allen		15-Jan-08	Toolpusher:	
Driller:		. Truck Driver:	Austin Martinez	Helper:	G. Gutierrez
	Kevine Begay		N. Brite		J. Trujillo
Coordinates: N.	Randy McClard 18423.43	. Е	L. Smith 29074.86	-	A. Sandoval
Location: Townshi			SW1/4 Sec. 36, T.1	25 R 00W	
Ground Elevation:	7498'	Collar Elevation:	0114 060. 00, 1.1	20.,11.0000.	
Geophysical Log M		Ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:	steel, T&C	•	Size:	9 5/8"	
Casing Type:	steel FJ		Size: 7	" (5 slotted, 3 solid)	
Depth:	9 5/8": 0-1345'	Recovered (Y or N):			
	7": 1293-1455'		N		
Bit Information	1711 Trianna to 201				
Surface Casing Main Hole	(Reamed) 12 1/4"	(14" surface casing)	·····		
	NA				
	8 3/4" Tricone to 1	525'			
-					
Footage Plugged:			NA		
Drilling Medium:		Foam/Water:	Mud:	Foam Injection:	
Depths:	0- culation Depths:	NA	Dog	ained ? (Y or N):	
Water Invasion De		NA	Fstima	ated inflow Rates:	
	epth or Interval:	1470-1490'	Lotin		
	•	Jet West Geophysical,	LLC		
Loas Run:	Gamma:	х	Neutron:		
Logs Run.	Temperature:		Density:	X	
	Resistivity:	Х	Caliper:	<u> </u>	
Oth		., Drift, Dep., Sonic):			
Hole Cemented	(<u>Y</u> or N), Type: _	N	No. of Bags: 4. Interval: to	5 yds portland slurry surface	for 9 5/8"
Coal Core Sent To: _	NA		Rock Sent To:	NA	
Comments: [12 1/4" to 1351' for 9 5 9' cement plug from	Drilled 8 3/4" pilot h 5/8" casing. Cuttin 1455-1446'. Botto	nole to verify mineable gs filled bottom hole du m of 7" slotted casing 1	hickness, then ream ring reaming, cleane 7' above D2 seam (ed ed out to 1455'. 1472-1484').	
9 5/8" casing abandon	ed to surface with	9 cubic yards portland	type II cement June,	2010.	

		Oxbow Min	ning LLC		
		Elk Cree	-		
					And the second second second second second
Hole Number	: GVB 10-05	Due is at ID			
Lease Number			Elk Creek Mine G Surface Owner:		-
Date Commenced		Date Completed:			-
		_ Date Completed.	<u>20-5011-07</u>		
Contractor	: Stewart Bros.	Rig Type:	Failing 2500 Rig 4	8	
Geologist		Date :		Toolpusher:	Danny White
Driller		_ Truck Driver:	Austin Martinez	Helper:	
	Kevine Begay	-	N. Brite		J. Trujillo
Coordinates: N	Randy McClard	- E.	L. Smith 30342.72		A. Sandoval
Location: Townsh			SW1/4 Sec. 36, T.	125 R 901W/	
Ground Elevation:		Collar Elevation:	0114 060. 00, 1.	120., 13.000	
Geophysical Log N	leasured From:	Ground	Elevation		
Total Depth:		Probe Depth:	1571'	Fluid Level:	NA
Casing Type:		•	Size:	9 5/8"	· · · · · · · · · · · · · · · · · · ·
Casing Type:	steel FJ		Size:	7"(3 slotted, 2 solid)	
Depth:	<u>- 9 5/8": 0-1473</u> 7": 1411'-1511'	Recovered (Y or N):	<u>N</u>		
Bit Information	7.1411-1311		<u>IN</u>		
Surface Casing	17" Tricone to 20'	(14" surface casing)			
Main Hole	12 1/4" Tricone to			·····	· · · · · · · · · · · · · · · · · · ·
Core:	NA				
Bottom Hole	8 3/4" Tricone to 1	571'			
Footage Plugged:	1571'	Cored:	NA		
Drilling Medium:		Foam/Water:	Mud:	Foam Injection:	
Depths:		400-1560'			
	culation Depths:	NA		gained ? (Y or N):	
Water Invasion D		NA 1520-1530'	Estim	ated Inflow Rates:	
Gas invasion i	Depth or Interval:	1520-1550			
Geophysical Log	ging Contractor:	Jet West Geophysical,	LLC		
Logo Pupi	Gamma:	х	Neutron:		
Logs Run:	Temperature:	^	Density:	X	
	Resistivity:	X	Caliper:	<u>X</u>	
Ot		., Drift, Dep., Sonic): [222 deg.	
Liele Comontod			No. of Double ()	0.5/01
Hole Cemented	(<u>Y</u> or N), Type: _	<u>N</u>	Interval: to	yds portland slurry fo	or 9 5/8"
Coal Core Sent To:	NA		Rock Sent To:	NA	
	D-#				
		kfilled with coal fines/qu om of 7" slotted casing		(1520-1522)	······
	1011-1020. BOU	on or a solied cashy	anove DZ sedili	1020-1002].	
······					
		······			
<u>A (10)</u>		<u> </u>			
9 5/8' casing abandor	ed to surface with	6 cubic yds. Portland ty	pe II cement; 4 sac	ks hole plug;	·····
48 sacks (7200 gallon	is) plug gel; 2 sack	s (10') cement Septemb	ber, 2009.		
					·····

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					والكرار ويستعد والمتعاد والمتعاد والمتعاد
Hole Number	: GVB 15-01 A	Project ID .	Elk Creek Mine Go	-h Vant Barahalas	
Lease Number			Surface Owner:	Hotchkiss	
Date Commenced		Date Completed:		1101011033	
	- 10 00000	. Date oumprotoa.	20-00:-00		
Contractor	: Himes Drilling	Ria Type:	Atlas Copco RD20	1	
Geologist		Date :		, Toolpusher:	Matt Himes
	: Jim Weatherton	Truck Driver:		Helper:	Beau O.
	Sam Homedew	HUUR BHTVH	Tommy Dennis	Lieiber	Shaun L.
Coordinates: N		E.		-	
Location: Townsh			SW 1/4, Sec. 31, T	100 R 90 W	
Ground Elevation:	7631'	Collar Elevation:	<u> </u>	12 Uij 11, UU 11,	
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	<u> </u>	
Depth:		Recovered (Y or N):		1	
Depth:		Recovered (Y or N):			
Bit Information	1000-1100	Necovered (1 of 17).			
Surface Casing	16" Tricone to 20	(14" surface casing)			
Main Hole	12 1/4" PDC from :				
Core:		20-1000			
Bottom Hole	8 3/4" Tricone from	1620-1720			
DUCOMPICIO		11000-1700			
Footage Plugged:	0-1730'	Cored:	NA		
			Mud:	'Esom Inisotion	
Drilling Medium:	ΔIr ¹	evaw yssatet.	millu.	-veau mar mar.	
Drilling Medium: Depths:		Foam /Water: 120-1630'		Foam Injection:	
Drilling Medium: Depths:		120-1630'		Foam Injection:	
Depths:	0-120'	120-1630'		· · · · · · · · · · · · · · · · · · ·	
Depths: Lost Cir	0-120' rculation Depths:	120-1630' NA	Reg	pained ? (Y or N):	
Depths: Lost Cir Water Invasion D	0-120' rculation Depths: _ epth or Intervals: _	120-1630'	Reg	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D	0-120' rculation Depths:	120-1630' NA NA	Reg	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-120' rculation Depths: epth or Intervals: Depth or Interval:	120-1630' NA NA NA	Re <u>c</u> Estim	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-120' rculation Depths: epth or Intervals: Depth or Interval:	120-1630' NA NA	Re <u>c</u> Estim	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-120' rculation Depths: epth or Intervals: Depth or Interval:	120-1630' NA NA NA	Re <u>c</u> Estim	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-120' rculation Depths: _ epth or Intervals: _ Depth or Interval: _ iging Contractor: _ Gamma: _	120-1630' NA NA NA	Reg Estim ging Neutron:	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-120' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: c Gamma: Temperature:	120-1630' NA NA NA	Reg Estim ging Neutron: Density:	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-120' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: c Gamma: Temperature: Resistivity:	120-1630' NA NA NA directional hole- no logg	Reg Estim ging Neutron:	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-120' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: c Gamma: Temperature: Resistivity:	120-1630' NA NA NA	Reg Estim ging Neutron: Density:	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott	0-120' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: <u>c</u> Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	120-1630' NA NA NA directional hole- no logg	Rec Estim ging Neutron: Density: Caliper:	gained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott	0-120' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: <u>c</u> Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	120-1630' NA NA NA directional hole- no logg	Reg Estim ging Neutron: Density: Caliper: No. of Bags:	gained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott	0-120' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: <u>c</u> Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	120-1630' NA NA NA directional hole- no logg	Reg Estim ging Neutron: Density: Caliper: No. of Bags: Interval:	gained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	O-120 rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	120-1630' NA NA NA directional hole- no logg , Drift, Dep., Sonic): N	Reg Estim ging Neutron: Density: Caliper: No. of Bags: Interval:	gained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	O-120 rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	120-1630' NA NA NA directional hole- no logg	Reg Estim ging Neutron: Density: Caliper: No. of Bags: Interval:	gained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cin Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	O-120' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: <u>c</u> Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: NA	120-1630' NA NA NA directional hole- no logg , Drift, Dep., Sonic): N	Reg Estim Neutron: Density: Caliper: No. of Bags: Interval: Rock Sent To:	pained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	O-120' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA NA 7" casing overlaps 8	120-1630' NA NA NA directional hole- no logg , Drift, Dep., Sonic): N	Reg Estim Neutron: Density: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	gained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	O-120' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA NA 7" casing overlaps 8	120-1630' NA NA NA NA directional hole- no logg , Drift, Dep., Sonic): N 80' inside 9 5/8" casing	Reg Estima neutron: Density: Caliper: No. of Bags: Interval: Rock Sent To:	gained ? (Y or N):	
Depths: Lost Cin Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer	O-120' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 8 nted with 30 bags plut	NA NA NA NA directional hole- no logg , Drift, Dep., Sonic): N 80' inside 9 5/8" casing us 5 yds neat cement s	Reg Estim ging Neutron: Density: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	gained ? (Y or N):	
Depths: Lost Cin Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer	O-120' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 8 nted with 30 bags plut	NA NA NA NA directional hole- no logg , Drift, Dep., Sonic): N 80' inside 9 5/8" casing us 5 yds neat cement s	Reg Estim ging Neutron: Density: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	gained ? (Y or N):	
Depths: Lost Cin Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer	O-120' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 8 nted with 30 bags plut	120-1630' NA NA NA NA directional hole- no logg , Drift, Dep., Sonic): N 80' inside 9 5/8" casing us 5 yds neat cement s	Rec Estima neutron: Density: Caliper: No. of Bags: Interval: Rock Sent To: slurry.	jained ? (Y or N): ated Inflow Rates: NA	
Depths: Lost Cin Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer	O-120' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 8 nted with 30 bags pli d with Scientific Drill ned to surface with	120-1630' NA NA NA directional hole- no logg directional hole- no logg , Drift, Dep., Sonic):	Reg Estima neutron: Density: Caliper: No. of Bags: Interval: Rock Sent To: slurry.	gained ? (Y or N):	

		Oxbow Mir	ing LLC		and the second secon
		Elk Cree	_		
	and the second secon		SK MING	. .	
Hole Number:	GVB 15-01B	Project ID	Elk Creek Mine Go	h Vont Parabolas	
Lease Number:		(State or Federal)	Surface Owner:	Hotchkiss	
Date Commenced:		Date Completed:			
		- ·			
Contractor:			Atlas Copco RD20		
Geologist: Driller:	Doug Allen Jim Weatherton	Date : Truck Driver:		Toolpusher:	Matt Himes
Dimer,	Sam Homedew	. Huck Driver.	Tommy Dennis	Helper:	Beau O. Eldon S.
Coordinates: N.		E.		-	
Location: Township	o, Range & Section	on:	SW 1/4, Sec. 31, T	. 12 S., R. 90 W.	
Ground Elevation:	7631'	Collar Elevation:			
Geophysical Log Me			Elevation		
Total Depth:	1700' steel T&C	Probe Depth:		Fluid Level:	NA
Casing Type:	sol/slot steel T&C		Size: Size:	9 5/8" 7"	
Depth:	0-1600'	Recovered (Y or N):	-		
Depth:		Recovered (Y or N):			
Bit Information		• • •			
		(14" surface casing)			
-	12 1/4" PDC from	20-1600'			
Core:		. 4000 4700			
Bottom Hole	3 3/4" Tricone fron	n 1600-1700 [°]	·····		
Footage Plugged:	0-1700'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-140'	140-1700'	· · · · · · · · · · · · · · · · · · ·		
Lost Circ	ulation Depths:	NA	Reg	ained? (Y or N):	
Water Invasion De		NA		ated Inflow Rates:	
	epth or Interval:	NA			<u> </u>
	-				
Geophysical Logg	ing Contractor:	Directional hole- no log	ging	·	
Logs Run:	Gamma:		Neutron:		
U			Donony.		
	Resistivity:		Caliper:		
Oth	er (SP, Foc. Elec.	, Drift, Dep., Sonic): _			
Hole Cemented (YorN), Type:	N	No. of Bags:		
,			Interval:		
Coal Core Sent To:	NIΔ		Rock Sent To	NA	
			NOUN CENT IO,		
Comments: 7	casing overlaps	110' inside 9 5/8" casin	g.		
9 5/8" annulus cement	ed with 30 bags pl	us 8 yds neat cement s	slurry.		
Directional hole drilled 9 5/8" casing abandon	with Scientific Uril	iing, azimum 287. 10 cubic vards portland	cement slurry May	2012	
				. 2012.	
<u> </u>		To cubic yards portaine			
Himes Drilling Colorado		o #1285			

		Oxbow Mir	-		
	e de ser a composita de composit	Elk Cree	ek Mine		
an a tha bha ann a lleann an ann an	an an tha an	yn ar an de Stage of Stage and Stage angel ar an an ar ar far being ar an	n an	,	
Hole Number:	GVB 15-02		Elk Creek Mine Go		
Lease Number: Date Commenced:	COC-61357 3-Oct-09	(State or Federal)		Hotchkiss	
Date Commenceu.		Date Completed:	6-Oct-09		
Contractor:	Himes Drilling	Ria Type:	Atlas Copco RD20		
Geologist:	Doug Allen	Date :		Toolpusher:	Matt Himes
Driller:	Jim Weatherton	Truck Driver:		Helper:	Beau O.
	Sam Homedew		Tommy Dennis		Eldon S.
Coordinates: N.	15723.32	E.			
Location: Township, Ground Elevation:			SW 1/4, Sec. 31, T.	12 S., R. 90 W.	
Geophysical Log Mea	7631'	Collar Elevation:	Elevation		
Total Depth:	1625'	ground Probe Depth:	1626'	Fluid Level:	NA
Casing Type:	steel T&C	Tione pehui.	Size:	9 5/8"	
Casing Type: so			Size:	7"	
Depth:	0-1470'	Recovered (Y or N):		· · · · · · · · · · · · · · · · · · ·	
Depth:	1406-1588'	Recovered (Y or N):			
Bit Information					
		(14" surface casing)			
	2 1/4" PDC from	20-1470'			
Core:	A771				
Bottom Hole 8	3/4" Tricone fron	n 1470-1625'			
Footage Plugged:	0-1625'	Cored:	NA		
Footage Plugged: Drilling Medium:	Air:	Cored: Foam /Water:		Foam Injection:	
				Foam Injection:	
Drilling Medium: Depths:	Air: 0-20'	Foam /Water: 20-1625'	Mud:		
Drilling Medium: Depths: Lost Circu	Air: 0-20' lation Depths:	Foam /Water: 20-1625'	Mud: Rega	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circu Water Invasion Dept	Air: 0-20' lation Depths: h or Intervals:	Foam /Water: 20-1625'	Mud: Rega		
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dep	Air: 0-20' lation Depths: th or Intervals: oth or Interval:	Foam /Water: 20-1625' NA NA NA	Mud: Rega	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circu Water Invasion Dept	Air: 0-20' lation Depths: th or Intervals: oth or Interval:	Foam /Water: 20-1625' NA NA NA	Mud: Rega	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dep Geophysical Loggin	Air: 0-20' lation Depths: ih or Intervals: oth or Interval: ng Contractor:	Foam /Water: 20-1625' NA NA NA	Mud: Rega Estima	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dep	Air: 0-20' lation Depths: th or Intervals: oth or Interval: ng Contractor: Gamma:	Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y	Mud: Rega Estima Neutron:	ained ? (Y or N): ted Inflow Rates:	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dep Geophysical Loggir Logs Run:	Air: 0-20' lation Depths: th or Intervals: oth or Interval: ng Contractor: Gamma: Temperature: Resistivity:	Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y	Mud: Rega Estima Neutron: Density: Caliper:	ained ? (Y or N): ted Inflow Rates: Y	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dep Geophysical Loggir Logs Run:	Air: 0-20' lation Depths: th or Intervals: oth or Interval: ng Contractor: Gamma: Temperature: Resistivity:	Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y	Mud: Rega Estima Neutron: Density: Caliper:	ained ? (Y or N): ted Inflow Rates: Y	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dep Geophysical Loggir Logs Run: Other	Air: 0-20' lation Depths: th or Intervals: oth or Interval: mg Contractor: Gamma: Temperature: Resistivity: (SP, Foc. Elec.	Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Mud: Rega Estima Density: Caliper: ement dump bailer	ained ? (Y or N): ted Inflow Rates: Y	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dep Geophysical Loggir Logs Run:	Air: 0-20' lation Depths: th or Intervals: oth or Interval: mg Contractor: Gamma: Temperature: Resistivity: (SP, Foc. Elec.	Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Mud: Rega Estima Neutron: Density: Caliper: ement dump bailer No. of Bags:	ained ? (Y or N): ted Inflow Rates: Y	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dep Geophysical Loggir Logs Run: Other	Air: 0-20' lation Depths: th or Intervals: oth or Interval: mg Contractor: Gamma: Temperature: Resistivity: (SP, Foc. Elec.	Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Mud: Rega Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval:	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dep Geophysical Loggir Logs Run: Other	Air: 0-20' lation Depths: th or Intervals: oth or Intervals: ng Contractor: Gamma: Temperature: Resistivity: (SP, Foc. Elec. f or N), Type:	Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Mud: Rega Estima Neutron: Density: Caliper: ement dump bailer No. of Bags:	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dept Geophysical Loggir Logs Run: Other Hole Cemented (<u>Y</u> Coal Core Sent To:	Air: 0-20' lation Depths: th or Intervals: oth or Intervals: ng Contractor: Gamma: Temperature: Resistivity: (SP, Foc. Elec. (or N), Type: NA	Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N	Mud: Rega Estima Neutron: Density: Caliper: Caliper: Mo. of Bags: Interval: Rock Sent To:	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dept Geophysical Loggir Logs Run: Other Hole Cemented (<u>Y</u> Coal Core Sent To: <u>Comments: 7" of</u>	Air: 0-20' lation Depths: th or Intervals: oth or Intervals: ng Contractor: Gamma: Temperature: Resistivity: (SP, Foc. Elec. Yor N), Type: NA Casing overlaps (Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 64' inside 9 5/8" casing	Mud: Rega Estima Neutron: Density: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dept Geophysical Loggir Logs Run: Other Hole Cemented (<u>Y</u> Coal Core Sent To:	Air: 0-20' lation Depths: th or Intervals: oth or Intervals: ng Contractor: Gamma: Temperature: Resistivity: (SP, Foc. Elec. for N), Type: NA casing overlaps of with 30 bags pl	Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c N 54' inside 9 5/8" casing us 3 yds neat cement s	Mud: Rega Estima Neutron: Density: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dep Geophysical Loggir Logs Run: Other Hole Cemented (<u>Y</u> Coal Core Sent To: <u>Comments: 7" (</u> 9 5/8" annulus cemented Tagged gravel at 1596',	Air: 0-20' lation Depths: th or Intervals: oth or Intervals: ng Contractor: Gamma: Temperature: Resistivity: (SP, Foc. Elec. for N), Type: NA casing overlaps (d with 30 bags pl tagged cement p	Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 64' inside 9 5/8" casing us 3 yds neat cement solug at 1588'.	Mud: Rega Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To:	ained ? (Y or N):	
Drilling Medium: Depths: Lost Circu Water Invasion Dept Gas Invasion Dept Geophysical Loggir Logs Run: Other Hole Cemented (<u>Y</u> Coal Core Sent To: <u>Comments: 7" (</u> 95/8" annulus cemented	Air: 0-20' lation Depths: th or Intervals: oth or Intervals: ng Contractor: Gamma: Temperature: Resistivity: (SP, Foc. Elec. f or N), Type: NA casing overlaps of tagged cement p to surface with	Foam /Water: 20-1625' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 64' inside 9 5/8" casing us 3 yds neat cement solug at 1588'. 1 cubic yards portland	Mud: Rega Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To:	ained ? (Y or N):	

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Hole Number	:: GVB 15-08	Project ID -	The Grook Mine Gr	- Vant Parahalas	
Lease Number		.: Project ID.: (State or Federal)	Elk Creek Mine Go	BLM	
Date Commenced		Date Completed:			
Valu vonninnen.	· <u> </u>	. Date vomprotos.	9-00-00		
Contractor	: Himes Drilling	Ria Type:	Atlas Copco RD20		
Geologist		Date :		Toolpusher:	Matt Himes
	: Jim Weatherton	Truck Driver:		Helper:	Dave T.
	Sam Homedew		Tommy Dennis		Eldon S.
Coordinates: N		Ε.	Charles and the second s	_	
Location: Townsh			NW 1/4, Sec. 5, T.	13 S., R. 90 W.	
Ground Elevation:		Collar Elevation:	1111 1111		
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:		· · ·	Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	N -		
Depth:		Recovered (Y or N):			
Bit Information	······	· · · ·			
Surface Casing		(14" surface casing)			
Main Hole	12 1/4" PDC from	20-2150'	· · · · · · · · · · · · · · · · · · ·		
Core:					
Bottom Hole	8 3/4" Tricone from	n 2150-2280'			
Footage Plugged:		Cored:	<u>NA</u>		
Duilling Bladium	Air:	Foam /Water:	Mud:	Foam Injection:	
Drilling Medium:					
Drining Medium: Depths:		380-2280'			
Depths:	0-380'	380-2280'			
Depths: Lost Cir	0-380' rculation Depths:	380-2280' NA	Reg	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D	0-380′ rculation Depths: _ epth or Intervals: _	380-2280' NA NA	Reg		
Depths: Lost Cir Water Invasion D	0-380' rculation Depths:	380-2280' NA	Reg	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-380' rculation Depths: epth or Intervals: Depth or Interval:	380-2280' NA NA NA	Reg	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-380' rculation Depths: epth or Intervals: Depth or Interval:	380-2280' NA NA	Reg	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	o-380' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor:	380-2280' NA NA NA	Reg	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	o-380' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor:	380-2280' NA NA NA	Reg Estim	jained ? (Y or N):	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run:	o-380' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	380-2280' NA NA NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run:	o-380' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	380-2280' NA NA NA	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-380' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	380-2280' NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estim: Density: Caliper: cement dump bailer	pained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-380' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	380-2280' NA NA NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: _	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-380' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	380-2280' NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estim: Density: Caliper: cement dump bailer	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	0-380' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	380-2280' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u> N	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval:	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-380' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	380-2280' NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval:	jained ? (Y or N): ated Inflow Rates: Y	······································
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	O-380' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. (Y or N), Type: NA	380-2280' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u> N	Reg Estima Neutron: Density: Caliper: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	O-380' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	380-2280' NA NA NA Jetwest Geophysical Y Q Y Image: Solution of the state of the sta	Reg Estima Neutron: Density: Caliper: Caliper: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: 9 5/8" annulus cemer	O-380' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps nted with 6 yds neat	380-2280' NA NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): _c N 84' inside 9 5/8" casing t cement slurry.	Reg Estima Neutron: Density: Caliper: Caliper: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	O-380' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps nted with 6 yds neat	380-2280' NA NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): _c N 84' inside 9 5/8" casing t cement slurry.	Reg Estima Neutron: Density: Caliper: Caliper: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer Tagged gravel at 224	O-380' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps nted with 6 yds neat	380-2280' NA NA NA Jetwest Geophysical Y Y Orift, Dep., Sonic): N 84' inside 9 5/8" casing t cement slurry. plug at 2235'.	Reg Estima Neutron: Density: Caliper: Cement dump bailer No. of Bags: Interval: Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>9 5/8" annulus cemer</u> Tagged gravel at 224	O-380' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps nted with 6 yds neat	380-2280' NA NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): _c N 84' inside 9 5/8" casing t cement slurry.	Reg Estima Neutron: Density: Caliper: Cement dump bailer No. of Bags: Interval: Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>9 5/8" annulus cemer</u> Tagged gravel at 224	O-380' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps nted with 6 yds neat 12', tagged cement p oned to surface with	380-2280' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): _c N 84' inside 9 5/8" casing t cement slurry. plug at 2235'. 30 cubic yards portland	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y	

		Oxbow Mir	ing LLC		
		Elk Cree			
	ang an				
Hole Number	• GVB 16 01P	Project ID .	Elk Creek Mine Go	h Vent Boroholos	
	: COC-61357		Surface Owner:		
Date Commenced	And the second se	Date Completed:			
	<u></u>	-	·····		;
	Himes Drilling		Atlas Copco RD20	.	
Geologist		Date :		Toolpusher:	Matt Himes
Driller	Sam Homedew	Truck Driver:	Shaun L. Tommy Dennis	Helper: _	Dave T. Eldon S.
Coordinates: N		E.	33525.98		
Location: Townsh	1	-	SW 1/4, Sec. 31, T.	12 S., R. 90 W.	
Ground Elevation:		Collar Elevation:			
Geophysical Log N		ground	Elevation		
Total Depth:		Probe Depth:	NA	Fluid Level:	NA
Casing Type:	the second se		Size: Size:	9 5/8"	
Casing Type: Depth:	sol/slot steel T&C 0-2070'	Recovered (Y or N):	h	1	
Depth:		Recovered (Y or N):			
Bit Information					
Surface Casing	16" Tricone to 20'	(14" surface casing)			
Main Hole	12 1/4" PDC from	20-2070'			
Core:		0070 04001			
Bottom Hole	8 3/4" Tricone from	n 2070-2162			
Footage Plugged:	0.0400	- ·			
	0-2162	Cored:	NA		
		Cored: _ Foam /Water:	NA Mud:	Foam Injection:	
Drilling Medium: Depths:	Air:			Foam Injection:	
Drilling Medium: Depths:	Air: 0-1701'	Foam /Water: 1701-2162'	Mud:		
Drilling Medium: Depths: Lost Cir	Air: 0-1701 ¹ rculation Depths:	Foam /Water: 1701-2162' NA	Mud: Rega	ained ? (Y or N):	
Drilling Medium: Depths: Lost Cir Water Invasion D	Air: 0-1701' rculation Depths: epth or Intervals:	Foam /Water: 1701-2162' NA NA	Mud: Rega		
Drilling Medium: Depths: Lost Cir Water Invasion D	Air: 0-1701 ¹ rculation Depths:	Foam /Water: 1701-2162' NA	Mud: Rega	ained ? (Y or N):	
Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval:	Foam /Water: 1701-2162' NA NA	Mud: Rega Estima	ained?(Y or N): ted Inflow Rates:	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: Iging Contractor:	Foam /Water: 1701-2162' NA NA NA no logging due to close	Mud: Rega Estima e proximity to GVB 1	ained ? (Y or N): ted Inflow Rates: 6-01	
Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: iging Contractor: Gamma:	Foam /Water: 1701-2162' NA NA NA no logging due to close	Mud: Rega Estima e proximity to GVB 1 Neutron:	ained ? (Y or N): ted Inflow Rates: 6-01	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	Foam /Water: 1701-2162' NA NA NA no logging due to close	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper:	ained ? (Y or N): ted Inflow Rates: 6-01	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	Foam /Water: 1701-2162' NA NA NA no logging due to close	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper:	ained ? (Y or N): ted Inflow Rates: 6-01	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	Foam /Water: 1701-2162' NA NA NA no logging due to close ., Drift, Dep., Sonic):	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper:	ained ? (Y or N): ted Inflow Rates: 6-01	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	Foam /Water: 1701-2162' NA NA NA no logging due to close	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper: No. of Bags: <u>6</u> y	ained ? (Y or N): ted Inflow Rates: 6-01 /ds for 9 5/8" annulus	5
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	Foam /Water: 1701-2162' NA NA NA no logging due to close ., Drift, Dep., Sonic):	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper: No. of Bags: <u>6 y</u> Interval: to	ained ? (Y or N): ted Inflow Rates: 6-01 /ds for 9 5/8" annulus surface	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	Foam /Water: 1701-2162' NA NA NA no logging due to close ., Drift, Dep., Sonic): Y	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper: No. of Bags: <u>6 y</u> Interval: to	ained ? (Y or N): ted Inflow Rates: 6-01 /ds for 9 5/8" annulus	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA	Foam /Water: 1701-2162' NA NA NA no logging due to close ., Drift, Dep., Sonic): Y	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper: No. of Bags: 6 y Interval: to Rock Sent To:	ained ? (Y or N): ted Inflow Rates: 6-01 /ds for 9 5/8" annulus surface	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA	Foam /Water: 1701-2162' NA NA NA no logging due to close ., Drift, Dep., Sonic): Y	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper: No. of Bags: 6 y Interval: to Rock Sent To:	ained ? (Y or N): ted Inflow Rates: 6-01 /ds for 9 5/8" annulus surface	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA	Foam /Water: 1701-2162' NA NA NA no logging due to close ., Drift, Dep., Sonic): Y	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper: No. of Bags: 6 y Interval: to Rock Sent To:	ained ? (Y or N):	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps	Foam /Water: 1701-2162' NA NA NA no logging due to close	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper: Caliper: No. of Bags: <u>6 y</u> Interval: to	ained ? (Y or N):	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps	Foam /Water: 1701-2162' NA NA NA no logging due to close ., Drift, Dep., Sonic): Y	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper: Caliper: No. of Bags: <u>6 y</u> Interval: to	ained ? (Y or N):	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	Air: 0-1701' rculation Depths: epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps oned to surface with	Foam /Water: 1701-2162' NA NA NA no logging due to close , Drift, Dep., Sonic): Y 48' inside 9 5/8" casing h 27 yds portland type l	Mud: Rega Estima e proximity to GVB 1 Neutron: Density: Caliper: Caliper: No. of Bags: <u>6 y</u> Interval: to	ained ? (Y or N):	

1		Oxbow Min	ning LLC		
		Elk Cree			
Hole Number:	GVB 16-01C	Project ID.:	Elk Creek Mine G	ob Vent Boreholes	
Lease Number:	COC-61357	(State or Federal)			
Date Commenced:	27-Jul-09	Date Completed			
Contractor:	Himes Drilling	Rig Type:	Atlas Copco RD20)	
	Doug Allen		13-Nov-09	Toolpusher:	Matt Himes
Driller:	Jim Weatherton	Truck Driver:		Helper:	Dave T.
	Sam Homedew		Tommy Dennis	·····	Eldon S.
Coordinates: N.		E.	The second s		
Location: Townshi	p, Range & Section	on:	SW 1/4, Sec. 31, 7	Г. 12 S., R. 90 W.	
Ground Elevation:		Collar Elevation:			
Geophysical Log M	easured From:	ground	Elevation		
Total Depth:		Probe Depth:	NA	Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	-		
Depth:		Recovered (Y or N):			
Bit Information					
	16" Tricone to 19	5' (14" surface casing)			
	12 1/4" PDC from				
Core:					
	8 3/4" Tricone fron	1 2050-2144'	···· · · · · · · · · · · · · · · · · ·	·	
-		1 2000-2177			
Footage Plugged:	0-2144'	Cored:	NA		
			1 1 1 1		
Drilling Medium:	Air:	Foam (Water:	Mud	Foam Injection:	
Drilling Medium: Depths:		Foam /Water:	Mud:	Foam Injection:	
Drilling Medium: Depths:	Air: 0-952'	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-952'		· · · · · · · · · · · · · · · · · · ·		
Depths:	0-952' culation Depths:	NA	Reg	ained? (Y or N):	
Depths: Lost Circ Water Invasion De	0-952' culation Depths:_ pth or Intervals:_	NA NA	Reg		
Depths: Lost Circ Water Invasion De	0-952' culation Depths:	NA	Reg	ained? (Y or N):	
Depths: Lost Circ Water Invasion De Gas Invasion D	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _	NA NA	Reg Estim	ained ? (Y or N): ated Inflow Rates:	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r	NA NA NA no logging due to close	Reg Estim proximity to GVB	ained ? (Y or N): ated Inflow Rates: 16-01	
Depths: Lost Circ Water Invasion De Gas Invasion D	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: <u>r</u> Gamma:	NA NA NA no logging due to close	Reg Estima proximity to GVB Neutron:	ained ? (Y or N): ated Inflow Rates: 16-01	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: <u>r</u> Gamma: _ Temperature:	NA NA NA no logging due to close	Reg Estime proximity to GVB Neutron: Density:	ained ? (Y or N): ated Inflow Rates: 16-01	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r Gamma: _ Temperature: _ Resistivity:	NA NA NA no logging due to close	Reg Estime proximity to GVB Neutron: Density:	ained ? (Y or N): ated Inflow Rates: 16-01	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec.	NA NA NA no logging due to close , Drift, Dep., Sonic): _	Reg Estimate proximity to GVB Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: 16-01	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec.	NA NA NA no logging due to close	Reg Estimate proximity to GVB Neutron: Density: Caliper: No. of Bags: 5	yained ? (Y or N): ated Inflow Rates: 16-01 yds for 9 5/8" annulus	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Othe	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec.	NA NA NA no logging due to close , Drift, Dep., Sonic): _	Reg Estimate proximity to GVB Neutron: Density: Caliper:	yained ? (Y or N): ated Inflow Rates: 16-01 yds for 9 5/8" annulus	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (0-952' culation Depths: pth or Intervals: epth or Interval: jing Contractor: r Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type:	NA NA NA no logging due to close , Drift, Dep., Sonic): Y	Reg Estimate proximity to GVB Neutron: Density: Caliper: No. of Bags: <u>5</u> Interval: to	Jained ? (Y or N): ated Inflow Rates: 16-01 yds for 9 5/8" annulus surface	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (0-952' culation Depths: pth or Intervals: epth or Interval: jing Contractor: r Gamma: Temperature: Resistivity: er (SP, Foc. Elec. Y or N), Type:	NA NA NA no logging due to close , Drift, Dep., Sonic): _	Reg Estimate proximity to GVB Neutron: Density: Caliper: No. of Bags: 5	Jained ? (Y or N): ated Inflow Rates: 16-01 yds for 9 5/8" annulus surface	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec., Y or N), Type: _ NA	NA NA NA no logging due to close , Drift, Dep., Sonic): Y	Reg Estimate proximity to GVB Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To:	yained ? (Y or N): ated Inflow Rates: 16-01 yds for 9 5/8" annulus surface NA	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec., Y or N), Type: _ NA	NA NA NA no logging due to close , Drift, Dep., Sonic): Y	Reg Estimate proximity to GVB Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: 16-01 yds for 9 5/8" annulus surface	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec., Y or N), Type: _ NA	NA NA NA no logging due to close , Drift, Dep., Sonic): Y	Reg Estimate proximity to GVB Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To:	yained ? (Y or N): ated Inflow Rates: 16-01 yds for 9 5/8" annulus surface NA	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec., Y or N), Type: _ NA	NA NA NA no logging due to close Drift, Dep., Sonic): Y 46' inside 9 5/8" casing	Reg Estimate proximity to GVB Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To:	yained ? (Y or N): ated Inflow Rates: 16-01 yds for 9 5/8" annulus surface NA	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec., Y or N), Type: _ NA	NA NA NA no logging due to close , Drift, Dep., Sonic): Y	Reg Estimate proximity to GVB Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To:	yained ? (Y or N): ated Inflow Rates: 16-01 yds for 9 5/8" annulus surface NA	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec., Y or N), Type: _ NA	NA NA NA no logging due to close Drift, Dep., Sonic): Y 46' inside 9 5/8" casing	Reg Estimate proximity to GVB Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To:	yained ? (Y or N): ated Inflow Rates: 16-01 yds for 9 5/8" annulus surface NA	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (oal Core Sent To: Comments: 7	0-952' culation Depths: _ pth or Intervals: _ epth or Interval: _ jing Contractor: r Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec., Y or N), Type: _ NA	NA NA NA no logging due to close , Drift, Dep., Sonic): Y 46' inside 9 5/8" casing 9 yds portland type II o	Reg Estimate proximity to GVB Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To:	yained ? (Y or N): ated Inflow Rates: 16-01 yds for 9 5/8" annulus surface NA	

	Oxbow Mi	ning LLC		
	Elk Cre	-		
			yn an ar af Male ar yn de o op oar ei fyn ar yn ar en ar yn y	
Hole Number: GVB 16-	.01D Project ID	.: Elk Creek Mine Gob	Vent Boreboles	
Lease Number: COC-61		I) Surface Owner:	Hotchkiss	
Date Commenced: 23-Nov				
		······································		
Contractor: Himes Dr		: Atlas Copco RD20	- · ·	
Geologist: Doug A Driller: Jim Weath			Toolpusher:	Matt Himes Richard M.
Sam Hom		: Kirk Homedew Will Juusola	Helper:	Trey H.
Coordinates: N. 17218.		The second se		110y 11.
Location: Township, Range &		SE 1/4, Sec. 31, T. 1	2 S., R. 90 W.	
Ground Elevation: 8121	Collar Elevation			
Geophysical Log Measured Fr		Elevation	5 1. (11)	۲
Total Depth: 2252 Casing Type: steel T&		: <u>NA</u> Size:	Fluid Level: 9 5/8"	NA
Casing Type: sol/slot stee		Size:	7"	
Depth: 0-1292			<u>`</u>	
Depth: 1292-22				
Bit Information				
	to 21' (14" surface casing)			
Main Hole <u>12 1/4" PDC</u> Core:	C from 21-1292'		·	
	ne from 1292-2252'			<u>`</u>
				<u> </u>
Footage Plugged:0-2252	<u>Cored</u>			
Footage Plugged: 0-2252 Drilling Medium: Air:	2' Cored Foam /Water:		oam Injection:	
Footage Plugged:0-2252	2' Cored Foam /Water:		oam Injection:	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320	2' Cored Foam /Water: 320-2252'	Mud: F		
Footage Plugged: 0-2252 Drilling Medium: Air:	2' Cored Foam /Water: 320-2252' pths: NA	Mud: Fi	oam Injection: 	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De	2' Cored Foam /Water: 320-2252' pths: NA rvals:	Mud: Fi	ned ? (Y or N):	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter	2' Cored Foam /Water: ' 320-2252' pths: NA rvals: erval: 1292-2252'	Mud: Fi Regai Estimate	ned ? (Y or N):	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter	2' Cored Foam /Water: ' 320-2252' pths: NA rvals: erval: 1292-2252'	Mud: Fi Regai Estimate	ned ? (Y or N):	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra	2' Cored Foam /Water: ' ' 320-2252' pths: NA rvals: ' erval: 1292-2252' actor: Directional hole- no loc	Mud: Fi Regai Estimate	ned ? (Y or N): d Inflow Rates:	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar	2' Cored Foam /Water: 320-2252' pths: NA rvals: 1292-2252' actor: Directional hole- no loc nma: Na	Mud: Fi Regain Estimate ogging Neutron:	ned? (Y or N): d Inflow Rates:	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist	2' Cored. Foam /Water: 320-2252' pths: NA rvals: 1292-2252' actor: Directional hole- no loc nma:	Mud: Fi Regai Estimate ogging Neutron: Density: Caliper:	ned ? (Y or N): d Inflow Rates:	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist	2' Cored. Foam /Water: ' ' 320-2252' pths: NA rvals: ' erval: 1292-2252' actor: Directional hole- no loop nma:	Mud: Fi Regai Estimate ogging Neutron: Density: Caliper:	ned?(Y or N): d Inflow Rates:	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist Other (SP, Foc	2' Cored Foam /Water: '320-2252' pths: NA rvals: erval: 1292-2252' actor: Directional hole- no lo nma: iture: ivity: 2. Elec., Drift, Dep., Sonic):	Mud: Fi Regain Estimate ogging Neutron: Density: Caliper:	ned ? (Y or N): d Inflow Rates:	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist	2' Cored Foam /Water: '320-2252' pths: NA rvals: erval: 1292-2252' actor: Directional hole- no lo nma: iture: ivity: 2. Elec., Drift, Dep., Sonic):	Mud: Fi Regain Estimate ogging Neutron: Density: Caliper: No. of Bags: 3 yd	ned ? (Y or N): d Inflow Rates: s for 9 5/8" annulus	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist Other (SP, Foc	2' Cored Foam /Water: '320-2252' pths: NA rvals: erval: 1292-2252' actor: Directional hole- no lo nma: iture: ivity: 2. Elec., Drift, Dep., Sonic):	Mud: Fill Regain Estimate ogging Density: Caliper:	ned ? (Y or N): d Inflow Rates: s for 9 5/8" annulus urface	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist Other (SP, Foc	2' Cored. Foam /Water: ' ' 320-2252' opths: NA rvals: - erval: 1292-2252' actor: Directional hole- no loop nma: - ivity: - c. Elec., Drift, Dep., Sonic): Y	Mud: Fi Regai Segging Neutron: Density: Caliper: No. of Bags: <u>3 yd</u> Interval: to su	ned ? (Y or N): d Inflow Rates: s for 9 5/8" annulus urface	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist Other (SP, Foo Hole Cemented (Y or N), T Coal Core Sent To: NA	2' Cored. Foam /Water: 320-2252' pths: NA rvals: 1292-2252' actor: Directional hole- no loon nma: 1292-2252' iture: 1292-2252' iture: 1292-2252' pths: Directional hole- no loon nma: 1292-2252' ivity: 1292-2252'	Mud: Fit Regain Estimate ogging Estimate Neutron: Density: Caliper: Caliper: No. of Bags: 3 yd Interval: to su Rock Sent To:	ned ? (Y or N): d Inflow Rates: s for 9 5/8" annulus Irface	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist Other (SP, Foo Hole Cemented (Y or N), T Coal Core Sent To: NA	2' Cored Foam /Water: 320-2252' pths: NA rvals: 1292-2252' actor: Directional hole- no loc nma:	Mud: Fi Regain Regain Seging Neutron: Density: Caliper: No. of Bags: 3 yd Interval: to si Rock Sent To: 1292-2252', at estimate	ned ? (Y or N): d Inflow Rates: s for 9 5/8" annulus urface NA d mine roof.	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist Other (SP, Foo Hole Cemented (Y or N), T Coal Core Sent To: NA Comments: No 7" casing 12 1/4" directional hole steered by	2' Cored Foam /Water: 320-2252' pths: NA rvals: 1292-2252' actor: Directional hole- no lo nma:	Mud: Fill Regain Estimate ogging Estimate Neutron: Density: Caliper: Caliper: No. of Bags: 3 yd Interval: to su Rock Sent To: 1292-2252', at estimate 1292' (to point where 1292' (to point where	ned ? (Y or N): d Inflow Rates: s for 9 5/8" annulus irface NA d mine roof. angle fully built)	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist Other (SP, Foo Hole Cemented (Y or N), T Coal Core Sent To: NA Comments: No 7" casing 12 1/4" directional hole steered by then motor tripped out to avoid sti	2' Cored Foam /Water: 320-2252' pths: NA rvals: erval: 1292-2252' actor: Directional hole- no lo nma: ture: ivity: Elec., Drift, Dep., Sonic): Type: Y g; left 8 3/4" hole open from y Scientific Drilling from 320 icking tools in broken gob. E	Mud: Fill Regain Estimate ogging Estimate Neutron: Density: Caliper: Caliper: No. of Bags: 3 yd Interval: to st Rock Sent To: 1292-2252', at estimate 1292-2252', at estimate 1292' (to point where Bottom of 12 1/4" hole h 1/4" hole h	ned ? (Y or N): d Inflow Rates: s for 9 5/8" annulus irface NA d mine roof. angle fully built)	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist Other (SP, Foc Hole Cemented (Y or N), T Coal Core Sent To: NA Comments: No 7" casing 12 1/4" directional hole steered by then motor tripped out to avoid sti azimuth 101 degrees, 183' from s	2' Cored. Foam /Water: '320-2252' pths: NA rvals: '1292-2252' actor: Directional hole- no loc nma: '1292-2252' ivity: '1292-2252' actor: Directional hole- no loc nma: '1292-2252' ivity: '1292-2252' ivity: '1292-2252' : Elec., Drift, Dep., Sonic): 'y Scientific Drilling from 320 '1292-2252' icking tools in broken gob. Eurface location. No circulation	Mud: Fill Regain Estimate orgging Estimate Density: Caliper: No. of Bags: 3 yd Interval: to su Rock Sent To: 1292-2252', at estimate 1292-2252', at estimate 30tom of 12 1/4" hole hon loss during drilling.	ned ? (Y or N): d Inflow Rates: s for 9 5/8" annulus irface NA d mine roof. angle fully built) ocated at	
Footage Plugged: 0-2252 Drilling Medium: Air: Depths: 0-320 Lost Circulation De Water Invasion Depth or Inter Gas Invasion Depth or Inter Gas Invasion Depth or Inter Geophysical Logging Contra Logs Run: Gar Tempera Resist Other (SP, Foo Hole Cemented (Y or N), T Coal Core Sent To: NA Comments: No 7" casing 12 1/4" directional hole steered by then motor tripped out to avoid sti	2 Cored Foam /Water: 320-2252' pths: NA rvals:	Mud: Fill Regain Estimate orgging Estimate Density: Caliper: No. of Bags: 3 yd Interval: to su Rock Sent To: 1292-2252', at estimate 1292-2252', at estimate 30tom of 12 1/4" hole hon loss during drilling.	ned ? (Y or N): d Inflow Rates: s for 9 5/8" annulus irface NA d mine roof. angle fully built) ocated at	

		Oxbow Mir	ning LLC		
		Elk Cree	ek Mine		
an an an aife an far an an an an gurge an	na 1919 in dia mampina mpika mpika katana amin'ny kaodim-kaodim-kaodim-kaodim-kaodim-kaodim-kaodim-kaodim-kaodi		a ta manta ana amin'ny faritr'o dia		
	: <u>GVB 16-01E</u>		Elk Creek Mine Go		
	: <u>COC-61357</u>		Surface Owner:	Hotchkiss	
Date Commenced	: <u>5-Oct-10</u>	_ Date Completed:	10-Oct-10		
	: Himes Drilling		Atlas Copco RD20		
	Doug Allen	Date :		Toolpusher: _	Matt Himes
Driller	: Jim Weatherton	. Truck Driver:	Kirk Homedew	Helper: _	Jake C.
Coordinates: N	Sam Homedew	Е.	Will Juusola 33757.50		Trey H.
Location: Townsh			SE 1/4, Sec. 31, T.	12 S R 90 W	
Ground Elevation:		Collar Elevation:		12 0,10 00 11.	
Geophysical Log N			Elevation		
Total Depth:	: 2252'	Probe Depth:		Fluid Level:	NA
	steel T&C	-	Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
	: 0-2164'	Recovered (Y or N):			
Depth:	2088-2245'	Recovered (Y or N):	N		
Bit Information Surface Casing	16" Tricono to 201	(14" surface casing)			
Main Hole	12 1/4" PDC from				
Core:					
Bottom Hole	8 3/4" Tricone from	m 2164-2252'			
Footage Plugged:		Cored:		From Inisotion	
Drilling Medium:	Air:	Foam /Water:		Foam Injection:	
	Air:			Foam Injection:	
Drilling Medium: Depths:	Air: 0-152'	Foam /Water: 152-2252'	Mud:	Foam Injection: ained ? (Y or N):	Ν
Drilling Medium: Depths:	Air: 0-152' rculation Depths:	Foam /Water: 152-2252' 935-2164'/ 2245-2252	Mud: ' Reg		N
Drilling Medium: Depths: Lost Cir Water Invasion D	Air: 0-152' rculation Depths:	Foam /Water: 152-2252' 1935-2164'/ 2245-2252	Mud: ' Reg	ained? (Y or N):	N
Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval:	Foam /Water: 152-2252' 935-2164'/ 2245-2252 1924-2245'	Mud: ' Reg Estima	ained? (Y or N):	<u>N</u>
Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval:	Foam /Water: 152-2252' 1935-2164'/ 2245-2252	Mud: ' Reg Estima	ained? (Y or N):	N
Drilling Medium: Depths: Lost Cin Water Invasion D Gas Invasion I	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma:	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log	Mud: ' Reg Estima gging Neutron:	ained ? (Y or N): ated Inflow Rates:	<u>N</u>
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature:	Foam /Water: 152-2252' 935-2164'/ 2245-2252 1924-2245' Directional hole- no log	Mud: ' Reg Estima gging Neutron: Density:	ained ? (Y or N): ated Inflow Rates:	N
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log	Mud: ' Reg Estima gging Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates:	N
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	Foam /Water: 152-2252' 935-2164'/ 2245-2252 1924-2245' Directional hole- no log	Mud: ' Reg Estima gging Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates:	N
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	Air: 0-152' epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log	Mud: Reg Estima gging Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates:	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	Air: 0-152' epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log	Mud: Reg Estima gging Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: yds for 9 5/8" annulus	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (<u>Y</u> or N), Type:	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log ., Drift, Dep., Sonic): Y	Mud: ' Reg Estima gging Neutron: Density: Caliper: No. of Bags: 5 Interval: to	ained ? (Y or N): ated Inflow Rates: yds for 9 5/8" annulus surface	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (<u>Y</u> or N), Type:	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log	Mud: Reg Estima gging Neutron: Density: Caliper: No. of Bags: 5	ained ? (Y or N): ated Inflow Rates: yds for 9 5/8" annulus surface	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To:	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log ., Drift, Dep., Sonic): Y	Mud: Reg Estima Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: yds for 9 5/8" annulus surface	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments:	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log ., Drift, Dep., Sonic): Y 76' inside 9 5/8" casin	Mud: Reg Estima Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: yds for 9 5/8" annulus surface NA	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 12 1/4" directional ho	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ble steered by Sciel	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log ., Drift, Dep., Sonic): Y 76' inside 9 5/8" casin ntific Drilling. Bottom of	Mud: Reg Estima gging Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To: g. 9 5/8" casing locate	ained ? (Y or N): ated Inflow Rates: yds for 9 5/8" annulus surface NA	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 12 1/4" directional ho	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ble steered by Sciel	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log ., Drift, Dep., Sonic): Y 76' inside 9 5/8" casin	Mud: Reg Estima gging Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To: g. 9 5/8" casing locate	ained ? (Y or N): ated Inflow Rates: yds for 9 5/8" annulus surface NA	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 12 1/4" directional ho at azimuth 118.13 fro	Air: 0-152' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ble steered by Scient om suface location.	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log ., Drift, Dep., Sonic): Y 76' inside 9 5/8" casin ntific Drilling. Bottom of	Mud: ' Reg Estima gging Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To: g. 9 5/8" casing locate d longwall.	ained ? (Y or N): ated Inflow Rates: yds for 9 5/8" annulus surface NA ed 554.23	
Drilling Medium: Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: 12 1/4" directional ho at azimuth 118.13 fro	Air: 0-152' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ble steered by Sciel om suface location. pned to surface with	Foam /Water: 152-2252' 1935-2164'/ 2245-2252 1924-2245' Directional hole- no log ., Drift, Dep., Sonic): Y 76' inside 9 5/8" casin ntific Drilling. Bottom of Drilled into gob behin n 26 yds portland type	Mud: ' Reg Estima gging Neutron: Density: Caliper: No. of Bags: 5 Interval: to Rock Sent To: g. 9 5/8" casing locate d longwall.	ained ? (Y or N): ated Inflow Rates: yds for 9 5/8" annulus surface NA ed 554.23	

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	Elk Cre	-		
		ev WING	ing paper and a local data to the data of the part	a da anti-anti-anti-anti-anti-anti-anti-anti-
				anan may san an an a bhirin gan tha shirin a
Hole Number: GVB 16-0 Lease Number: COC-6135		Elk Creek Mine Ex		
Date Commenced: 11-Nov-09	· · · · · · · · · · · · · · · · · · ·) Surface Owner:	Hotchkiss	
	Date Completed	14-INOV-09		
Contractor: Himes Drilli		Atlas Copco RD20)	
Geologist: Doug Aller		13-Nov-09	Toolpusher:	Matt Himes
Driller: Jim Weather			Helper:	Beau O.
Sam Homed		Tommy Dennis	_	Shaun L.
Coordinates: N. 16686.53	E.	01041100	- 40 0 D 00 W	
Location: Township, Range & S Ground Elevation: 7701'	Collar Elevation:	SW 1/4, Sec. 31, T	. 12 S., R. 90 W.	
Geophysical Log Measured From		Elevation		
Total Depth: 1800'	Probe Depth:		Fluid Level:	NA
Casing Type: steel T&C		Size:	9 5/8"	
Casing Type: sol/slot steel 7	<u>-&C</u>	Size:	7"	
Depth: 0-1650'	Recovered (Y or N):			
Depth: 1583-1755	Recovered (Y or N):	N		
Bit Information				
	60' (14" surface casing)			
Main Hole 12 1/4" PDC f	om 60-1650'		<u></u>	· · · · · · · · · · · · · · · · · · ·
Core:	free 4050 4000			
Bottom Hole 8 3/4" Tricone	from 1650-1800'		· · · · · · · · · · · · · · · · · · ·	
Footage Plugged: 0-1800'	Cored:	NA		
Drilling Medium: Air:	Foam /Water:	Mud:	Foam Injection:	
Depths: 0-290'	290-1800'			
Lost Circulation Dept	ns: NA	Reg	ained? (Y or N):	
Water Invasion Depth or Interva		Estima	ated Inflow Rates:	
Gas Invasion Depth or Interv	al: NA			
Geophysical Logging Contract	or: Jetwest Geophysical		·····	
Logs Run: Gamn	a Y	Neutron:		
Temperatu	na: Y re: y: Y	Density:		
Resistivi	iv: Y	Caliper:	Ý	
Other (SP, Foc. E	lec., Drift, Dep., Sonic):	cement dump bailer		
Hole Cemented (<u>Y</u> or N), Typ	e: Y	No. of Bags: 3	yds for 9 5/8" annulus	1
			surface	
Coal Core Sent To:NA		Rock Sent To:	NA	
Comments: 7" casing overla		g		
Tagged gravel at 1765', tagged cem	ent plug at 1755'.			
95/8" casing abandoned to surface	with 18 yds portland type I	I cement Septembe	r, 2011.	
limes Drilling Colorado water well li	cense #1285			

	an a	Oxbow Mir	ning LLC		
		Elk Cree	ek Mine		
Hole Number	: GVB 16-02B	Project ID :	Elk Creek Mine Go	h Vent Boreholes	
Lease Number			Surface Owner:		
Date Commenced	: 11-Dec-10	Date Completed:			
		-			
	: Himes Drilling	• • • •	Atlas Copco RD20		
Geologist	terres and the second s		22-Jan-11	Toolpusher:	Matt Himes
Driller	Jim Weatherton Sam Homedew	I ruck Driver:	Kirk Homedew Will Juusola	Helper:	Richard M. Trey H.
Coordinates: N	And a second	F	34821.60	-	ney n.
Location: Townsh			SW 1/4, Sec. 31, T.	12 S., R. 90 W.	
Ground Elevation:		Collar Elevation:			
Geophysical Log N	leasured From:	ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
	steel T&C		Size:	9 5/8"	
Casing Type:	Ward a feature of the feature of the second s	Decovered (V or N)	Size:		
Depth: Depth:		Recovered (Y or N): Recovered (Y or N):			
Bit Information		Recovered (1 of N).	······		
Surface Casing	16" Tricone to 84'	(14" surface casing)	· · · · · · · · · · · · · · · · · · ·		
Main Hole	12 1/4" PDC from				
Core:					
Bottom Hole	8 3/4" Tricone fron	n 840-1815'	<u> –</u>		
Footage Plugged:	0-1815'	Cored:	NA		
Drilling Medium:		Foam /Water:		Foam Injection:	
Depths:	ward and the second	292-1810'			
•					
	culation Depths:	NA		ained? (Y or N):	
Water Invasion D		NA	Estima	ted Inflow Rates:	
Gas Invasion I	Depth or Interval:	NA			
Geophysical Log	ging Contractor: [Directional hole- no log	iging.		
Logs Run:	Gamma		Neutron		
Logs Run.	Temperature:		Density:		
	Resistivity:		Caliper:		
Oti	her (SP, Foc. Elec.	, Drift, Dep., Sonic): _	·		
Hole Comented	(VorN) Type	Y	No of Bags: 6x	/ds for 9 5/8" annulus	2
TOILE Cemented		. <u>.</u>	Interval: to	surface	,
Coal Core Sent To:	NA		Rock Sent To:	NA	
12.1 // directional ba	United into gob ben	ind longwall. No 7" ca 840'. Bottom of 9 5/8"	casing located at as	i upen. vimuth 69.65 degrees	<u> </u>
63 34' from surface l	ocation Only upper	portion drilled direction	nally in order to avoi	d sticking motor in ac	<u>,</u>
		portion annoa anootioi			
95/8" casing abando	ned to surface with	18 yds portland type I	l cement September	r, 2011.	
Himes Drilling Colora	ido water well licens	se #1285			
					·.·

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	Elk Cree	-		
	ETV CLEE	K MINE	an a	
an ta ban ya da fan a dag da Maria da ba ya ya ya na kata ta ana any may na da da ka maka ya ya ya na da da mahan ba		a ngangangan a san da pangan da bawa da baharan Quan san sa		ale se antiga de la companya de la c
Hole Number: <u>GVB 16-02C</u>		Elk Creek Mine Gol		
Lease Number: COC-61357		Surface Owner:	Hotchkiss	
Date Commenced: 4-Jan-11	Date Completed:	9-Jan-11		
Contractor: Himes Drilling	Rig Type:	Atlas Copco RD20		
Geologist: Doug Allen		22-Jan-11	Toolpusher:	Matt Himes
Driller: Jim Weatherton	Truck Driver:	Kirk Homedew	Helper:	Richard M.
Sam Homedew		Will Juusola	-	Trey H./Chad H.
Coordinates: N. 16593.80	Ε.		10.0.5.00.00	
Location: Township, Range & Section		SW 1/4, Sec. 31, T.	12 S., R. 90 W.	
Ground Elevation: 7691' Geophysical Log Measured From:	Collar Elevation: ground	Elevation		
Total Depth: 1802'	Probe Depth:		Fluid Level:	NA
Casing Type: steel T&C		Size:	9 5/8"	
Casing Type:	,	Size:		
Depth: 0-840'	Recovered (Y or N):			
Depth:	Recovered (Y or N):			
Bit Information	·			
	(14" surface casing)			
Main Hole <u>12 1/4" PDC from</u>	87-864'			
Core:	- 064 4000			
Bottom Hole 8 3/4" Tricone from	1 864-1802			
Footage Plugged: 0-1802'	Cored:			
Drilling Medium: Air:	Foam /Water:	Mud: I	Foam Injection:	
Depths: 0-290'	290-1802'	·		
Lost Circulation Depths:	NA	Rega	ined? (Y or N): _	
Water Invasion Depth or Intervals:	NA	Estimat	ted Inflow Rates:	
Gas Invasion Depth or Interval:	NA			
Geophysical Logging Contractor:	Directional hole, no log	aina		
Geophysical Logging Contractor.	Directional noie- no log	gnig.		
Logs Run: Gamma:		Neutron:		
Temperature:		Density:		
Resistivity:		Caliper:		
Other (SP, Foc. Elec	., Drift, Dep., Sonic):	<u></u>		
Hole Cemented (\underline{Y} or N), Type:	Y	No. of Bags: 5 v	ds for 9 5/8" annulu	s
		Interval: to s		
Coal Core Sent To: NA		Rock Sent To:	NA	
Comments: Drilled into gob be	hind longwall No 7" og	ising- 8 3/4" hole left	onen	
12 1/4" directional hole drilled from 290	840'. Bottom of 9 5/8"	casing located at az	imuth 18.55 degree	S.
72.99' from surface location. Only uppe	portion drilled direction	nally in order to avoid	d sticking motor in a	ob.
The second and the second seco				
95/8" casing abandoned to surface with	18 yds portland type I	l cement September	, 2011.	·
Himes Drilling Colorado water well licen	se #1285		- 	
Times Drilling Colorado water well licen	00 If 1200	······································		

Surface Casing 16" Tricone to 60' (14" surface casing) Main Hole 12 1/4" PDC from 60-1720' Sore:						
Hole Number: GVB 18-03 Project D.; Elk Creek Mine Exploration Lease Number: COC-61357 (State or Federal) Surface Owner: Hotokiss Date Commenced: 7-Nov-09 Date Completed: 10-Nov-09 Toolpusher: Matt Himes Geologist: Dug Allen Date: 13-Nov-09 Toolpusher: Matt Himes Driller: Jim Weatherton Truck Driver: Will Juscola Helper: Beau O. Sam Homedew E. 35302.90 Social Common Dennis Shaun L. Coordinates: N 16821.265 E. S5302.90 Shaun L. Coordinates: N 16821.265 Probe Depth: 1055' Fluid Level: NA Casing Type: Solististeel T&C Stat: 9 5/6'' Stat: 9 5/6'' Casing Type: Solististeel T&C Stat: 9 5/6'' Stat: 9 5/6'' Casing Type: 16/* Tricone to 60' (14'' surface casing) Iain Hole 12 14'' PDC from 60-1720 Stat: 7 Gastan Yoe Sa/4'' Tricone from 1720-1855' Coreat: NA Estimated Inflow Rates: 30 gpm Footage P				-		
Lease Number: COC-61357 (State or Federal) Surface Owner: Hotchkiss Date Commenced: T-Nov-09 Date Completed: 10-Nov-09 Contractor: Himes Drilling Geologist: Rig Type: Atlas Copco RD20 Toolpusher: Matt Himes Date: 13-Nov-09 Toolpusher: Matt Himes State or Federal) Toolpusher: Matt Himes Coordinates: N 16521.25 Collar Elevation: Towny Dennis Staun L. Coordinates: N 16527.25 Collar Elevation: State: 9 5/8" Costing Type: stell T&C State: 7" Depth: 0.56" Casing Type: stell T&C State: 7" Depth: 0.4720 Depth: 1642-1819 Recovered (Y or N): N N Depth: 1642-1819 Recovered (Y or N): N Sit Information 11/4" PDC from 60-1720" Gored: NA NA Drilling Medium: Ali' Tricone from 1720-1855" Footage Plugged: 0-1855' Cored: NA Estimated Inflow Rates: 30 gpm Gesphysical Logging Contractor: NA		and an experimental property of the state of	Elk Cree	ek Mine		en e
Lease Number: COC-61357 (State or Federal) Surface Owner: Hotchkiss Date Commenced: T-Nov-09 Date Completed: 10-Nov-09 Contractor: Himes Drilling Rig Type: Atlas Copco RD20 Toolpusher: Malt Himes Date: Dury Billen Date: 13-Nov-09 Toolpusher: Malt Himes Coordinates: N. 16521.25 Elevation: Staun L. Shaun L. Coordinates: N. 16527.26 Elevation: State: 9 5/8" Coordinates: N. 16527.27 Collar Elevation: State: 7" Dephysical Log Measured From: ground Elevation Tool Vernitic Notice: NA Casing Type: sitel T&C State: 7" Depth: 1642-1819 Depth: 1642-1819 Recovered (Y or N): N N State: 7" Sit Information 12 1/4" PDC from 60-1720" State: 7" State: 30/8" Sit Information 12 1/4" PDC from 60-1720" State: Toome from 1720-1855" State: State: 30 gpm	Ninia ani ang		alaman na paga na si kina ana paga paga na sa kina kanyanya yana kina kina pag		u yn mon a un yn ar	
Date Commenced: 7-Nov-09 Date Completed: 10-Nov-09 Contractor: Himes Drilling Doug Allen Driller: Rig Type: Atlas Copco RD20 Date : Toolpusher: Mait Himes Ban Homedew Coordinates: N. 16521.25 E. 35362.90 Shaun L. cocation: Toolpusher: Mait Himes Shaun L. Shaun L. Shaun L. cocation: Toolpusher Truck Driver: Will Juusoia Helper: Beau O. cocation: Toomd Elevation: SE 1/4, Sec. 31, T. 12 S., R. 30 W. Shaun L. Shaun L. ieophysical Log Measured From: ground Elevation Total Depth: 1856' Fluid Level: NA Casing Type: sileel T&C Size: 7' Size: 7' Depth: 1642-1819' Recovered (Y or N): N Depth: 1642-1819' Recovered (Y or N): N N E Size: 7' Size: Size: 7' Size: Size: <						
Contractor: Himes Drilling Beologist: Rig Type: Atlas Copco RD2D Date: Toolpusher: Matt Himes Driller: Jim Weatherton Sam Homedew Truck Driver: 'Mill Juusola Helper: Beau O. Coordinates: N. 16521.25 E. 35382.90 Shaun L. Coordinates: N. 16521.25 E. 35382.90 Shaun L. Coordinates: 0000 SE 1/4, Sec. 31, T. 12 S., R. 30 W. Shaun L. Scoution: Torum Dennis Ster. 35382.90 Shaun L. Coordinates: Orgound Elevation: Ster. 9 5/8" Casing Type: Stell T&C Ster. 7" Depth: 0-1720 Depth: 0-1720 Recovered (Y or N): N N Hill Information Information Information Ster. 7" Depth: 60-1720' Information 18:1/16" Tricone from 1720-1855' Ster. 7" Depth: Footage Plugged: 0-1855' Cored: NA Regained ? (Y or N): Ster. Drilling Medium: Air: Foam /Water: Mud: Foam Injection: <td></td> <td></td> <td></td> <td></td> <td>Hotchkiss</td> <td></td>					Hotchkiss	
Geologist: Doug Allen Date : 13-Nov-09 Toolpusher: Matt Himes Driller: Jim Weatherion Truck Driver: Will Juusola Helper: Beau O. Sam Homedew E. 35362.90 Shaun L. Shaun L. Shaun L. cocation: Toomship, Range & Section: SE 1/4, Sec. 31, T. 12 S, R. 90 W. Shaun L. Shaun L. Seophysical Log Measured From: ground Elevation: Tool Depth: 1856' Fluid Level: NA Casing Type: solol 1850' Probe Depth: 1856' Fluid Level: NA Casing Type: solol 1862' Recovered (Y or N): N Size: 9 6/8'' Depth: 0.1720' Recovered (Y or N): N N Size: 9 6/8'' Unformation 1642-1819' Recovered (Y or N): N N Size: 9 6/8'' Unformation 10-1720' Recovered (Y or N): N N Size: 7'' Depth: 0.162' Cored: NA Seconson: Seconson: Seconson: Seconson: Seconso: Seconson: Seco	Date Commenced	:7-Nov-09	_ Date Completed:	10-Nov-09		
Driller: Jim Weatherton Sam Homedew Truck Driver: Will Juusola Tommy Dennis Helper: Beau O. Coordinates N. 16521.25 E. 33382.90 scation: Tommy Dennis SE 1/4, Sec. 31, T. 12 S., R. 90 W. pround Elevation: 7759 Collar Elevation: ground Elevation: SE 1/4, Sec. 31, T. 12 S., R. 90 W. round Elevation: ground Elevation: seophysical Log Measured From: ground Elevation: Staing Type: sitel T&C Size: 9.5/8" Casing Type: sitel T&C Size: 7" Depth: 0.1720' Recovered (Y or N): N Depth: 1642-1819' Recovered (Y or N): N Urface Casing 16" Tricone to 60' (14" surface casing) Iain Hole 12.1/4" PDC from 60-1720' idit in Hole 12.1/4" PDC from 60-1720' Size: Mud: Foam Injection: Depths: 075' 75-1855' Secored: NA Lost Circulation Depths: NA Regained ? (Y or N): So gap: Mater Invasion Depth or Intervals: 75 Estimated Inflow R	Contractor	Himes Drilling	Rig Type:	Atlas Copco RD20		
Sam Horredew 16521,25 E. Tormmy Dennis 33362,90 Shaun L. c.ccation: Township, Range & Section: sround Elevation: Total Depth: 7759' Collar Elevation: ground Elevation: Elevation: Total Depth: Fluid Level: NA Casing Type: size17&C Probe Depth: 1856' Fluid Level: NA Casing Type: size17&C Size: 9 5/8" Size: 9 5/8" Casing Type: size17&C Size: 7" 0 5/8" Depth: 0-1720' Recovered (Y or N): N N Unface Casing 16" Tricone to 60' (14" surface casing) 161 12 1/4" PDC from 60-1720' iorter 12 1/4" PDC from 60-1720' Foam (Mater: Mud: Foam Injection: Drilling Medium: Air: Foam (Mater: Mud: Foam Injection: Depths: 0-75' 75-1855' Estimated Inflow Rates: 30 gpm Gas Invasion Depth or Intervals: 75' Estimated Inflow Rates: 30 gpm Geophysical Logging Contractor: Jetwest Geophysical Calipe:: Y Calipe:: Y Hole Cemented (Y or N), Type: Y No. of Bags: 9 y	Geologist	Doug Allen			Toolpusher:	Matt Himes
Coordinates: N. 16521.25 E. 35362.90 cocation: Township, Range & Section: SE 1/4, Sec. 31, T. 12 S., R. 90 W. pround Elevation: 7759' Collar Elevation: ground Elevation: 35362.90 Total Depth: 1855' Probe Depth: 1856' Casing Type: sitel T&C Size: 9 5/8" Casing Type: 0-1720' Recovered (Y or N): N Depth: 0-1720' Recovered (Y or N): N Depth: 0-1720' Recovered (Y or N): N Depth: 1642-1819' Recovered (Y or N): N Depth: 1642-1819' Recovered (Y or N): N Water Information 12 1/4" PDC from 60-1720' Size: 7" Ore: 0-1855' Cored: NA Segained ? (Y or N): Drilling Medium: AIr: Foam //Water: Mud: Foam Injection: Drilling Medium: O-75' 75-1855' Estimated Inflow Rates: 30 gpm Gas Invasion Depth or Interval: NA Regained ? (Y or N):	Driller:		Truck Driver:	the second s	Helper:	
Jocation: Township, Range & Section: SE 1/4, Sec. 31, T. 12 S., R. 90 W. Seophysical Log Measured From: ground Depth: 1855' Probe Depth: 1856' Fluid Depth: 1856' Casing Type: size: Size: 9 5/8" Casing Type: size! T&C Depth: 0-1720' Depth: 0-1720' Recovered (Y or N): N Nurface Casing 16* Tricone to 60' (14* surface casing) tain Hole 12 1/4* PDC from 60-1720' fore: 0 tain Hole 12 1/4* PDC from 60-1720' fore: 0-1855' Cordage Plugged: 0-1855' Cordage Plugged: 0-1855' Cordage Plugged: 0-75' 0-75' 75-1855' Lost Circulation Depths: NA Regained ? (Y or N): S0 gpm Gas Invasion Depth or Intervals: 75' Gas Invasion Depth or Intervals: 75' Gas Invasion Depth or Intervals: Y Neutron: Density: Resistivity: Y <tr< td=""><td>• • •</td><td>promotion and the second se</td><td></td><td></td><td>_</td><td>Shaun L.</td></tr<>	• • •	promotion and the second se			_	Shaun L.
Bround Elevation: 7759' Collar Elevation: Image: ground ground Elevation Total Depth: 1855' Probe Depth: 1856' Fluid Level: NA Casing Type: sidel T&C Size: 9 5/8'' Casing Type: sol/slot steel T&C Size: 9 5/8'' Depth: 0-1720' Recovered (Y or N): N Depth: 1642-1819' Recovered (Y or N): N urface Casing 16'' Tricone to 60' (14" surface casing) Iati Information iti Information 12 1/4" PDC from 60-1720' Image: group float f			. —·		40.0 0.00 W	
Beophysical Log Measured From: ground Elevation Total Depth: 1855' Probe Depth: 1856' Fluid Level: NA Casing Type: steel T&C Size: 9 5/8" Casing Type: 0.1720' Recovered (Y or N): N Depth: 0.1720' Recovered (Y or N): N Depth: 1642-1819' Recovered (Y or N): N Unfrace Casing 16" Tricone to 60' (14" surface casing) Iain Hole 12 1/4" PDC from 60-1720' Istin Hole 12 1/4" PDC from 60-1720' Size: Ma Footage Plugged: 0-1855' Cored: NA Drilling Medium: Air: Foam Mater: Mud: Foam Injection: Depths: 0.75' 75-1855' Estimated Inflow Rates: 30 gpm Gas Invasion Depth or Intervals: 75' Estimated Inflow Rates: 30 gpm Gas Run Gamma: Y NA Regained ? (Y or N): Caliper: Ma Gas Invasion Depth or Intervals: 75' Caliper: Y Caliper: Y Gas Run: Gamma: Y Na				SE 1/4, Sec. 31, 1.	12 S., R. 90 W.	
Total Depth: 1855' Probe Depth: 1856' Fluid Level: NA Casing Type: sol/slot steel T&C Size: 7" 95/8" Casing Type: sol/slot steel T&C Size: 7" 9 Depth: -0.1720' Recovered (Y or N): N N Depth: -0.1720' Recovered (Y or N): N N Marface Casing 16" Tricone to 60' (14" surface casing) 1 1 1/4" PDC from 60-1720' Bortain Hole 12/14" PDC from 60-1720' No Size: 7" N Store: 0 16# Tricone from 1720-1855' Cored: NA NA Na Poilling Medium: Air: Foam Water: Mud: Foam Injection: Size: 30 gpm Core: 0-75' 75-1855' Cored: NA Regained ? (Y or N): Size: 30 gpm Gas Invasion Depth or Intervals: 75' Estimated Inflow Rates: 30 gpm Gas Invasion Depth or Interval: NA Regained ? (Y or N): No Size: Y Clogs Run: Gamma: Y Neutron:				Elevation		
Casing Type: steel T&C Size: 9 5/8" Casing Type: sol/slot steel T&C Size: 7" Depth: 0-1720' Recovered (Y or N): N Depth: 1642-1819' Recovered (Y or N): N iti Information 16" Tricone to 60" (14" surface casing) 11 tain Hole 12 1/4" PDC from 60-1720'					Fluid Level:	NA
Casing Type: sol/slot steel T&C Size: 7" Depth: 0-1720' Recovered (Y or N): N Depth: 1642-1819' Recovered (Y or N): N Sit Information N N N burface Casing 16" Tricone to 60' (14" surface casing) N N tain Hole 12 1/4" PDC from 60-1720' N N tore: 12 1/4" PDC from 60-1720' NA N Footage Plugged: 0-1855' Corect: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-75' 75-1855' Estimated Inflow Rates: 30 gpm Gas Invasion Depth or Interval: NA Regained ? (Y or N): Sol gpm Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer </td <td>•</td> <td></td> <td></td> <td></td> <td></td> <td></td>	•					
Depth: 0-1720' Recovered (Y or N): N Depth: 1642-1819' Recovered (Y or N): N Winfrace Casing 16" Tricone to 60' (14" surface casing) Image: Casing 16" Tricone to 60' (14" surface casing) Itain Hole 12 1/4" PDC from 60-1720' Image: Casing 16" Tricone from 1720-1855' Iorre: Image: Casing 16" Tricone from 1720-1855' Iorre: Image: Casing 16" Tricone from 1720-1855' Footage Plugged: 0-1855' Corred: NA Drilling Medium: Air: Footage Plugged: 0-1855' Corred: NA Depths: 0-75' Tors: 0-75' Mater Invasion Depth or Intervals: 75' Gas Invasion Depth or Interval: NA Beophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Resistivity: Y Caliper: Temperature: Density: Y Resistivity: Y Caliper: Vother (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Interval: to surface Hole Cemented (Y or N), Type: Y <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Depth: 1642-1819'' Recovered (Y or N): N Nurface Casing 16" Tricone to 60' (14" surface casing) Iain Hole Iain Hole 12 1/4" PDC from 60-1720' Iain Hole 12 1/4" PDC from 60-1720' tore: 8 3/4" Tricone from 1720-1855' Footage Plugged: 0-1855' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-75' 75-1855' Estimated Inflow Rates: 30 gpm Gas Invasion Depth or Intervals: 75' Estimated Inflow Rates: 30 gpm Geophysical Logging Contractor: Jetwest Geophysical Density: Y Logs Run: Gamma: Y Neutron: Pensity: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface cal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. agged gravel at 1824', tagged cement plug at 1819'. Denside 30 gpm water while drilling, stopped by T.D. 1				N		
for Tricone to 60' (14" surface casing) tain Hole 12 1/4" PDC from 60-1720' orre: tottom Hole 8 3/4" Tricone from 1720-1855' Footage Plugged: 0-1855' Cored: NA Drilling Medium: Air: Footage Plugged: 0-75' 75' Cost Circulation Depths: NA Regained ? Water Invasion Depth or Intervals: 75' Gas Invasion Depth or Intervals: 75' Gas Run: Gamma: Y Neutron: Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: 10 surface Deal Core Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. agged gravel at 1824', tagged cement plug at 1819'.	Depth:	1642-1819'				
tain Hole 12 1/4" PDC from 60-1720' tore: tore: tore: tore: 141 PDC from 60-1720' tore: tore: 141 PDC from 60-1720' tore: 150 etc.: 151 Prive 151 Prive 152 Plugged: 0-1855' 152 Cored: NA 151 Points: 152 Plugged: 0-75' 153 Prive 154 Plugged: 0-75' 155 Prive 155 Prinside 95/8" casing. 1	Bit Information					
Bit Street Bit Street Street NA Footage Plugged: 0-1855' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-75' 75-1855' Cored: NA Lost Circulation Depths: NA Regained ? (Y or N):	Surface Casing					
Notion Hole 8 3/4" Tricone from 1720-1855' Footage Plugged: 0-1855' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-75' 75-1855' Male Regained ? (Y or N): Lost Circulation Depths: NA Regained ? (Y or N): State invasion Depth or Intervals: Gas Invasion Depth or Intervals: 75' Estimated Inflow Rates: 30 gpm Geophysical Logging Contractor: Jetwest Geophysical Density: Y Geophysical Logging Contractor: Jetwest Geophysical State invasion Period (Y or N): Y Resistivity: Y Caliper: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Comments: 7" casing overlaps 79' Inside 9 5/8" casing. NA agged gravel at 1824', tagged cement plug at 1819'. Na Na Deemade 30 gpm water while drilling, stopped by T.D. 1855'. Na Na <td></td> <td>12 1/4" PDC from</td> <td>60-1720'</td> <td></td> <td></td> <td></td>		12 1/4" PDC from	60-1720'			
Footage Plugged: 0-1855' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-75' 75-1855' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: 75' Estimated Inflow Rates: 30 gpm Gas Invasion Depth or Interval: NA Regained ? (Y or N): 30 gpm Geophysical Logging Contractor: Jetwest Geophysical Density: 30 gpm Logs Run: Gamma: Y Neutron: Density: Y Resistivity: Y Caliper: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Interval: to surface Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface cal Core Sent To: NA Rock Sent To: NA 20 agged gravel at 1824', tagged cement plug at 1819'. 20 20 20 20 obe made 30 gpm water while drilling, stopped by T.D. 1855'. 20 20 20 20 20 <	••••		- 4700 40551			
Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0.75' 75-1855' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: 75' Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Temperature: Density: Y Resistivity: Y Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Interval: to surface oal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. agged gravel at 1824', tagged cement plug at 1819'. Den made 30 gpm water while drilling, stopped by T.D. 1855'. No. 1855'. No. 1855'.	Bottom Hole	8 3/4" Tricone from	11/20-1800			
Depths: 0-75' 75-1855' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: 75' Estimated Inflow Rates: 30 gpm Geophysical Logging Contractor: Jetwest Geophysical Image: Contractor: 20 gpm Geophysical Logging Contractor: Jetwest Geophysical Image: Contractor: 20 gpm Logs Run: Gamma: Y Neutron: 1mage: Contractor: 20 gpm Temperature: Y Density: Y 20 gpm Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer 1mage: State of the	Footage Plugged:		-			
Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: 75' Estimated Inflow Rates: 30 gpm Geophysical Logging Contractor: Jetwest Geophysical Image: Comparison of the comparis	-			Mud:	Foam Injection:	
Water Invasion Depth or Intervals: 75' Estimated Inflow Rates: 30 gpm Gas Invasion Depth or Interval: NA Estimated Inflow Rates: 30 gpm Geophysical Logging Contractor: Jetwest Geophysical Image: Composition of the state of the s	Depths:	0-75'	/5-1855'		<u></u>	
Gas Invasion Depth or Interval: NA Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Temperature: Density: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus interval: interval: coal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. agged gravel at 1824', tagged cement plug at 1819'.	Lost Cir	culation Depths:	NA	Rega	ained? (Y or N):	
Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Y Neutron: Temperature: Density: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: Interval: coal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. Agged gravel at 1824', tagged cement plug at 1819'.				Estima	ted Inflow Rates:	30 gpm
Logs Run: Gamma: Y Neutron: Temperature: Density: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus interval: to surface call Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. agged gravel at 1824', tagged cement plug at 1819'. ble made 30 gpm water while drilling, stopped by T.D. 1855'. Density: Y	Gas Invasion E	Depth or Interval:	NA			
Temperature: Density: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface call Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. Augged gravel at 1824', tagged cement plug at 1819'. Density: Y Dele made 30 gpm water while drilling, stopped by T.D. 1855'. Density: Y Density: Y	Geophysical Log	ging Contractor:	Jetwest Geophysical			
Temperature: Density: Y Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface coal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. NA NA agged gravel at 1824', tagged cement plug at 1819'. No. 1855'. No. 1855'.		Gammai	V	Neutron		
Resistivity: Y Caliper: Y Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface oal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. NA agged gravel at 1824', tagged cement plug at 1819'. Defe made 30 gpm water while drilling, stopped by T.D. 1855'.	Logs Ruit.				Ý	
Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface oal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. agged gravel at 1824', tagged cement plug at 1819'. Die made 30 gpm water while drilling, stopped by T.D. 1855'.		Resistivity:	Ý		Ý	·
interval: to surface coal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. agged gravel at 1824', tagged cement plug at 1819'. ble made 30 gpm water while drilling, stopped by T.D. 1855'.	Otł				·····	
interval: to surface coal Core Sent To: NA Rock Sent To: NA Comments: 7" casing overlaps 79' inside 9 5/8" casing. agged gravel at 1824', tagged cement plug at 1819'. ble made 30 gpm water while drilling, stopped by T.D. 1855'.	Hole Comented	(VorN) Type:	V	No of Bags: 9 y	rds for 9 5/8" annulus	•
Comments: 7" casing overlaps 79' inside 9 5/8" casing. agged gravel at 1824', tagged cement plug at 1819'. Die made 30 gpm water while drilling, stopped by T.D. 1855'.	The ochenica	(<u>-</u> 0/10 /, 13pc				·
Comments: 7" casing overlaps 79' inside 9 5/8" casing. agged gravel at 1824', tagged cement plug at 1819'. Die made 30 gpm water while drilling, stopped by T.D. 1855'.						
agged gravel at 1824', tagged cement plug at 1819'. Die made 30 gpm water while drilling, stopped by T.D. 1855'.	Coal Core Sent To:	NA		Rock Sent To:	NA	
agged gravel at 1824', tagged cement plug at 1819'. Die made 30 gpm water while drilling, stopped by T.D. 1855'.	Comments:	7" casing overlaps	79' inside 9 5/8" casino	1.		
ble made 30 gpm water while drilling, stopped by T.D. 1855'.					······································	·
ble made 30 gpm water while drilling, stopped by T.D. 1855'. 5/8" casing abandoned to surface with 18 vds portland type II cement September, 2011.			· · · · · · · · · · · · · · · · · · ·			
5/8" casing abandoned to surface with 18 vds portland type II cement September, 2011	lole made 30 com w	ater while drilling	stopped by T.D. 1855	······		
	5/8" casing abando	ned to surface with	18 vds portland type I	cement September	. 2011.	
mes Drilling Colorado water well license #1285					,	

Oxbow Mining LLC

Elk Creek Mine

Hole Number	: GVB 16-04	Project ID .	Cille Oracle Mina Ex		
Lease Number	and the second se		Elk Creek Mine Ex		
Date Commenced			Surface Owner:	Hotchkiss	
Date Commenced	. <u></u>	Date Completed:	2-001-09		
Contractor	: Himes Drilling	Dia Tuno	Atlas Conse DD20		
Geologist		Date :	Atlas Copco RD20 13-Nov-09		Matt Himes
	Jim Weatherton	Truck Driver:		Toolpusher:	Beau O.
Diffier	Sam Homedew	Truck Driver:	Will Juusola	Helper:	Eldon S.
Coordinates: N	and the second se	E.	Tommy Dennis 35866.21		EIUUT 5.
Location: Townsh			SE 1/4, Sec. 31, T.	12 C D 00 W	
Ground Elevation:		Collar Elevation:	SE 1/4, SEC. 31, 1,	12 S., N. 30 W.	
			Elevation		
Geophysical Log N		<u> </u>			81.0
Total Depth:		Probe Depth:	2129'	Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	1"	
Depth:	has a second sec	Recovered (Y or N):			
Depth:	1906-2086'	Recovered (Y or N):	N		
Bit Information	101 T: / 0.0				
Surface Casing		0' (14" surface casing)			
Main Hole	12 1/4" PDC from	20-1960			
Core:		(000 0100)			
Bottom Hole	8 3/4" Tricone from	n 1960-2130'			
	0.0400	O a ma al c	N I A		
Footage Plugged:		Cored: Foam /Water:	NA Mud:	Foam Injection:	
Drilling Modillim.		Enam /w/ater	WING.	Foam injection:	
Drilling Medium:	International Action of the Ac		maan		
Depths:	International Action of the Ac	20-2130'			
Depths:	0-20'	20-2130'	·····		
Depths: Lost Cir	0-20' culation Depths:	20-2130' NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D	0-20' culation Depths: pth or Intervals:	20-2130' NA NA	Reg		
Depths: Lost Cir Water Invasion D	0-20' culation Depths:	20-2130' NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-20' culation Depths: epth or Intervals: Depth or Interval:	20-2130' NA NA NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-20' culation Depths: epth or Intervals: Depth or Interval:	20-2130' NA NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-20' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	20-2130' NA NA NA Jetwest Geophysical	Reg Estima	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	20-2130' NA NA NA	Reg Estima Neutron:	ained?(Y or N): ated Inflow Rates:	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	20-2130' NA NA NA Jetwest Geophysical Y	Reg Estima Neutron: Density:	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	20-2130' NA NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	20-2130' NA NA NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Otl	0-20' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	20-2130' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Otl	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	20-2130' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4	ained ? (Y or N): ated Inflow Rates: Y Yds for 9 5/8" casing	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Otl	0-20' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	20-2130' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer	ained ? (Y or N): ated Inflow Rates: Y Yds for 9 5/8" casing	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	20-2130' NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> Y	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: <u>4</u> Interval: to	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" casing surface	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	20-2130' NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> Y	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" casing surface	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	0-20' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA	20-2130' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> Y	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" casing surface NA	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	20-2130' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> Y 54' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" casing surface	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	20-2130' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> Y 54' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" casing surface NA	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	20-2130' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> Y 54' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" casing surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 200	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 94', tagged cement	20-2130' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> Y 54' inside 9 5/8" casing plug at 2086'.	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" casing surface NA	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 200	0-20' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 94', tagged cement	20-2130' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> Y 54' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" casing surface NA	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 200	0-20' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 44', tagged cement ned to surface with	20-2130' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> Y 54' inside 9 5/8" casing plug at 2086'. 36 yds portland type I	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" casing surface NA	

a an		Oxbow Mir	ning LLC	<u>gina anikai angu anang ananakini (1485) ang</u>	
		Elk Cree	-		
Hole Number:	GVB 16-04B	Project ID :	Elk Creek Mine Gol	Vent Boreholes	
Lease Number:			Surface Owner:		
Date Commenced:		Date Completed:			
	F	1			
Contractor:	Himes Drilling	Rig Type:	Atlas Copco RD20		
Geologist:		Date :		Toolpusher:	Matt Himes
Driller:	Jim Weatherton	Truck Driver:	Kirk Homedew	Helper:	Richard M.
O and line to a Al	Sam Homedew	-	Will Juusola	-	Trey H./Chad H
Coordinates: N. Location: Townshi		E.	35897.50 SE 1/4, Sec. 31, T.		
Ground Elevation:		Collar Elevation:	SE 1/4, Sec. 31, 1.	12 0., IN, 90 W.	
Geophysical Log M	in the second se	ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
Casing Type:			Size:		
•	0-1796'	Recovered (Y or N):			
Depth:		Recovered (Y or N):	····		
Bit Information	101 T 1 (10)	(4.4)			
Surface Casing	16" Tricone to 42' 12 1/4" PDC from	(14" surface casing)			
Main Hole Core:	12 1/4 PDC Irom	42-1790			
	8 3/4" Tricone fron	1796-2072			
bottom noie		11700 2012		· · · · · · · · · · · · · · · · · · ·	······································
Footage Plugged:	0-2072'	Cored:			
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-290'	290-2072'			
Lost Cir	culation Depths:	NA		ined? (Y or N):_	
Water Invasion De	epth or Intervals:	110'	Estimat	ted Inflow Rates:	2 gpm
Gas Invasion D	epth or Interval:	approx 1700-2072'			
Geophysical Log	ging Contractor:	Directional hole- no log	gging.		
Logs Run:	Gamma:		Neutron:		
Logo Ruin.			Density:		
	Resistivity:		Caliper:		
Oth	ner (SP, Foc. Elec.	, Drift, Dep., Sonic):			
Hole Cemented	(<u>Y</u> or N), Type:_	Υ		yds for 9 5/8" annul	US
			Interval: to	sunace	
Coal Core Sent To:	NA		Rock Sent To:	NA	
our core cont ro.					
Comments:	Drilled into gob bel	nind longwall. No 7" c	asing- 8 3/4" hole left	open.	
Drilled directional from	m 290-1796 [°] . Botto	m of 9 5/8" casing loca	ated 232.4' at azimut	h 275.56 degrees.	
		07 1 1		,	
95/8" casing abando	ned to surface with	27 yds portland type	ii cement July, 2011.		
	· · · · · · · · · · · · · · · · · · ·				
limes Drilling Colora	do water woll licen	a #1285			
mes Drinny Colora	iuo water wen noen	50 11 200			

		Oxbow Mir	ning LLC		
		Elk Cree	ek Mine		
n mar - Susse					
Hole Number:	GVB 16-05B	Project ID.:	Elk Creek Mine Go	b Vent Boreholes	
Lease Number:	COC-61357		Surface Owner:		
Date Commenced:	5-Dec-10	Date Completed:			
Contractor:	Himes Drilling	Rig Type:	Atlas Copco RD20		
Geologist:		Date :	The second se	Toolpusher:	Matt Himes
Driller:	Jim Weatherton	Truck Driver:	Kirk Homedew	Helper:	Richard M.
	Sam Homedew		Will Juusola		Trey H./Chad H
Coordinates: N.		Ε.			
Location: Townshi	•••		SE 1/4, Sec. 31, T.	<u>12 S., R. 90 W.</u>	
Ground Elevation:	8094'	Collar Elevation:			
Geophysical Log M	-		Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
Casing Type:		B 107 M	Size:	······································	
		Recovered (Y or N):			
Depth:		Recovered (Y or N):			
Bit Information		(1 All autors analys)			
	12 1/4" PDC from 4	(14" surface casing)			
Core:		+2-1413			
	8 3/4" Tricone from	1413-2214'			
Footage Plugged:	2214'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-130'	130-2214'			
Lost Circ	culation Depths:	2000'	Rega	ined? (Y or N):	Ν
Water Invasion De	pth or Intervals:	130'	Estima	ted Inflow Rates:	2 gpm
Gas Invasion D	epth or Interval:	NA		_	
Geophysical Log	ging Contractor: [Directional hole- no log	iging.		
Logs Run:	Gamma:		Neutron:		
Ū	Temperature:	·····	Density:		
	Resistivity:		Caliper:		
Oth	er (SP, Foc. Elec.,	Drift, Dep., Sonic):			
Hole Cemented ((<u>Y</u> or N), Type:	Y	No. of Bags: <u>6</u> y	rds for 9 5/8" annulu	s
			Interval: to	surface	
Coal Core Sent To:_	NA		Rock Sent To:	NA	
Comments:	Drilled into gob beh	ind longwall. No 7" ca	using- 8 3/4" hole left	open.	
Drilled directional from	n 290-1413'. Botton	n of 9 5/8" casing loca	ted 205.3' at azimutl	n 306.1 degrees.	
15/8" casing abandor	ned to surface with	18 yds portland type I	I cement September	, 2011.	
		·		· · ·	
line on Duilline Colone	to water well licens	e #1285			

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		Outbour Min			
		Oxbow Min Elk Cree	-		
a di kalan di separata na seria da seri			ev mthé	<u>adan ya safa da ya na kana kang kasa da da kang ka</u>	
					a fina a commence and the definition of the second
Hole Number Lease Number		Project ID.: (State or Federal)		ob Vent Boreholes Hotchkiss	
Date Commenced		Date Completed:		HOLCHKISS	
	20-0011-11		27-5411-11		
Contractor	: Himes Drilling	Rig Type:	Atlas Copco RD20)	
Geologist	Doug Allen	Date :	3-Feb-11	Toolpusher:	Matt Himes
Driller	Jim Weatherton		Kirk Homedew	Helper:	Richard M.
• • • • •	Sam Homedew		Will Juusola		Trey H./Chad H.
Coordinates: N				40.0.0.00.00	
Location: Townsh Ground Elevation:	• •	Collar Elevation:	SE 1/4, Sec. 31, T	. 12 S., R. 90 W.	
Geophysical Log N		_ Collar Elevation:	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:		-	Size:	9 5/8"	
Casing Type:		-	Size:		
Depth:	0-1976'	Recovered (Y or N):			
Depth:		Recovered (Y or N):			
Bit Information					
Surface Casing		(14" surface casing)			
Main Hole	12 1/4" PDC from	42-1976	······		
Core: Bottom Hole	8 3/4" Tricone from	m 1076-2260'			<u> </u>
BOLLOW HOLE		11 1970-2200			
Footage Plugged:		Cored:	NA		
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
Depths:	0-130'	130-2260'		······································	
Lost Cit	culation Depths:	NA	Rec	gained? (Y or N):	
Water Invasion D			-	ated Inflow Rates:	2 gpm
	Depth or Interval:	NA			- 30
	· · · · · · · · · · · · · · · · · · ·				
Geophysical Log	ging Contractor:	Directional hole- no log	iging.		
Logs Run:	Gamma		Neutron		
Logs Run.	Temperature		Density:		
	Resistivity:	······	Caliper:		
Otl	her (SP, Foc. Elec	., Drift, Dep., Sonic):			
Hole Cemented	(<u>Y</u> or N), Type:_	Y		6 yds for 9 5/8" annulu	JS
			Interval: to) SUITACE	
Coal Core Sent To:	NΔ		Rock Sent To	NA	
	11/7				
Comments:	No 7" casing- 8 3/	4" hole left open.			
Drilled directional fro	m 290-1976'. Botto	m of 9 5/8" casing loca	ted 369.02' at azim	uth 89.22 degrees.	·····
		n OO uda nartland tuna l	I coment Sentemb	er. 2011.	
95/8" casing abando	oned to surface with	1 20 yus portianu type i			
95/8" casing abando	oned to surface with	1 20 yas poniana type i	r cement Septembe		
9 5/8" casing abando					

		Oxbow Mir	ing T.T.C		
		Elk Cree	-		
	inninistration of the subscription of the subs	1111 CT 66	W WING		ing and an
Hole Number:			Elk Creek Mine Go		
Lease Number: Date Commenced:		(State or Federal)		USFS	
Date Commenced.	20-Jul-10	Date Completed:	1-Aug-10		
Contractor:	Himes Drilling	Ria Type:	Atlas Copco RD20)	
	Doug Allen		5-Dec-10	Toolpusher:	Matt Himes
Driller:	Jim Weatherton	Truck Driver:	Kirk Homedew	Helper:	Sean Vivian
	Sam Homedew		Will Juusola	_	Cameron S.
Coordinates: N.		. Ε.			
Location: Townsh			SW 1/4, Sec. 32, T	. 12 S., R. 90 W.	
Ground Elevation: Geophysical Log N		Collar Elevation: ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	N _	· · · · · · · · · · · · · · · · · · ·	
	2057-2236'	Recovered (Y or N):			
Bit Information					
Surface Casing		(14" surface casing)			
Main Hole	12 1/4" PDC from	20-2120			
Core: Bottom Hole	8 3/4" Tricone from	n 2120-2293'			
Doctorn nore					
Footage Plugged:		Cored:			
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-230'	230-2293'			
Lost Cir	culation Depths:	NA	Reg	gained? (Y or N):	
Water Invasion De	epth or Intervals:	NA	Estim	ated Inflow Rates:	
Gas Invasion E	epth or Interval:	NA			
0		Inturat Coophysical			
Geophysical Log	ging Contractor:	Jetwest Geophysical			
Logs Run:	Gamma:	Υ	Neutron:		
-	Temperature:	Y	Density:	Ŷ	
	Resistivity:	Ŷ	Caliper:	<u>Y</u>	
Oth	ner (SP, Foc. Elec	., Drift, Dep., Sonic):	cement dump baile	[
Hole Cemented	(YorN), Type:	Υ	No. of Bags: 1	3 yds for 9 5/8" annul	us
			Interval: to		
	NIA		Rock Sent To:	ΝΔ	
Coal Core Sent 10:	<u>INA</u>	·····	NUCK DEIIL IU.		
Comments:	7" casing overlaps	63' inside 9 5/8" casin	g		
Tagged gravel at 224	1', tagged cement	plug at 2236'.			
0 E/Q" againg chande	and to surface with	n 30 yds portland type	Il cement Sentemb	er 2011	<u></u>
a pro casing abando	neu lu sunace will	Too yua portianu type I			
Himes Drilling Colora	do water well licen	se #1285			

Oxbow Mining LLC

Elk Creek Mine

Hole Number	: GVB 16-07	Project ID ·	Elk Creek Mine G	oh Vent Roreholes	
Lease Number		(State or Federal)			
Date Commenced		Date Completed:		010	
Date Commenced	21-Sep-10	. Date completed.	20-Sep-10		
Contractor	- Limon Drilling			`	
	: Himes Drilling		Atlas Copco RD20		A.F. U. L.B
Geologist		Date :		Toolpusher:	Matt Himes
Driller	Jim Weatherton	Truck Driver:		Helper:	Jake C.
	Sam Homedew	·	Will Juusola		Trey H.
Coordinates: N		E.	38325.89		
Location: Townsh		on:	SW 1/4, Sec. 32, 7	. 12 S., R. <u>90 W</u> .	
Ground Elevation:	8207'	Collar Elevation:	·····		
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	2372'	Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):		<u>،</u> 	
Depth:		Recovered (Y or N):			
Bit Information	2103-2000	Recovered to the	IN		
	101 Tricopo to 10	(1.4 ll ourfoco opeing)			
Surface Casing		(14" surface casing)			
Main Hole	12 1/4" PDC from	42-2240			
Core:			······		
Bottom Hole	8 3/4" Tricone from	n 2240-2370'			
Footage Plugged:		Cored:	NA		
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
				· · · · · · · · · · · · · · · · · · ·	
Depths:		150-2370'			
-		150-2370'			
Depths:	0-150'	150-2370' NA	Reg	jained ? (Y or N):	
Depths: Lost Cir	0-150' rculation Depths:	NA		jained ? (Y or N):	5 gpm
Depths: Lost Cir Water Invasion D	0-150' rculation Depths: epth or Intervals:	NA 150'		· · · <u> </u>	5 gpm
Depths: Lost Cir Water Invasion D	0-150' rculation Depths:	NA		· · · <u> </u>	5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I	0-150' rculation Depths: epth or Intervals: Depth or Interval:	NA 150' NA		· · · <u> </u>	5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I	0-150' rculation Depths: epth or Intervals: Depth or Interval:	NA 150'		· · · <u> </u>	5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-150' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor:	NA 150' NA	Estim	· · · <u> </u>	5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I	0-150' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	NA 150' NA	Estim	ated Inflow Rates:	5 gpm
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-150' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA 150' NA Jetwest Geophysical Y	Estim Neutron: Density:	ated Inflow Rates:	5 gpm
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-150' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA 150' NA Jetwest Geophysical Y	Estim Neutron: Density:	ated Inflow Rates:	5 gpm
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-150' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA 150' NA	Estim Neutron: Density:	ated Inflow Rates:	5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-150' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 150' NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump baile	ated Inflow Rates:	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-150' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 150' NA Jetwest Geophysical Y	Estim Neutron: Density: Caliper: cement dump baile No. of Bags: <u>4</u>	ated Inflow Rates:	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-150' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 150' NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump baile	ated Inflow Rates:	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-150' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 150' NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump baile No. of Bags: <u>4</u> Interval: to	Ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott	0-150' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA 150' NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump baile No. of Bags: <u>4</u> Interval: to	ated Inflow Rates:	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott	0-150' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA 150' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump baile No. of Bags: <u>4</u> Interval: to	Ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-150' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: NA	NA 150' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u> Y	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	0-150' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	NA 150' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>v</u> Y 81' inside 9 5/8" casing	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-150' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	NA 150' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>v</u> Y 81' inside 9 5/8" casing	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	0-150' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	NA 150' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>v</u> Y 81' inside 9 5/8" casing	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 234	0-150' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 44', tagged cement	NA 150' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>o</u> Y 81' inside 9 5/8" casing plug at 2338'.	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To: g.	Ated Inflow Rates: Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 234	0-150' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 44', tagged cement	NA 150' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>v</u> Y 81' inside 9 5/8" casing	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To: g.	Ated Inflow Rates: Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 234 9 5/8" casing abando	0-150' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 44', tagged cement	NA 150' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>v</u> Y 81' inside 9 5/8" casing plug at 2338'.	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To: g.	Ated Inflow Rates: Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 234	0-150' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 44', tagged cement	NA 150' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>v</u> Y 81' inside 9 5/8" casing plug at 2338'.	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To: g.	Ated Inflow Rates: Y yds for 9 5/8" annulus surface NA	

Elk Creek Mine Hole Number: GVB 16-07B Project ID:: Elk Creek Mine Gob Vent Boreholes Lease Number: COC-61357 Date Commenced: II-Feb-11 Contractor: Himes Drilling Project ID:: Elk Creek Mine Gob Vent Boreholes Geologist: Doug Allen Date Completed: II-Feb-11 Contractor: Himes Drilling Rig Type: Allas Copco R020 Goelogist: Doug Allen Truck Driver: Kirk Homedew Coordinates: N 16127.80 E. 38379.80 Cordinates: N 16127.80 E. 38379.80 Cordinates: N Bit formation Truck Driver: Kirk Homedew Coordinates: N Bit Information Surface Casing 16" Tricone for 420 (14" surface casing) Nath Information Struct Drive 12 (Y or N): Nath Information <th></th> <th></th> <th>Oxbow Mi</th> <th>ning LLC</th> <th>and a subscription of the subscription of the</th> <th>******</th>			Oxbow Mi	ning LLC	and a subscription of the	******
Lease Number: COC-61357 (State or Federal) Surface Owner: USFS Date Commenced: 1-Feb-11 Date Completed: 11-Feb-11 Contractor:: Hines Drilling Rig Type: Atlas Copco R020 Date:: 12-Feb-11 Toolpusher: Matt Himes Driller: Jin Weatherton Truck Driver: Kirk Homedew Richard M. Trey H./Chad F Coordinates: N. 16127.60 E. 38379.60 Trey H./Chad F Coordinates: N. 16127.60 E. 38379.60 Trey H./Chad F Coordinates: N. 16127.60 E. 38379.60 Trey H./Chad F Geophysical Log Measured From: ground Elevation: Size: 9.56" Size: 9.56" Casing Type: stel T&C Size: 9.56" Size: 9.56" Size: Coercinstream Size: 9.56" Size: Coercinstream Size: 9.56" Size: 5.5%" Size: Size: <th></th> <th></th> <th>Elk Cree</th> <th>ek Mine</th> <th></th> <th></th>			Elk Cree	ek Mine		
Lease Number: COC-61357 (State or Federal) Surface Owner: USFS Date Commenced: 1-Feb-11 Date Completed: 11-Feb-11 Contractor: Hines Drilling Doug Allen Driller: Rig Type: Atlas Copco R020 Date : Toolpusher: Matt Himes Mithad M. Coordinates: N. 16127.60 E. 38375.60 Coordinates: N. 16127.60 E. 38375.60 Location: 70wnship, Range & Section: Will Juusola Trey H./Chad H Geophysical Log Measured From: ground Elevation: Size: 9.56" Casing Type: steel T&C Size: 9.56" NA Casing Type: steel T&C Size: 9.56" Depth: 0-1976' Recovered (Y or N): N Bufface Casing 16" Tricone to 42 (14" surface casing) NA Main Hole 12 1/4" PDC from 42-1976 Cored: NA Core: 83/4" Tricone from 1976-2390' Foam Injection: Depth: Depths: 0-2300' Cored: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Regai					an de general de la desta de la desta Ancienta El constituir en especta de la desta de la	
Lease Number: COC-61357 (State or Federat) Surface Owner: USFS Date Commenced: 1-Feb-11 Date Completed: 11-Feb-11 Contractor: Himes Drilling Rig Type: Atlas Copco R020 Geologist: Doug Alten Track Driver: Kirk Homedew Sam Homedew Will Jousola Helper: Richard M. Coordinates: N. 16127.60 E. 38379.60 Location: Township, Range & Section: ground Elevation: SW 1/4, Sec. 32, T. 12 S, R. 90 W. Ground Elevation: 8234' Collar Elevation: Size: 9 5/8' Casing Type: size: 9 5/8' Size: 9 5/8' Depth: 0-1976' Recovered (Y or N): N N NA Bit Information Surface Casing 16'' Tricone to 42' (14'' surface casing) Main Hole 12 1/4'' PDC from 42-1976' Core: 0-2390' Cored: NA NA NA Depths: 0-2390' Cored: NA State: NA Bit Information 90'' ricone to 42' (14'' surface casing) State: NA Na	Hole Number	: GVB 16-07B	Project ID.	: Elk Creek Mine Go	b Vent Boreholes	
Date Commenced: 1-Feb-11 Date Completed: 11-Feb-11 Contractor: Himes Drilling Doug Allen Rig Type: Atlas Copco RD20 Geologist: Doug Allen Date : 12-Feb-11 Toolpusher: Matt Himes Coordinates: N. 16127.60 E. 38379.60 Trey H./Chad H Location: Township, Range & Section: SW 1/4, Sec. 32, T. 12 S, R. 90 W. Trey H./Chad H Ground Elevation: 8234' Collar Elevation: SW 1/4, Sec. 32, T. 12 S, R. 90 W. Stres: 9.66" Ground Elevation: 2390' Probe Depth: NA Fluid Level: NA Casing Type: Steel T&C Size: 9.66" Size: 9.66" Depth: 0-1976' Recovered (Y or N): N N Sterie: NA Surface Casing 16" Tricone to 42 (14" surface casing) Malan Hole 12 1/4" PDC from 42-1976' Sterie: NA Sottmactor: Bit Information 16" Tricone from 1976-2390' Cored: NA Estimated Inflow Rates: NA Drilling Medium: Air: Foam Myater: Mad: Foam Injection: Depth	Lease Number					
Geologist: Doug Allen Driller: Date : 12-Feb-11 12-Feb-11 Toolpusher: Matt Himes Richard M. Sam Homedew Coordinates: N. 16127.60 E. 38379.60 Truck Driver: Kirk Homedew Will Juusola Truck Driver: Wild, Sec. 32, T. 12 S, R. 90 W. Trey H./Chad H Coordinates: N. 16127.60 E. 38379.60 Truck Driver: Truck Driver: Truck Driver: Wild, Sec. 32, T. 12 S, R. 90 W. Trey H./Chad H Ground Elevation: 8234' Collar Elevation: Size: 9 5/8" Size: 9 5/8" Casing Type: steel T&C Size: 9 5/8" Size: 9 5/8" Depth: 0.1976' Recovered (Y or N): N Size: 9 5/8" Depth: 0.1976' Recovered (Y or N): N Size: 9 5/8" Surface Casing 10" Tricone to 42' (14" surface casing) Main Hole 12 1/4" PDC from 42-1976' Core: Socre: 8 3/4" Tricone from 1976-2390' Coret: NA Foam Injection: Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0.290' </td <td>Date Commenced</td> <td>: 1-Feb-11</td> <td></td> <td></td> <td></td> <td></td>	Date Commenced	: 1-Feb-11				
Geologist: Doug Allen Driller: Date : 12-Feb-11 12-Feb-11 Toolpusher: Matt Himes Richard M. Sam Homedew Coordinates: N. 16127.60 E. 38379.60 Truck Driver: Kirk Homedew Will Juusola Truck Driver: Wild, Sec. 32, T. 12 S, R. 90 W. Trey H./Chad H Coordinates: N. 16127.60 E. 38379.60 Truck Driver: Truck Driver: Truck Driver: Wild, Sec. 32, T. 12 S, R. 90 W. Trey H./Chad H Ground Elevation: 8234' Collar Elevation: Size: 9 5/8" Size: 9 5/8" Casing Type: steel T&C Size: 9 5/8" Size: 9 5/8" Depth: 0.1976' Recovered (Y or N): N Size: 9 5/8" Depth: 0.1976' Recovered (Y or N): N Size: 9 5/8" Surface Casing 10" Tricone to 42' (14" surface casing) Main Hole 12 1/4" PDC from 42-1976' Core: Socre: 8 3/4" Tricone from 1976-2390' Coret: NA Foam Injection: Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0.290' </td <td>Contractor</td> <td>: Himes Drilling</td> <td>Ria Type:</td> <td>Atlas Conco RD20</td> <td></td> <td></td>	Contractor	: Himes Drilling	Ria Type:	Atlas Conco RD20		
Driller: Jim Weatherton Sam Homedew Truck Driver: Kirk Homedew Helper: Richard M. Trey H./Chad H Coordinates: N. f127.60 E. 38379.60 Location: rownship, Range & Section: SW 1/4, Sec. 32, T. 12 S., R. 90 W. GW Ground Elevation: 8234' Collar Elevation: Elevation Geophysical Log Measured From: ground Elevation: NA Gasing Type: 3230' Probe Depth: NA Casing Type: steel T&C Size: 9.5/8'' Depth: 0-1976' Recovered (Y or N): N Depth: 0-1976' Recovered (Y or N): N Surface Casing 16'' Tricone to 42' (14'' surface casing) Main Hole 12 1/4'' PDC from 42-1976' Core: Bottom Hole 8.3/4'' Tricone from 1976-2390' Cored: NA Footage Plugged: 0-2300' Cored: NA Estimated Inflow Rates: NA Drilling Medium: Air: Foam /Water: Mud: Estimated Inflow Rates: NA Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma: <td>Geologist</td> <td></td> <td></td> <td></td> <td>Toolpusher:</td> <td>Matt Himes</td>	Geologist				Toolpusher:	Matt Himes
Coordinates: N. 16127.60 E. 38379.60 100 Location: Township, Range & Section: SW 1/4, Sec. 32, T. 12 S., R. 90 W. SW 1/4, Sec. 32, T. 12 S., R. 90 W. Ground Elevation: 8234' Collar Elevation: SW 1/4, Sec. 32, T. 12 S., R. 90 W. Geophysical Log Measured From: ground Elevation Size: 95/8" Casing Type: steel T&C Size: 95/8" NA Casing Type: Depth: 0-1976' Recovered (Y or N): N Depth: 0-1976' Recovered (Y or N): N Bit Information Surface Casing 16' Tricone to 42' (14'' surface casing) Nain Hole 12 1/4'' PDC from 42-1976' Core: 12 1/4'' PDC from 42-1976' Main Hole 12 1/4'' PDC from 42-1976' Sortace Casing 16'' Tricone from 1976-2390' Footage Plugged: 0-2390' Footage Plugged: 0-2390' Cored: NA Drilling Medlum: Air: Foam Mater: Mud: Foam Injection: Depths: 0-2390' 290-2390' Estimated Inflow Rates: NA Geophysical Logging Contractor: NA Estimated Inflow Rates:	Driller		Truck Driver:			
Location: Township, Range & Section: SW 1/4, Sec. 32, T. 12 S., R. 90 W. Ground Elevation: 8234' Geophysical Log Measured From: ground Total Depth: 2390' Casing Type: steel T&C Depth: 0-1976' Recovered (Y or N): N Depth: 0-1976' Recovered (Y or N): N Bit Information 81/4' PDC from 42-1976' Surface Casing 16'' Tricone to 42' (14'' surface casing) Main Hole 12 1/4'' PDC from 42-1976' Core: Bottom Hole Bottom Hole 83/4'' Tricone from 1976-2390' Footage Plugged: 0-2390' Coreat: NA Bottom Hole 83/4'' Tricone from 1976-2390' Lost Circulation Depths: NA Regained ? (Y or N): Stain thervals: Drilling Medium: Air: Foam Injection: NA Gas Invasion Depth or Intervals: NA Gas Invasion Depth or Intervals: NA Gas Run: Gamma: Temperature: Density: Caliper: Caliper:				Will Juusola	· ·	Trey H./Chad H.
Ground Elevation: 8234' Collar Elevation: ground Elevation Geophysical Log Measured From: ground Elevation Fluid Level: NA Casing Type: steel T&C Size: 9.5/8" Casing Type: steel T&C Size: 9.5/8" Depth: 0-1976' Recovered (Y or N): N Bit Information 16" Tricone to 42' (14" surface casing) Main Hole 12' 1/4" PDC from 42-1976' Core: Bottom Hole 8 3/4" Tricone from 1976-2390' Foam Injection: Ocrect: Bottom Hole 8 3/4" Tricone from 1976-2390' Foam Injection: Ocrect: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Ocrect: Dottor Intervals: NA Regained ? (Y or N): States: NA Gas Invasion Depth or Intervals: NA Estimated Inflow Rates: NA Gas Invasion Depth or Intervals: NA Estimated Inflow Rates: NA Geophysical Logging Contractor: directional hole- no logging Caliper: Caliper: Caliper: Caliper: Caliper: Cole Caliper: Caliper: <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Geophysical Log Measured From: ground Elevation Total Depth: 2390' Probe Depth: NA Fluid Level: NA Casing Type: steel T&C Size: 9 5/8' Size: 9 5/8' Depth: 0-1976' Recovered (Y or N): N N Depth: NA Size: 9 5/8' Surface Casing 16" Tricone to 42' (14" surface casing) Main Hole 12 1/4" PDC from 42-1976' Size: NA Gore: Bottom Hole 8 3/4" Tricone from 1976-2390' Cored: NA NA Footage Plugged: 0-2300' Cored: NA Foam Injection: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: NA Base Invasion Depth or Intervals: NA Regained ? (Y or N): NA Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma: Neutron: Caliper:		• •		SW 1/4, Sec. 32, T.	<u>. 12 S., R. 90 W.</u>	
Total Depth: 2390' Probe Depth: NA Fluid Level: NA Casing Type: Size: 9 5/8" Size: 9 5/8" Depth: 0-1976' Recovered (Y or N): N Depth: Depth: NA Bit Information Surface Casing 16" Tricone to 42 (14" surface casing) Main Hole Core: Surface Casing 63/4" Tricone from 1976-2390' Footage Plugged: 0-2390' Cored: NA Foam Injection: Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-290' 290-2390' Estimated Inflow Rates: NA Water Invasion Depth or Intervals: NA Regained ? (Y or N): NA Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma: Density: Caliper: Caliper: Caliper: Caliper: Caliper: Cother (SP, Foc. Elec., Drift, Dep., Sonic): No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Code Core Sent To: NA Rock Sent To: NA Comments: No 7" casing- 8 3/4" hole left open. Comments: No 7" casing - 8 3/4" hole left open. <td< td=""><td></td><td></td><td>•</td><td>Classed in the</td><td></td><td></td></td<>			•	C lassed in the		
Casing Type: steel T&C Size: 9 5/8" Casing Type: Size: 9 5/8" Depth: 0-1976' Recovered (Y or N): N Bit Information Recovered (Y or N): N Bit Information 10" Tricone to 42" (14" surface casing) 10" Main Hole 12 1/4" PDC from 42-1976' Core: Core: 8 3/4" Tricone from 1976-2390' Footage Plugged: 0-2390' Footage Plugged: 0-2390' Cored: NA Drilling Medium: Air: Foam Mvater: Mud: Depths: 0-290' 290-2390' Estimated Inflow Rates: NA Gas Invasion Depth or Intervals: NA Regained ? (Y or N): NA Gas Invasion Depth or Interval: NA Estimated Inflow Rates: NA Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): Caliper: Caliper: </td <td></td> <td></td> <td>V</td> <td></td> <td>Eluid Loval</td> <td>NA</td>			V		Eluid Loval	NA
Casing Type: Size: Depth: 0-1976' Recovered (Y or N): N Bit Information Recovered (Y or N): Surface Casing 16'' Tricone to 42' (14'' surface casing) Main Hole 12 1/4'' PDC from 42-1976' Core: 200' Bottom Hole 8 3/4'' Tricone from 1976-2390' Footage Plugged: 0-2390' Core: 0-2390' Core: 0-230' Poilling Medium: Air: Foam Water: Mud: Depths: 0-290' 290-2390' Cored: Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma: Density: Resistivity: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): No. of Bags: 9 yds for 9 5/8'' annulus Interval: Interval: Io surface Coal Core Sent To: NA Rock Sent To: NA Comments: No 7'' casing- 8 3/4'' hole left	•	the second se	. Fione Deptil.			NA
Depth: 0-1976' Recovered (Y or N): N Bit Information Recovered (Y or N): N Surface Casing 16" Tricone to 42' (14" surface casing) Main Hole 12 1/4" PDC from 42-1976' Core: Batter Casing Bottom Hole 8 3/4" Tricone from 1976-2390' Footage Plugged: 0-2390' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Depths: 0-290' 290-2390' Lost Circulation Depths: NA Gas Invasion Depth or Intervals: NA Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma: Temperature: Density: Resistivity: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): No. of Bags: 9 yds for 9 5/8" annulus Interval: Interval: Io surface Coal Core Sent To: NA Rock Sent To: NA Comments: No 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.		provide second se			3 010	
Depth: Recovered (Y or N): Bit Information 10" Tricone to 42" (14" surface casing) Main Hole 12 1/4" PDC from 42-1976' Core: 2000 Bottom Hole 8 3/4" Tricone from 1976-2390' Footage Plugged: 0-2390' Core: 0.2390' Cored: NA Drilling Medium: Air: Footage Plugged: 0-2390' Cored: NA Depths: 0.290' Cored: NA Bottom Hole 8 3/4" Tricone from 1976-2390' Footage Plugged: 0-290' Cored: NA Begined ? (Y or N): Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma: Temperature: Density: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): Caliper: Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus			Recovered (Y or N);	-		
Surface Casing Main Hole 16" Tricone to 42' (14" surface casing) Main Hole 12 1/4" PDC from 42-1976' Core: Bottom Hole Bottom Hole 8 3/4" Tricone from 1976-2390' Footage Plugged: 0-2390' Corei: NA Drilling Medium: Air: Footage Plugged: 0-2390' Cored: NA Depths: 0-290' 290-2390' Lost Circulation Depths: NA Gas Invasion Depth or Intervals: NA Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma: Temperature: Density: Resistivity: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Coal Core Sent To: NA Rock Sent To: NA Comments: No 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.						
Main Hole 12 1/4" PDC from 42-1976' Core: 8 3/4" Tricone from 1976-2390' Footage Plugged: 0-2390' Coreiting Medium: Air: Footage Plugged: 0-2390' Coreiting Medium: Air: Footage Plugged: 0-2390' Coreat: Mud: Footage Plugged: 0-2390' Coreat: Mud: Footage Plugged: 0-290' 290-2390' Seam Injection: Depths: 0-290' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma: Density: Resistivity: Caliper: Density: Resistivity: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): Interval: Interval: Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Coal Core Sent To: NA Comments: No 7" casing- 8 3/4" hole left open						
Core: Bottom Hole 8 3/4" Tricone from 1976-2390' Footage Plugged: 0-2390' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-290' 290-2390' Estimated Inflow Rates: NA Water Invasion Depth or Intervals: NA Regained ? (Y or N): NA Gas Invasion Depth or Intervals: NA Estimated Inflow Rates: NA Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma: Density: Caliper: Temperature: Resistivity: Caliper: Caliper: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Coal Core Sent To: NA Rock Sent To: NA Comments: No 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.	•					
Bottom Hole 8 3/4" Tricone from 1976-2390' Footage Plugged: 0-2390' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-290' 290-2390' Regained ? (Y or N):		12 1/4" PDC from	42-1976'			
Footage Plugged: 0-2390' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-290' 290-2390' Estimated Infjourname Lost Circulation Depths: NA Regained ? (Y or N):			. 4070 0000		· · · · · · · · · · · · · · · · · · ·	
Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-290' 290-2390' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Estimated Inflow Rates: NA Gas Invasion Depth or Interval: NA Estimated Inflow Rates: NA Geophysical Logging Contractor: directional hole- no logging Estimated Inflow Rates: NA Logs Run: Gamma: Density: Caliper: Coliper: Coliper: Coliper: Coliper: Comments: NA Interval: In	bottom note	8 3/4 Tricone from	n 1976-2390			
Depths: 0-290' 290-2390' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Geophysical Logging Contractor: directional hole- no logging Estimated Inflow Rates: Logs Run: Gamma: Density: Density: Temperature: Density: Caliper: Coliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Coal Core Sent To: NA Rock Sent To: NA Comments: No 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.	Footage Plugged:		Cored:	NA		
Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Estimated Inflow Rates: NA Gas Invasion Depth or Interval: NA Estimated Inflow Rates: NA Geophysical Logging Contractor: directional hole- no logging Neutron:	•			Mud:	Foam Injection:	
Water Invasion Depth or Intervals: NA Estimated Inflow Rates: NA Gas Invasion Depth or Interval: NA Estimated Inflow Rates: NA Geophysical Logging Contractor: directional hole- no logging Neutron: Density: Density: Density: Caliper: Compositive for the second s	Depths:	0-290'	290-2390'			
Gas Invasion Depth or Interval: NA Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma: Temperature: Density: Resistivity: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): Caliper: Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Coal Core Sent To: NA Rock Sent To: NA Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.				Rega	ained? (Y or N):	
Geophysical Logging Contractor: directional hole- no logging Logs Run: Gamma:		•		Estimat	ted Inflow Rates:	NA
Logs Run: Gamma: Neutron: Temperature: Density: Resistivity: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): Caliper: Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Coal Core Sent To: NA Rock Sent To: NA Comments: No 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.	Gas Invasion D	epth or Interval:	NA			
Resistivity: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): Caliper: Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Coal Core Sent To: NA Rock Sent To: NA Comments: No 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.	Geophysical Log	ging Contractor:	directional hole- no log	ging		
Resistivity: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): Caliper: Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Coal Core Sent To: NA Rock Sent To: NA Comments: No 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.	Loas Run:	Gamma:		Neutron:		
Resistivity: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic):	0			Density:	······	
Other (SP, Foc. Elec., Drift, Dep., Sonic): Hole Cemented (Y or N), Type: Y No. of Bags: 9 yds for 9 5/8" annulus Interval: to surface Coal Core Sent To: NA Comments: No. 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.		Resistivity:		Caliper:		
Interval: to surface Coal Core Sent To: NA Rock Sent To: NA Comments: NO 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.	Oth	er (SP, Foc. Elec.	, Drift, Dep., Sonic):	·	······································	
Interval: to surface Coal Core Sent To: NA Rock Sent To: NA Comments: NO 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.	Hole Cemented	(<u>Y</u> or N), Type:	Y	No. of Bags: 9 y	ds for 9 5/8" annulus	3
Comments: No 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.		_				
Comments: No 7" casing- 8 3/4" hole left open. Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.	Coal Core Sent To:	NA		Rock Sent To:	NA	<u></u>
Drilled directionally from 290-1976'. Bottom of 9 5/8" casing located 279' at azimuth 300.05 degrees.	•					
	Comments:	No 7" casing- 8 3/4	" hole left open.	ated 270' at azimuth	200 05 dogrado	
95/8" casing abandoned to surface with 35 vds portland type II cement July 2011		JII 230-1870, DUI	on or a bro leasing loc	aiou 213 al allinulli	i SUU.US degrees.	
a de adoing abailabhad to buillabe millios yao persiana (poin bonion buil), 2011.	95/8" casing abandor	ned to surface with	35 yds portland type ll	cement July, 2011.		
Himes Drilling Colorado water well license #1285	limes Drilling Colorad	to water well licens	se #1285		·	

Hole Number Lease Number Date Commenced	COC-61357	Project ID. (State or Federal) Date Completed:	Elk Creek Mine Go Surface Owner: 16-Feb-11	ob Vent Boreholes USFS	
Contractor Geologist Driller Coordinates: N	Doug Allen Jim Weatherton Sam Homedew	Rig Type: Date : Truck Driver:		Toolpusher: _ Helper: _ -	Matt Himes Richard M. Trey H./Chad H.
Location: Townsh		⊃n:	SW 1/4, Sec. 32, T	12.5 R 90 W	
Ground Elevation:	8134'	Collar Elevation:	011 1/1, 000. 02, 1	112 0., 14 00 11.	
Geophysical Log N		ground	Elevation		
Total Depth:	2435'	Probe Depth:		Fluid Level:	NA
Casing Type:	steel T&C	•	Size:	9 5/8"	· · · · · · · · · · · · · · · · · · ·
Casing Type:			Size:		
Depth:	0-2000'	Recovered (Y or N):	N -		
Depth:		Recovered (Y or N):			
Bit Information					
Surface Casing		' (14" surface casing)	······	······	······································
Main Hole	12 1/4" PDC from	42-2000'			
Core:					······································
Bottom Hole	8 3/4" Tricone fron	n 2000-2435'			
Footage Plugged: Drilling Medium: Depths:	Air:	Cored:	NA Mud:	Foam Injection:	
Water Invasion De	culation Depths: epth or Intervals: Depth or Interval:	NA NA NA		ained ? (Y or N): ated Inflow Rates:	NA
Geophysical Log	۔ _ ging Contractor	directional hole- no logo	ging		
Logs Run: Otl	Gamma: _ Temperature: _ Resistivity: _ ner (SP, Foc. Elec.	, Drift, Dep., Sonic): _	Neutron: Density: Caliper:		
Hole Cemented	(<u>Y</u> or N), Type: _	N	No. of Bags: 11 Interval: to	cubic yds-annulus surface	
Coal Core Sent To:	NA		Rock Sent To:		
Coal Core Sent To: Comments: Drilled directionally fro	No 7" casing- 8 3/4' om 290-2000'. Stop	' hole left open. ped directional +/- 445' sing located 405.7 feet	Rock Sent To:	NA slow drilling (suspect	ed
Coal Core Sent To: Comments: Drilled directionally fro problem with motor).	No 7" casing- 8 3/4' om 290-2000'. Stop Bottom of 9 5/8" cas	ped directional +/- 445'	Rock Sent To:	NA slow drilling (suspecto grees.	ed

Hole Number	: GVB 17-01A	Project ID	Elk Creek Mine Go	h Vent Boreholes	
Lease Number		(State or Federal)		Hotchkiss	
Date Commenced		Date Completed		1010111100	
		- Bato Completed			
Contractor	Himes Drilling	Rig Type:	Atlas Copco RD20		
Geologist		Date :	5-Dec-10	Toolpusher:	Matt Himes
	Jim Weatherton	Truck Driver:		Helper:	Jake C.
	Sam Homedew		Will Juusola		Trey H.
Coordinates: N		Έ.		_	
Location: Townsh	ip, Range & Section	on:	SE 1/4, Sec. 36, T.	12 S., R. 91 W.	
Ground Elevation:	8086'	Collar Elevation:			
Geophysical Log N	leasured From:	ground	Elevation		
Total Depth:	2220'	Probe Depth:	2219'	Fluid Level:	NA
Casing Type:	steel T&C	•	Size:	9 5/8"	
Casing Type:	sol/slot steel T&C		Size:	7"	
Depth:	0-2092'	Recovered (Y or N):	N -	· · · · · · · · · · · · · · · · · · ·	
Depth:	2028-2184'	Recovered (Y or N):			
Bit Information					
Surface Casing	16" Tricone to 20'	(14" surface casing)			· ····
Main Hole	12 1/4" PDC from	20-2092'			
Core:					
Bottom Hole	8 3/4" Tricone fron	n 2092-2220'			
Footage Plugged:	0-2220'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-800'	800-2220'			
Deptils.		000 2220			
•	.		D		
Lost Cir	culation Depths:	NA		ained ? (Y or N):	
Lost Cir Water Invasion De	culation Depths:	NA NA		ained? (Y or N): ated Inflow Rates:	
Lost Cir Water Invasion De	culation Depths:	NA			
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval:	NA NA NA			
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval:	NA NA			
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval:	NA NA NA			
Lost Cir Water Invasion De Gas Invasion D Geophysical Log	culation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA NA NA Jetwest Geophysical	Estima		
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y	Estima Neutron: Density: Caliper:		
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical	Estima Neutron: Density: Caliper:		
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	rculation Depths: ppth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: ement dump bailer		
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: ement dump bailer No. of Bags:		
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	rculation Depths: ppth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: ement dump bailer	Ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented	rculation Depths: apth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval:	Ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	rculation Depths: apth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: ement dump bailer No. of Bags:	Ated Inflow Rates:	· · · · · · · · · · · · · · · · · · ·
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	rculation Depths: apth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Estima Neutron: Density: Caliper: eement dump bailer No. of Bags: Interval:	Ated Inflow Rates:	· · · · · · · · · · · · · · · · · · ·
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	rculation Depths: apth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA NA 7" casing overlaps of	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): N 64' inside 9 5/8" casing	Estima Neutron: Density: Caliper: caliper: No. of Bags: Interval: Rock Sent To:	Ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemen	culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA <u>NA</u> <u>NA</u>	NA NA NA Jetwest Geophysical Y Y Drift, Dep., Sonic): N 64' inside 9 5/8" casing cement slurry.	Estima Neutron: Density: Caliper: eement dump bailer No. of Bags: Interval: Rock Sent To:	Ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemen	culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA <u>NA</u> <u>NA</u>	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): N 64' inside 9 5/8" casing	Estima Neutron: Density: Caliper: eement dump bailer No. of Bags: Interval: Rock Sent To:	Ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>9 5/8" annulus cemen</u> Tagged gravel at 218	rculation Depths: apth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (ted with 4 yds neat 4', set 7" into 9' wet	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 64' inside 9 5/8" casing cement slurry. cement plug to 2184' of	Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To: 5' above seam).	Y Y Y NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>9 5/8" annulus cemen</u> Tagged gravel at 218	rculation Depths: apth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ted with 4 yds neat 4', set 7" into 9' wet ned to surface with	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 64' inside 9 5/8" casing cement slurry. cement plug to 2184' of 39 cubic yards portland	Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval: Rock Sent To: 5' above seam).	Y Y Y NA	

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Hole Number				ob Vent Boreholes	
Lease Number		(State or Federal)		Hotchkiss	
Date Commenced	: <u>19-Oct-10</u>	Date Completed:	21-Oct-10		
Contractor	· Himos Drilling	Dia Tura		h	
Geologist			Atlas Copco RD20		Matt I line an
	Doug Allen Jim Weatherton	Date :		Toolpusher:	Matt Himes
Dillei	Sam Homedew	- I ruck Driver:	Kirk Homedew	Helper: _	Jake C.
Coordinates: N		- E.	Will Juusola		Trey H.
Location: Townsh				12 C D 01 W	
Ground Elevation:	8088'	Collar Elevation:	SE 1/4, Sec. 36, T	. 12 S., R. 91 W.	
Geophysical Log N		•	Elevation		
		ground		Eluial Lavai	614
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C 0-2092'		Size:	1	
Depth:		Recovered (Y or N):			
Depth:	2008-2180'	Recovered (Y or N):	N		
Bit Information	101 Tricono to 201		·····		
Surface Casing		(14" surface casing)		<u></u>	
Main Hole	12 1/4" PDC from	20-2092			· · · · · · · · · · · · · · · · · · ·
Core:	Q Q/A Triagna from	- 0000 0400l			
Bottom Hole	8 3/4" Tricone from	n 2092-2180	· · · · · · · · · · · · · · · · · · ·		
Footage Plugged:	0-2180'	Cored:	NA		
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
			INUC.	roam mjecuon.	
Depths:		600-2180'	Wuu:	roan njecton.	
Depths:	0-600'	600-2180'			
Depths: Lost Cir	0-600' culation Depths:	600-2180' NA	Reg	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D	0-600' culation Depths: epth or Intervals:	600-2180'	Reg		
Depths: Lost Cir Water Invasion D	0-600' culation Depths:	600-2180' NA NA	Reg	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-600' rculation Depths: epth or Intervals: Depth or Interval:	600-2180' NA NA	Reg	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-600' rculation Depths: epth or Intervals: Depth or Interval:	600-2180' NA NA NA	Reg	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-600' rculation Depths: epth or Intervals: Depth or Interval:	600-2180' NA NA NA	Reg	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-600' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	600-2180' NA NA NA Jetwest Geophysical	Reg Estim	gained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-600' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	600-2180' NA NA NA Jetwest Geophysical Y	Reg Estim Neutron: Density: Caliper:	gained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-600' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	600-2180' NA NA NA Jetwest Geophysical Y	Reg Estim Neutron: Density: Caliper:	gained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-600' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	600-2180' NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: optical borehole im	gained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-600' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	600-2180' NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: optical borehole im No. of Bags:	gained ? (Y or N): nated Inflow Rates: Y ager	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-600' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	600-2180' NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: optical borehole im	gained ? (Y or N): nated Inflow Rates: Y ager	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	0-600' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	600-2180' NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: optical borehole im No. of Bags: Interval:	gained ? (Y or N): ated Inflow Rates: Y ager	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-600' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	600-2180' NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: optical borehole im No. of Bags:	gained ? (Y or N): ated Inflow Rates: Y ager	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-600' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA	600-2180' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): N	Reg Estim Neutron: _ Density: _ Caliper: _ optical borehole im No. of Bags: _ Interval: _ Rock Sent To: _	gained ? (Y or N): ated Inflow Rates: Y ager	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	0-600' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps	600-2180' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): _ N 84' inside 9 5/8" casing	Reg Estim Neutron: Density: Caliper: Caliper: optical borehole im No. of Bags: Interval: Rock Sent To:	gained ? (Y or N): ated Inflow Rates: Y ager	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: 9 5/8" annulus cemen	0-600' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ited with 6 yds near	600-2180' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): _ N 84' inside 9 5/8" casing t cement slurry.	Reg Estim Neutron: Density: Caliper: optical borehole im No. of Bags: Interval: Rock Sent To:	gained ? (Y or N): nated Inflow Rates: Y ager NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer Hole not drilled/logge	0-600' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ited with 6 yds near d through seam du	600-2180' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): N 84' inside 9 5/8" casing t cement slurry. e to close proximity of 0	Reg Estim Neutron: Density: Caliper: optical borehole im No. of Bags: Interval: Rock Sent To:	gained ? (Y or N): nated Inflow Rates: Y ager NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer Hole not drilled/logge	0-600' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ited with 6 yds near d through seam du	600-2180' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): _ N 84' inside 9 5/8" casing t cement slurry.	Reg Estim Neutron: Density: Caliper: optical borehole im No. of Bags: Interval: Rock Sent To:	gained ? (Y or N): nated Inflow Rates: Y ager NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer Hole not drilled/logge Optical borehole imag	0-600' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ited with 6 yds near d through seam du per (fracture log) run	600-2180' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): N 84' inside 9 5/8" casing t cement slurry. e to close proximity of 0 n to 518' before cutting	Reg Estim	gained ? (Y or N): hated Inflow Rates: Y ager NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer Hole not drilled/logge Optical borehole imag	O-600' Culation Depths: Epth or Intervals: Depth or Intervals: Gamma: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ted with 6 yds nead d through seam du ger (fracture log) ru ned to surface with	600-2180' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 84' inside 9 5/8" casing t cement slurry. e to close proximity of 0 n to 518' before cutting 50 cubic yards portland	Reg Estim	gained ? (Y or N): hated Inflow Rates: Y ager NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer Hole not drilled/logge Optical borehole imag	O-600' Culation Depths: Epth or Intervals: Depth or Intervals: Gamma: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ted with 6 yds nead d through seam du ger (fracture log) ru ned to surface with	600-2180' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 84' inside 9 5/8" casing t cement slurry. e to close proximity of 0 n to 518' before cutting 50 cubic yards portland	Reg Estim	gained ? (Y or N): hated Inflow Rates: Y ager NA	

Hole Number Lease Number Date Commenced	: COC-61357	Project ID.: (State or Federal) Date Completed:		bb Vent Boreholes Hotchkiss	
Contractor Geologist Driller Coordinates: N	Doug Allen Jim Weatherton Sam Homedew	Date :	Atlas Copco RD20 5-Dec-10 Kirk Homedew Trey H. 33793.52	Toolpusher: _ Helper: _ 	Matt Himes Richard M. Matt Himes
Location: Townsh			SW 1/4, Sec. 31, T	12.5 R 90 W	
Ground Elevation:	8152'	Collar Elevation:	011 1/4; 000; 01; 1		
Geophysical Log N		ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:		, · · · · · · · · · · · · · · · · · · ·	Size:	9 5/8"	•
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):			
Depth:		Recovered (Y or N):			
Bit Information	······································				
Surface Casing	16" Tricone to 20'	(14" surface casing)			
Main Hole	12 1/4" PDC from	20-2182'			
Core:					
Bottom Hole	8 3/4" Tricone fron	n 2182-2290'			
" t > Dhummadu	0.0000	Caradi	N I A		
Footage Plugged:		Cored:	NA	E	
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
Depths:	0-410'	410-2290'			
Lost Cir	rculation Depths:	NA	Rec	nained? (YorN):	
	rculation Depths:	NA		ained? (Y or N): ated Inflow Rates:	
Water Invasion D	epth or Intervals:	NA		jained?(Y or N): ated Inflow Rates:	
Water Invasion D Gas Invasion I	epth or Intervals: Depth or Interval:	NA			
Water Invasion D Gas Invasion I Geophysical Log	epth or Intervals: Depth or Interval:	NA NA			
Water Invasion D Gas Invasion I	epth or Intervals: Depth or Interval: gging Contractor:	NA NA Jetwest Geophysical	Estim		
Water Invasion D Gas Invasion I Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical Y Y	Estim Neutron: Density: Caliper:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical	Estim Neutron: Density: Caliper:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Estim: Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval:	ated Inflow Rates: Υ Υ	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: 9 5/8" annulus cemer	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: <u>NA</u> 7" casing overlaps nted with 5 yds neal	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 90' inside 9 5/8" casing t cement slurry.	Estim: Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>9 5/8" annulus cemented</u> Tagged gravel at 225	epth or Intervals: Depth or Intervals: Jging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ned with 5 yds neal 6', set 7" into 9' wei	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 90' inside 9 5/8" casing t cement slurry. t cement plug to 2256'	Estim: Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To: (3' above seam).	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>9 5/8" annulus cemented</u> Tagged gravel at 225	epth or Intervals: Depth or Intervals: Jging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ned with 5 yds neal 6', set 7" into 9' wei	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 90' inside 9 5/8" casing t cement slurry.	Estim: Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To: (3' above seam).	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer Tagged gravel at 225 Optical borehole imag	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps nted with 5 yds neal 6', set 7" into 9' wei ger (fracture log) run	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 90' inside 9 5/8" casing t cement slurry. t cement slurry. t cement plug to 2256' in n to 2144' before cuttir	Estima Neutron: Density: Caliper: Calipe: Cali	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemer Tagged gravel at 225 Optical borehole imag	epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps need with 5 yds nead 66', set 7" into 9' wel ger (fracture log) run	NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>o</u> N 90' inside 9 5/8" casing t cement slurry. t cement plug to 2256' in n to 2144' before cuttir 24 cubic yards portland	Estima Neutron: Density: Caliper: Calipe: Cali	ated Inflow Rates:	

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l Parla Alemana	01/0 47.00				
Hole Number			Elk Creek Mine G		
Lease Number		(State or Federal)		Hotchkiss	
Date Commenced	: 27-Oct-10	Date Completed:	6-Nov-10		
Contractor	t Himoo Duilling		A.II. 0	、	
			Atlas Copco RD20		
Geologist	V	Date :		Toolpusher:	Matt Himes
Driner	Jim Weatherton	Truck Driver:		Helper:	Richard M.
Coordinates: N	Sam Homedew	. <u> </u>	Will Juusola	_	Trey H.
		E.		10.0 5 00.00	
Location: Townsh			SW 1/4, Sec. 31, T	. 12 S., R. 90 W.	
Ground Elevation:	8143'	Collar Elevation:	E 1 ()		
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	2292'	Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):			
Depth:	2101-2254'	Recovered (Y or N):	N		
Bit Information		74.40		·	
Surface Casing		(14" surface casing)		····	
Main Hole	12 1/4" PDC from	20-2152			· · · · · · · · · · · · · · · · · · ·
Core:		0450 0000			
Bottom Hole	8 3/4" Tricone from	n 2152-2290'			
Footage Plugged:	0-2290'	Cored:	NIA		
Drilling Medium:	<u>Air:</u>	Foam /Water:	NA Mud:	Foam Injection:	
	AII:	roam /water:	WDO.	Foam Injection:	
			indui		
Depths:	0-480'	480-2290'			
Depths:	0-480'	480-2290'			
Depths: Lost Cir	0-480' culation Depths:	480-2290' NA	Reg	gained ? (Y or N):	
Depths: Lost Cir Water Invasion Do	0-480' culation Depths: epth or Intervals:	480-2290' NA NA	Reg		
Depths: Lost Cir Water Invasion Do	0-480' culation Depths:	480-2290' NA	Reg	gained ? (Y or N):	
Depths: Lost Cir Water Invasion Do Gas Invasion E	0-480' rculation Depths: epth or Intervals: Depth or Interval:	480-2290' NA NA NA	Reg	gained ? (Y or N):	
Depths: Lost Cir Water Invasion Do Gas Invasion E	0-480' rculation Depths: epth or Intervals: Depth or Interval:	480-2290' NA NA	Reg	gained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion I Geophysical Log	0-480' rculation Depths: epth or Intervals: Depth or Interval:	480-2290' NA NA NA	Reg	gained ? (Y or N):	•
Depths: Lost Cir Water Invasion Do Gas Invasion E	0-480' culation Depths: epth or Intervals: Depth or Interval: ging Contractor:	480-2290' NA NA NA Jetwest Geophysical	Reg Estim Neutron:	gained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion I Geophysical Log	0-480' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	480-2290' NA NA NA Jetwest Geophysical	Reg Estim Neutron: Density:	gained ? (Y or N):	·
Depths: Lost Cir Water Invasion D Gas Invasion E Geophysical Log Logs Run:	0-480' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	480-2290' NA NA NA Jetwest Geophysical Y	Reg Estim Neutron: Density: Caliper:	gained ? (Y or N): ated Inflow Rates: Y	· · · ·
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-480' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	480-2290' NA NA NA Jetwest Geophysical Y	Reg Estim Neutron: Density: Caliper:	gained ? (Y or N): ated Inflow Rates: Y	· · · · · ·
Depths: Lost Cir Water Invasion D Gas Invasion E Geophysical Log Logs Run: Otl	0-480' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	480-2290' NA NA NA Jetwest Geophysical Y	Reg Estim Neutron: Density: Caliper:	gained ? (Y or N): ated Inflow Rates: Y Y / Gas gun	
Depths: Lost Cir Water Invasion D Gas Invasion E Geophysical Log Logs Run: Otl	0-480' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	480-2290' NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estim Neutron: Density: Caliper: ement dump bailer	gained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Otl	0-480' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	480-2290' NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estim Neutron: Density: caliper: ement dump bailer No. of Bags:	gained ? (Y or N): ated Inflow Rates: Y Y / Gas gun	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Otl	0-480' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	480-2290' NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estim Neutron: Density: caliper: ement dump bailer No. of Bags:	gained ? (Y or N): ated Inflow Rates: Y Y / Gas gun	
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Otl Hole Cemented Coal Core Sent To:	0-480' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA	480-2290' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N	Reg Estim Neutron: Density: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	gained ? (Y or N): ated Inflow Rates: Y Y / Gas gun NA	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	0-480' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA NA	480-2290' NA NA NA Jetwest Geophysical Y . Drift, Dep., Sonic): <u>c</u> N 51' inside 9 5/8" casing	Reg Estim Neutron: Density: Caliper: Caliper: interval: No. of Bags: Interval: Rock Sent To:	gained ? (Y or N): ated Inflow Rates: Y / Gas gun NA nented	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: with 5 yds neat ceme	0-480' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA NA 7" casing overlaps and	480-2290' NA NA NA Jetwest Geophysical Y Y Y N 51' inside 9 5/8" casing ravel at 2262', tagged of the second seco	Reg Estim Neutron: Density: Caliper: caliper: iement dump bailer No. of Bags: Interval: Rock Sent To: 9 5/8" annulus cer cement plug at 2254	gained ? (Y or N): ated Inflow Rates: Y / Gas gun NA NA MA	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments: with 5 yds neat ceme Optical borehole imag	0-480' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ent slurry. Tagged g er (fracture log) rur	480-2290' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): c N 51' inside 9 5/8" casing ravel at 2262', tagged c n to 1900' before cuttin	Reg Estim Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval: Sock Sent To: 9 5/8" annulus cer cement plug at 2252 gs/ foam clouded ir	gained ? (Y or N): ated Inflow Rates: Y / Gas gun NA NA MA	
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> with 5 yds neat ceme Optical borehole imag Ran three gasguns: 4	0-480' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps int slurry. Tagged g per (fracture log) rur '@2244-2248' (D2)	480-2290' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): c N 51' inside 9 5/8" casing ravel at 2262', tagged c n to 1900' before cuttin rider); 10' @2220-2230	Reg Estim Neutron: Density: Caliper: ement dump bailer No. of Bags: Interval: Sock Sent To: ement plug at 225- gs/ foam clouded ir ' (siltstone) and	gained ? (Y or N): ated Inflow Rates: Y / Gas gun NA NA MA	
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: with 5 yds neat ceme Optical borehole imac Ran three gasguns: 4 10 @2200-2210' (silts	0-480' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps nt slurry. Tagged g er (fracture log) rur '@2244-2248' (D2 stone) to stimulate	480-2290' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): c N 51' inside 9 5/8" casing ravel at 2262', tagged c n to 1900' before cuttin rider); 10' @2220-2230 methane flow ahead of	Reg Estim Neutron: Density: Caliper: caliper: mement dump bailer No. of Bags: Interval: No. of Bags: Interval: Sock Sent To: Sock Sent To: Sock Sent To: Caliper: Calipe: Cal	gained ? (Y or N): ated Inflow Rates: Y Y / Gas gun NA nented 4'. nage.	
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Otl Hole Cemented Coal Core Sent To: Comments: with 5 yds neat ceme Optical borehole imag Ran three gasguns: 4 10 @2200-2210' (silts 9 5/8'' casing abandor	0-480' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ent slurry. Tagged g er (fracture log) rur 2@2244-2248' (D2 stone) to stimulate ned to surface with	480-2290' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): o N 51' inside 9 5/8" casing ravel at 2262', tagged o to 1900' before cuttin rider); 10' @2220-2230 methane flow ahead of 31 cubic yards portland	Reg Estim Neutron: Density: Caliper: caliper: mement dump bailer No. of Bags: Interval: No. of Bags: Interval: Sock Sent To: Sock Sent To: Sock Sent To: Caliper: Calipe: Cal	gained ? (Y or N): ated Inflow Rates: Y Y / Gas gun NA nented 4'. nage.	
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: with 5 yds neat ceme Optical borehole imac Ran three gasguns: 4 10 @2200-2210' (silts	0-480' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ent slurry. Tagged g er (fracture log) rur 2@2244-2248' (D2 stone) to stimulate ned to surface with	480-2290' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): o N 51' inside 9 5/8" casing ravel at 2262', tagged o to 1900' before cuttin rider); 10' @2220-2230 methane flow ahead of 31 cubic yards portland	Reg Estim Neutron: Density: Caliper: caliper: mement dump bailer No. of Bags: Interval: No. of Bags: Interval: Sock Sent To: Sock Sent To: Sock Sent To: Caliper: Calipe: Cal	gained ? (Y or N): ated Inflow Rates: Y Y / Gas gun NA nented 4'. nage.	

			an a		
Hole Number			Elk Creek Mine Go		
Lease Number			Surface Owner:	Hotchkiss	
Date Commenced	: 24-Aug-11	Date Completed:	3-Sep-11		
Contractor	Himos Drilling	Dia Tuno	Ation Comes DD20		
Geologist		Date :	Atlas Copco RD20 26-Oct-11		Matt Himes
	: Jim Weatherton	Truck Driver:		Toolpusher: Helper:	Nick D.
Dimer	Kirk Homedew	. Huck Driver.	Will Juusola	neiper.	Jimmy L,
Coordinates: N		Ε.			
Location: Townsh			SW 1/4, Sec. 31, T	12 S. R. 90 W	
Ground Elevation:	8140'	Collar Elevation:		. 12 0., 10 00 11.	
Geophysical Log N		ground	Elevation		
Total Depth		Probe Depth:		Fluid Level:	NA
Casing Type:		•	Size:	9 5/8"	·····
Casing Type:	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	N -		
Depth:	1993-2343'	Recovered (Y or N):	N		
Bit Information					
Surface Casing		' (14" surface casing)			
Main Hole	12 1/4" PDC from	40-2076'			
Core:	0.0/11 000 (0	070 0070			·······
Bottom Hole	8 3/4" PDC from 2	076-2379			
Footage Plugged:	0-2379'	Cored:	NA		
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
	~				
Depths:		40-2379'	integ.	roamnjootion	
-			mag.		
Depths: Lost Cir	0-40' rculation Depths:	40-2379' NA	Reg	ained? (Y or N):	
Depths: Lost Cir Water Invasion D	0-40' rculation Depths: _ epth or Intervals: _	40-2379' NA NA	Reg		
Depths: Lost Cir Water Invasion D	0-40' rculation Depths:	40-2379' NA	Reg	ained? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-40' rculation Depths: epth or Intervals: Depth or Interval:	40-2379' NA NA NA	Reg	ained? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-40' rculation Depths: epth or Intervals: Depth or Interval:	40-2379' NA NA	Reg	ained? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-40' rculation Depths: epth or Intervals: Depth or Interval:	40-2379' NA NA NA	Reg	ained? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	40-2379' NA NA NA	Reg Estima Neutron: Density:	ained? (Y or N):	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	40-2379' NA NA NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	40-2379' NA NA NA	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	40-2379' NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	40-2379' NA NA NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 6	ained ? (Y or N): ated Inflow Rates: Y Yds for 9 5/8" annulus	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	40-2379' NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer	ained ? (Y or N): ated Inflow Rates: Y Yds for 9 5/8" annulus	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	O-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	40-2379' NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 6	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	O-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA	40-2379' NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N	Reg Estima Density: Caliper: caliper: No. of Bags: <u>6</u> Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	O-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA NA	40-2379' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 83' inside 9 5/8" casing	Reg Estima Density: Caliper: caliper: No. of Bags: <u>6</u> Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 235	0-40' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 2 2', bottom of 7" cas	40-2379' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 33' inside 9 5/8" casing ing at 2343'.	Reg Estima Neutron: Density: Caliper: Caliper: Mo. of Bags: 6 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 235 Attempted coal log, b	0-40' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps a 2', bottom of 7" cas ut unable to get bel	40-2379' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 83' inside 9 5/8" casing ing at 2343'. ow D2 rider. Gravel bac	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 6 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 235 Attempted coal log, b bailer run to 2355'. D	0-40' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps a 2, bottom of 7" cas ut unable to get bele 2 depth determined	40-2379' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 83' inside 9 5/8" casing ing at 2343'. ow D2 rider. Gravel base to be 2360' +/- 3' base	Reg Estima Neutron: Density: Caliper: Caliper: Caliper: Caliper: No. of Bags: 6 Interval: to Rock Sent To: kfill and cement du	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 235 Attempted coal log, b bailer run to 2355'. D adjacent holes. Botto	O-40' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 4 2, bottom of 7" cas ut unable to get bel 2 depth determined m of 9 5/8' casing lo	40-2379' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 83' inside 9 5/8" casing ing at 2343'. ow D2 rider. Gravel base to be 2360' +/- 3' base bocated 406' at azimuth	Reg Estima Neutron: Density: Caliper: Caliper: Caliper: No. of Bags: 6 Interval: to Rock Sent To: Ckfill and cement du d on driller info and 78.54 degrees.	ained ? (Y or N):	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 235 Attempted coal log, b bailer run to 2355'. D adjacent holes. Botto	O-40' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps of 2', bottom of 7" cas ut unable to get bele 2 depth determined m of 9 5/8' casing lo	40-2379' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): _c N B3' inside 9 5/8" casing ing at 2343'. ow D2 rider. Gravel bac to be 2360' +/- 3' base poated 406' at azimuth 22 cubic yards portland	Reg Estima Neutron: Density: Caliper: Caliper: Caliper: No. of Bags: 6 Interval: to Rock Sent To: Ckfill and cement du d on driller info and 78.54 degrees.	ained ? (Y or N):	

Hole Number	: GVB 17-03	Droiget (D.	The One of Mine Co	- Vart Darahalaa	
Lease Number			Elk Creek Mine Go		
			Surface Owner:	Hotchkiss	
Date Commenced	: <u>6-Nov-10</u>	Date Completed:	10-Nov-10		
• • •					
	: <u>Himes Drilling</u>		Atlas Copco RD20		
Geologist		Date :	5-Dec-10	Toolpusher:	Matt Himes
Driller	Jim Weatherton	Truck Driver:	Kirk Homedew	Helper:	Richard M.
	Sam Homedew		Will Juusola		Trey H.
Coordinates: N	17892.15	E.			
Location: Townsh	ip. Range & Section	bn:		I, T. 12 S., R. 90 W.	
Ground Elevation:	8055'	Collar Elevation:	,,		
Geophysical Log N		ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:		i iobe Depui.	Size:		
	sol/slot steel T&C			9 5/8"	
		December 1 (V an N).	Size:	1	
Depth:		Recovered (Y or N):	<u> </u>		
Depth:	2022-2193'	Recovered (Y or N):	N		
Bit Information					
Surface Casing	16" Tricone to 31'	(14" surface casing)			
Main Hole	12 1/4" PDC from	31-2092'			
Core:					
Bottom Hole	8 3/4" Tricone from	n 2092-2232'			
					······
Footage Plugged:	0-2232'	Cored:	NA		
		Foam /Water:	Mud:	Foom Injection:	
Drilling Medium:	AIr:	FUAIII/Water.	wuu.	ruani injeguon.	
Drilling Medium: Depths:				Foam Injection:	
Drilling Medium: Depths:		220-2232'	WUU.		
Depths:	0-220'	220-2232'			
Depths: Lost Cir	0-220' rculation Depths:	220-2232' NA	Reg	ained? (Y or N):	
Depths: Lost Cir Water Invasion D	0-220' rculation Depths: epth or Intervals:	220-2232' NA NA	Reg		
Depths: Lost Cir Water Invasion D	0-220' rculation Depths:	220-2232' NA	Reg	ained? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-220' rculation Depths: epth or Intervals: Depth or Interval:	220-2232' NA NA NA	Reg	ained? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-220' rculation Depths: epth or Intervals: Depth or Interval:	220-2232' NA NA	Reg	ained? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	220-2232' NA NA NA	Reg Estima	ained? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	220-2232' NA NA NA Jetwest Geophysical Y	Reg Estima Neutron:	ained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	220-2232' NA NA NA Jetwest Geophysical Y	Reg Estima Neutron: Density:	ained? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	220-2232' NA NA NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	220-2232' NA NA NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	220-2232' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer,	ained ? (Y or N): ated Inflow Rates: Y Y Gas gun	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	220-2232' NA NA NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper: cement dump bailer, No. of Bags;	ained ? (Y or N): ated Inflow Rates: Y Y Gas gun	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	220-2232' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer, No. of Bags;	ained ? (Y or N): ated Inflow Rates: Y Y Gas gun	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	O-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	220-2232' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval:	ained ? (Y or N): ated Inflow Rates: Y Y / Gas gun	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	O-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	220-2232' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval:	ained ? (Y or N): ated Inflow Rates: Y Y Gas gun	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	O-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA	220-2232' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N	Reg Estima Neutron: Density: Caliper: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y Y Gas gun	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	O-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps	220-2232' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 70' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y Y Gas gun NA	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: with 5 vds neat ceme	O-220' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ent slurry. Tagged c	220-2232' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 70' inside 9 5/8" casing ravel at 2201', tagged	Reg Estima Neutron: Density: Caliper: Caliper: cement dump bailer, No. of Bags: Interval: Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y Y Gas gun NA NA	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> with 5 yds neat ceme Optical borehole imag	O-220' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ent slurry. Tagged g ger (fracture log) rui	220-2232' NA NA NA Detwest Geophysical Y , Drift, Dep., Sonic):	Reg Estima Neutron: Density: Caliper: cement dump baller, No. of Bags: Interval: Rock Sent To: 9 5/8" annulus cer cement plug at 2193 ngs/ foam clouded ir	Alined ? (Y or N): ated Inflow Rates: Y Y / Gas gun NA nented 3'. nage.	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> with 5 yds neat ceme Optical borehole imag	O-220' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ent slurry. Tagged g ger (fracture log) rui	220-2232' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 70' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: cement dump baller, No. of Bags: Interval: Rock Sent To: 9 5/8" annulus cer cement plug at 2193 ngs/ foam clouded ir	A A A A A A A A A A A A A A A A A A A	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> with 5 yds neat ceme Optical borehole imag Ran three gasguns: 1 10 @2114-2124' (silt	0-220' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ent slurry. Tagged g ger (fracture log) ru 0'@2172-2182' (sa stone) to stimulate	220-2232' NA NA NA Uetwest Geophysical Y , Drift, Dep., Sonic): N 70' inside 9 5/8" casing ravel at 2201', tagged to 1700' before cuttir andstone); 10' @2138- methane flow ahead of	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To: 9 5/8" annulus cer cement plug at 2193 igs/ foam clouded ir 2148' (siltstone) and longwall.	A A A A A A A A A A A A A A A A A A A	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> with 5 yds neat ceme Optical borehole imag Ran three gasguns: 1 10 @2114-2124' (silt	0-220' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ent slurry. Tagged g ger (fracture log) ru 0'@2172-2182' (sa stone) to stimulate	220-2232' NA NA NA Uetwest Geophysical Y , Drift, Dep., Sonic): N 70' inside 9 5/8" casing ravel at 2201', tagged to 1700' before cuttir andstone); 10' @2138- methane flow ahead of	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To: 9 5/8" annulus cer cement plug at 2193 igs/ foam clouded ir 2148' (siltstone) and longwall.	A A A A A A A A A A A A A A A A A A A	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> with 5 yds neat ceme Optical borehole imag Ran three gasguns: 1 10 @2114-2124' (silt	O-220' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ent slurry. Tagged g ger (fracture log) rui O'@2172-2182' (si stone) to stimulate ned to surface with	220-2232' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>o</u> N 70' inside 9 5/8" casing ravel at 2201', tagged n to 1700' before cuttir andstone); 10' @2138- methane flow ahead of 43 cubic yards portland	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To: 9 5/8" annulus cer cement plug at 2193 igs/ foam clouded ir 2148' (siltstone) and longwall.	A A A A A A A A A A A A A A A A A A A	

Hole Number		Desta du D			
Hole Number: Lease Number:			Elk Creek Mine Go		
Date Commenced:		(State or Federal)		Hotchkiss	
Date Commenced.	17-Aug-10	Date Completed:	28-Aug-10		
Contractor:	Himes Drilling	Rig Type	Atlas Copco RD20		
Geologist:		Date :		Toolpusher:	Matt Himes
	Jim Weatherton	. Truck Driver:		Helper:	Sean Vivian
	Sam Homedew		Will Juusola	Terber.	Trey H.
Coordinates: N.		Ε.			110911.
Location: Townshi			SE 1/4, Sec. 31, T.	12 S. R. 90 W.	
Ground Elevation:	8104'	Collar Elevation:			
Geophysical Log M	easured From:	ground	Elevation		
Total Depth:	2327'	Probe Depth:		Fluid Level:	NA
Casing Type:	steel T&C	•	Size:	9 5/8" —	
Casing Type:	sol/slot steel T&C		Size:	7"	
Depth:	0-2122'	Recovered (Y or N):	N -		
Depth:	2051-2282'	Recovered (Y or N):	N		
Bit Information					
Surface Casing		(14" surface casing)			
Main Hole	12 1/4" PDC from	40-2122			
Core:					
Bottom Hole	8 3/4" Tricone from	า 2122-2327'			
	0.00071	0			
Footage Plugged:	0-2327'	Cored:	<u>NA</u>		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-700'	700-2327'			
• •			Per	ained 2 (V or N):	
Lost Cire	culation Depths:	NA		ained ? (Y or N):	10 apm
Lost Circ Water Invasion De	culation Depths: pth or Intervals:	NA 700'		ained ? (Y or N): ated Inflow Rates:	10 gpm
Lost Circ Water Invasion De	culation Depths:	NA			10 gpm
Lost Cir Water Invasion De Gas Invasion D	culation Depths: pth or Intervals: epth or Interval:	NA 700'			10 gpm
Lost Cire Water Invasion De Gas Invasion D Geophysical Loge	culation Depths: ppth or Intervals: epth or Interval: ging Contractor:	NA 700' NA Jetwest Geophysical	Estima		10 gpm
Lost Cir Water Invasion De Gas Invasion D	culation Depths: ppth or Intervals: pepth or Interval: ging Contractor: Gamma:	NA 700' NA	Estima		10 gpm
Lost Cire Water Invasion De Gas Invasion D Geophysical Loge	culation Depths: pth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature:	NA 700' NA Jetwest Geophysical	Estima Neutron: Density:		10 gpm
Lost Cir Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA 700' NA Jetwest Geophysical Y Y	Estima Neutron: Density: Caliper:	ated Inflow Rates:	10 gpm
Lost Cir Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA 700' NA Jetwest Geophysical	Estima Neutron: Density: Caliper:	ated Inflow Rates:	10 gpm
Lost Cira Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth	culation Depths: ppth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: eer (SP, Foc. Elec.	NA 700' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: ement dump bailer;	Ated Inflow Rates:	
Lost Cira Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth	culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA 700' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: ement dump bailer; No. of Bags:	ated Inflow Rates:	
Lost Cira Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth	culation Depths: ppth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: eer (SP, Foc. Elec.	NA 700' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: ement dump bailer;	Ated Inflow Rates:	
Lost Cira Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth	culation Depths: ppth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: eer (SP, Foc. Elec.	NA 700' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: ement dump bailer; No. of Bags:	Ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: _	culation Depths: ppth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA	NA 700' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Estima Neutron: Density: Caliper: ement dump bailer; No. of Bags: Interval:	Ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7	culation Depths: pth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA NA	NA 700' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Estima Neutron: Density: Caliper: eement dump bailer; No. of Bags: Interval: Rock Sent To:	Ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: 7</u> 9 5/8" annulus cement	culation Depths: ppth or Intervals: epth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA NA	NA 700' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 71' inside 9 5/8" casing cement slurry.	Estima Neutron: Density: Caliper: eement dump bailer; No. of Bags: Interval: Rock Sent To:	Ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: 7</u> 9 5/8" annulus cement Tagged gravel at 2228	culation Depths: ppth or Intervals: epth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA " casing overlaps 7 ted with 3 yds neat 39', tagged cement	NA 700' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 71' inside 9 5/8" casing cement slurry. plug at 2282'.	Estima Neutron: Density: Caliper: eement dump bailer; No. of Bags: Interval: Rock Sent To:	Ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: 7</u> 9 5/8" annulus cement	culation Depths: ppth or Intervals: epth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA " casing overlaps 7 ted with 3 yds neat 39', tagged cement	NA 700' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 71' inside 9 5/8" casing cement slurry. plug at 2282'.	Estima Neutron: Density: Caliper: eement dump bailer; No. of Bags: Interval: Rock Sent To:	Ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: 7</u> 9 5/8" annulus cemen Tagged gravel at 22228 Hole deviated approxim	culation Depths: ppth or Intervals: epth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA " casing overlaps 7 ted with 3 yds neat 99', tagged cement mately 335' at 90 d	NA 700' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 71' inside 9 5/8" casing cement slurry. plug at 2282'. egrees azimuth.	Estima Neutron: Density: Caliper: caliper: iement dump bailer; No. of Bags: Interval: Rock Sent To:	Ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: 7</u> 9 5/8" annulus cement Tagged gravel at 2228	culation Depths: pth or Intervals: epth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA Tagged cement mately 335' at 90 d red to surface with	NA 700' NA Jetwest Geophysical Y Y Drift, Dep., Sonic): <u>o</u> N 71' inside 9 5/8" casing cement slurry. plug at 2282'. egrees azimuth. 24 cubic yards portland	Estima Neutron: Density: Caliper: caliper: iement dump bailer; No. of Bags: Interval: Rock Sent To:	Ated Inflow Rates:	

	an a	Oxbow Mir	ing T.T.C	any ya mada any isili di Digini Qiya Marakilari ya ya ya si	and the second and the second s
		Elk Cree	-		
			SW HILLS		والمترك ومعاور ويرين والمرجوب والمكاففة المحاد
Hole Number:	GVB 17-04B	Droiget ID .	Elle Queele Mine Ook	Vont Darabalaa	. Version of the state of the state of the state
Lease Number:	COC-61357	(State or Federal)	Elk Creek Mine Got	Hotchkiss	
Date Commenced:	6-Jul-11	Date Completed:		110(011(135	
-		•			
Contractor: Geologist:	Himes Drilling Doug Allen		Atlas Copco RD20	Taskanskam	N A 41 T 12
	im Weatherton	Date : Truck Driver:		Toolpusher: _ Helper:	Matt Himes Kenny N.
	Kirk Homedew		Will Juusola	- riciperi	Cameron S.
Coordinates: N.	17544.06	E.	36084.75		
Location: Township, Ground Elevation:	Range & Section 8104'		SE 1/4, Sec. 31, T. 1	12 S., R. 90 W.	
Geophysical Log Mea		Collar Elevation: ground	Elevation		
Total Depth:	2312'	Probe Depth:	NA	Fluid Level:	NA
Casing Type:		• .	Size:	9 5/8"	······································
Casing Type: so	1/slot steel T&C 0-2010'		Size:	7"	
Depth: Depth:	1960.3-2312'	Recovered (Y or N): Recovered (Y or N):			
Bit Information					
Surface Casing 17	" Hammer to 40	' (14" surface casing)			
Main Hole <u>12</u> Core:	1/4" PDC from	40-2010'			
••••	B/4" PDC from 2	010-2312'			
Footage Plugged:	0-2312'	Cored:	NA		
Drilling Medium: Depths:	Air: 0-40'	Foam /Water: 40-2312'	Mud: F	oam Injection:	
Deptilis.	0-40	40-2312			
	ation Depths:	NA		ined? (Y or N):	
Water Invasion Dept	_	NA	Estimat	ed Inflow Rates:	
Gas Invasion Dep	th or Interval: _	NA			
Geophysical Loggin	g Contractor:	lirectional hole- no logo	jing		
Logs Run:	Gamma:		Neutron		
	Temperature:		Density:		
	Resistivity:		Caliper:		
Other	(SP, Foc. Elec.	, Drift, Dep., Sonic):			······································
Hole Cemented (<u>Y</u>	or N). Type:	N	No. of Bags: 6 vo	ds for 9 5'8" annulus	
			interval: to s		······
Coal Core Sent To:	NA		Rock Sent To:	NA	
	asing overlaps	19.7' inside 9 5/8" casir	IO.	w	
Comments: 7" of					
298.5' slotted 7" casing b	elow 53.2' solid	7" casing. Landed at 2			
	elow 53.2' solid	7" casing. Landed at 2		318.23 degrees.	
298.5' slotted 7" casing b Drilled directionally from	elow 53.2' solid 500-2010'. Botto	7" casing. Landed at 2 om of 9 5/8" casing loca	ated 360' at azimuth 3		
298.5' slotted 7" casing b	elow 53.2' solid 500-2010'. Botto to surface with	7" casing. Landed at 2 om of 9 5/8" casing loca 28 cubic yards portlanc	ated 360' at azimuth 3		

Hole Number: Lease Number: Date Commenced:	: COC-61357	Project ID.: (State or Federal) Date Completed:		bb Vent Boreholes Hotchkiss	
Contractor: Geologist: Driller: Coordinates: N.	Doug Allen Jim Weatherton Kirk Homedew	Rig Type: Date : Truck Driver: E.	Mike Hibberd Will Juusola	Toolpusher: _ Helper: _ _	Matt Himes Brandon Y. Jimmy L.
Location: Townshi		-	SE 1/4, Sec. 31, T.	12 S., R. 90 W.	
Ground Elevation:	8103'	Collar Elevation:			
Geophysical Log M	leasured From:	ground	Elevation		
Total Depth:	2281'	Probe Depth:	2271'	Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	<u>N</u>		
Depth:	1880-2240'	Recovered (Y or N):	N		
Bit Information					
Surface Casing		' (14" surface casing)			
Main Hole	12 1/4" PDC from	40-1942			
Core:	A ALLE THEAD FROM				
Bottom Hole	8 3/4" Tricone from	1 1942-2281			
	0-2281'	Cored:	NA		
Footage Plugged: Drilling Medium:	<u>Air:</u>	Foam /Water:	Mud:	Foam Injection:	
	A 11.	FUali / Waters	Inno.	r van nijeenen	
Denths	<u>^_40'</u>	40-2281			
Depths:	0-40'	40-2281'			
• •		40-2281' NA	Rec	uained? (Y or N):	
Lost Cir				gained ? (Y or N): ated Inflow Rates:	<u> </u>
Lost Cir Water Invasion De	rculation Depths: epth or Intervals:	NA			
Lost Cir Water Invasion De Gas Invasion D Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA NA NA Jetwest Geophysical	Estim		
Lost Cir Water Invasion De Gas Invasion E	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	NA NA NA	Estima		
Lost Cir Water Invasion De Gas Invasion D Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA NA NA Jetwest Geophysical	Estima Neutron: Density:		
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: cement dump bailer	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 6 Interval: to	Ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 6	Ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 62' inside 9 5/8" casing	Neutron: Density: Caliper: cement dump bailer No. of Bags: 6 Interval: to Rock Sent To:	Ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 224	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 8', bottom of 7" cas	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 62' inside 9 5/8" casing	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 6 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" annulus surface NA	
a na an ann a' chliaich ann <u>an Chaile an Anna an A</u>					n na 22, na na 21 anna an Anna 21 anna
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Hole Number	GVB 17-05B	Project ID ·	Elk Creek Mine Go	h Vent Boreholes	
Lease Number		(State or Federal)		Hotchkiss	
Date Commenced		Date Completed:		1000/1000	
	10 / kug 10	, Date completed.	10-Aug-10		
Contractor	Himes Drilling	Ria Type	Atlas Copco RD20		
Geologist	U	Date :		Toolpusher:	Matt Himes
	Jim Weatherton	Truck Driver:			Sean Vivian
Diller.		Truck Driver.		Helper:	
O a sudin stars N	Sam Homedew	-	Will Juusola	-	Cameron S.
Coordinates: N.		E.	36799.63	10 0 D 00 W	
Location: Townshi			SE 1/4, Sec. 31, T.	12 S., R. 90 W.	
Ground Elevation:	8194'	Collar Elevation:			
Geophysical Log M			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	<u> </u>		
Depth:	2160-2356'	Recovered (Y or N):	N		
Bit Information					
Surface Casing		(14" surface casing)			
Main Hole	12 1/4" PDC from	84-2198'			
Core:					
Bottom Hole	8 3/4" Tricone from	n 2198-2400'			
Footage Plugged:	0-2400'	Cored:	NA		
	Air:	Foam /Water:	Mud:	Foam Injection:	
Drilling Medium:	AlG	FUall / Waler.	muu.	i van nijection.	
Drilling Medium: Depths:	0-800'	800-2400'	muu.	roan njection.	
Depths:			······································	jained ? (Y or N):	
Depths: Lost Cir	0-800'	800-2400' NA	Reg		20 gpm
Depths: Lost Cir Water Invasion De	0-800' culation Depths:	800-2400' NA	Reg	ained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De	0-800' culation Depths: ppth or Intervals:	800-2400' NA 1550'	Reg	ained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion E	0-800' culation Depths: pepth or Intervals: Depth or Interval:	800-2400' NA 1550'	Reg	ained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion E	0-800' culation Depths: pepth or Intervals: Depth or Interval:	800-2400' NA 1550' NA	Reg	ained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion E	0-800' culation Depths: pepth or Intervals: Depth or Interval:	800-2400' NA 1550' NA	Reg	ained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion E Geophysical Log	0-800' culation Depths: _ epth or Intervals: _ Depth or Interval: _ ging Contractor: _	800-2400' NA 1550' NA	Reg Estima	ained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-800' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	800-2400' NA 1550' NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N): ated inflow Rates: Y	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-800' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	800-2400' NA 1550' NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N): ated inflow Rates: Y	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-800' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	800-2400' NA 1550' NA	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N): ated inflow Rates: Y	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	0-800' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	800-2400' NA 1550' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 45	jained ? (Y or N): ated inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	0-800' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	800-2400' NA 1550' NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 45	jained ? (Y or N): ated inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	0-800' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	800-2400' NA 1550' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Density: Caliper: cement dump bailer No. of Bags: 44 Interval:	Jained ? (Y or N): ated Inflow Rates: Y Y 58 sacks+3 cubic yds.	
Depths: Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented	0-800' culation Depths: peth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	800-2400' NA 1550' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N	Reg Estima Density: Caliper: cement dump bailer No. of Bags: 44 Interval:	Jained ? (Y or N): ated Inflow Rates: Y Y 58 sacks+3 cubic yds.	
Depths: Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	0-800' culation Depths: peth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	800-2400' NA 1550' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N	Reg Estima Density: Caliper: cement dump bailer No. of Bags: 44 Interval:	jained ? (Y or N): ated inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	0-800' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA	800-2400' NA 1550' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Reg Estima Neutron: Density: Caliper: Caliper: Caliper: No. of Bags: 44 Interval:	Jained ? (Y or N): ated Inflow Rates: Y Y 58 sacks+3 cubic yds.	
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	0-800' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	800-2400' NA 1550' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 38' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 44 Interval:	Jained ? (Y or N): ated Inflow Rates: Y 7 58 sacks+3 cubic yds.	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 9 5/8" annulus cemen	0-800' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ited with BJ Service	800-2400' NA 1550' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 38' inside 9 5/8" casing ss- 458 sacks + 3 cubic	Reg Estima Neutron: Density: Caliper: Caliper: cement dump bailer No. of Bags: 44 Interval: Rock Sent To:	Jained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemen Tagged gravel at 235	0-800' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ted with BJ Service 6', tagged cement p	800-2400' NA 1550' NA Jetwest Geophysical Y Y Drift, Dep., Sonic): <u>c</u> N 38' inside 9 5/8" casing ss- 458 sacks + 3 cubic olug at 2356'. (Gravel a	Reg Estima Neutron: Density: Caliper: Caliper: cement dump bailer No. of Bags: 44 Interval: Rock Sent To:	Jained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemen Tagged gravel at 235 bottom of 7" casing st	0-800' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ted with BJ Service 6', tagged cement p ill 4' above top of se	800-2400' NA 1550' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 38' inside 9 5/8" casing is- 458 sacks + 3 cubic olug at 2356'. (Gravel a eam.)	Reg Estima Neutron: Density: Caliper: caliper: Caliper: Caliper: No. of Bags: 4 Interval: No. of Bags: 4 Interval: Rock Sent To: yards from surface pparently settled af	Jained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemen Tagged gravel at 235 bottom of 7" casing st Attempted to drill with	0-800' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ted with BJ Service 6', tagged cement p ill 4' above top of se mud through watel	800-2400' NA 1550' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 38' inside 9 5/8" casing is- 458 sacks + 3 cubic blug at 2356'. (Gravel a eam.) * zone at 1550'- unsucc	Reg Estima Neutron: Density: Caliper: Calipe: Cal	ained ? (Y or N): ated Inflow Rates: Y 58 sacks+3 cubic yds. NA ter dump bailing-	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 9 5/8" annulus cemen Tagged gravel at 235 bottom of 7" casing st Attempted to drill with	0-800' culation Depths: peth or Intervals: peth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ted with BJ Service 6', tagged cement p ill 4' above top of se mud through wate ned to surface with	800-2400' NA 1550' NA Jetwest Geophysical Y , Drift, Dep., Sonic): _c N 38' inside 9 5/8" casing s- 458 sacks + 3 cubic blug at 2356'. (Gravel a eam.) cone at 1550'- unsucc 20 cubic yards portlance	Reg Estima Neutron: Density: Caliper: Calipe: Cal	ained ? (Y or N): ated Inflow Rates: Y 58 sacks+3 cubic yds. NA ter dump bailing-	

Hole Number:GVB 17-06Project ID.:Elk Creek Mine Gob Vent BoreholesLease Number:COC-61357(State or Federal)Surface Owner:USFSDate Commenced:16-Jul-10Date Completed:21-Jul-10	
Lease Number: COC-61357 (State or Federal) Surface Owner: USFS	
Date Commenceu. 10-Jul-10 Date Completeu: 21-Jul-10	
Contractor: Himes Drilling Rig Type: Atlas Copco RD20	
Geologist: Doug Allen Date : 5-Dec-10 Toolpusher: Matt Hir	
Driller: Jim Weatherton Truck Driver: Kirk Homedew Helper: Sean Vi	
Matt Himes Will Juusola Camero	ı S
Coordinates: N. 17207.95 E. 37708.01	
Location: Township, Range & Section: SW 1/4, Sec. 32, T. 12 S., R. 90 W.	
Ground Elevation: 8226' Collar Elevation:	
Geophysical Log Measured From: ground Elevation	
Total Depth: 2460' Probe Depth: Fluid Level: NA	
Casing Type: steel T&C Size: 9 5/8"	
Casing Type: sol/slot steel T&C Size: 7"	
Depth: 0-2300' Recovered (Y or N): N	
Depth: 2261-2410' Recovered (Y or N): N	
Bit Information	
Surface Casing 16" Tricone to 42' (14" surface casing)	
Main Hole 12 1/4" PDC from 42-2300'	
Core:	
Bottom Hole 8 3/4" Tricone from 2300-2460'	
	······
Footage Plugged: 0-2460' Cored: NA	
Depths: 0-42' 42-2460'	
Lost Circulation Depths: NA Regained ? (Y or N):	
Water Invasion Depth or Intervals: NA Estimated Inflow Rates:	
Gas Invasion Depth or Interval: NA Command Material Command	
Geophysical Logging Contractor: Jetwest Geophysical	
Logs Run: Gamma: Y Neutron:	
Temperature: Density: Y	
Resistivity: Y Caliper: Y	
Other (SP, Foc. Elec., Drift, Dep., Sonic): cement dump bailer	
Ullel (Jr, ruc. Elec., Dill, Dep., Julic). Jement dump baile	
Hole Cemented (<u>Y</u> or N), Type: N No. of Bags:	
Hole Cemented (<u>Y</u> or N), Type: N No. of Bags: Interval:	•
Coal Core Sent To: NA Rock Sent To: NA	
O successful 7" againg quartana 20' inaida 0 5/2" againg	
Comments: 7" casing overlaps 39' inside 9 5/8" casing.	
9 5/8" annulus cemented with 5 yds neat cement slurry.	<u> </u>
Tagged gravel at 2416', tagged cement plug at 2410'.	
O FIGH and the surface with 20 subjected portland compart shurry lupp 2012	
9 5/8" casing abandoned to surface with 22 cubic yards portland cement slurry June, 2012.	
Himes Drilling Colorado water well license #1285	

Hole Number	: GVB 17-06B	Project ID .	Elle Crook Mino G	- Want Barahalas	
Lease Number			Elk Creek Mine Go Surface Owner:		
Date Commenced				0010	
Date Commences	: <u>21-Jull-11</u>	Date Completed:	0-JUI-11		
Contractor	: Himes Drilling		Allen Conco PD20		
			Atlas Copco RD20		Matt Llimos
Geologist		Date :		Toolpusher:	Matt Himes
Dimer	: Jim Weatherton	. I ruck Driver.	Jason Grundy	Helper:	Kenny
O N	Kirk Homedew	· _	Will Juusola	-	Cameron
Coordinates: N			37741.35		
Location: Townsh			SW 1/4, Sec. 32, T	. 12 S., R. 90 W.	
Ground Elevation:		Collar Elevation:			
Geophysical Log N			Elevation	The second	* 1 A
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C	'	Size:	7"	
Depth:		Recovered (Y or N):	<u>N</u>		
Depth:	: 1911-2485'	Recovered (Y or N):	N		
Bit Information			<u></u>		
Surface Casing)' (14" surface casing)			
Main Hole	12 1/4" PDC from	40-1951'	· · · · · · · · · · · · · · · · · · ·		
Core:			····		· · · · · · · · · · · · · · · · · · ·
Bottom Hole	8 3/4" PDC from 1	951-2485'			
	(O	• • •		
Footage Plugged:		Cored:	NA	- • • • • • • • •	
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
Depths:	0-40'	40-2485'			
1	- di Boudhar	1 I A	Baa	1 10 0/ av ND	
	rculation Depths:	NA		gained ? (Y or N):	
Water Invasion D	epth or Intervals:	NA		gained? (Y or N): ated Inflow Rates:	
Water Invasion D		NA			
Water Invasion D Gas Invasion I	epth or Intervals: Depth or Interval:	NA NA	Estim		
Water Invasion D Gas Invasion I	epth or Intervals: Depth or Interval:	NA	Estim		
Water Invasion D Gas Invasion I Geophysical Log	epth or Intervals: Depth or Interval: gging Contractor:	NA NA	Estim ging		
Water Invasion D Gas Invasion I	epth or Intervals: Depth or Interval: gging Contractor: Gamma:	NA NA	Estim ging Neutron:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature:	NA NA	ging Neutron: Density:		
Water Invasion D Gas Invasion I Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	NA NA directional hole- no log	Estim ging Neutron:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	NA NA	ging Neutron: Density:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec.	NA NA directional hole- no logg	ging Neutron: Density: Caliper:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec.	NA NA directional hole- no log	Estim ging Neutron: Density: Caliper: No. of Bags: <u>2</u>	ated Inflow Rates: yds for 9 5/8" annulus	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec.	NA NA directional hole- no logg	ging Neutron: Density: Caliper:	ated Inflow Rates: yds for 9 5/8" annulus	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec.	NA NA directional hole- no logo ., Drift, Dep., Sonic): _ N	Estim ging Neutron: Density: Caliper: No. of Bags: 2 Interval: ic	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec.	NA NA directional hole- no logg	Estim ging Neutron: Density: Caliper: No. of Bags: 2 Interval: ic	ated Inflow Rates: yds for 9 5/8" annulus	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec.	NA NA directional hole- no logg ., Drift, Dep., Sonic): N	Estim ging Neutron: Density: Caliper: No. of Bags: 2 Interval: to Rock Sent To:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	NA NA directional hole- no logg ., Drift, Dep., Sonic): N 39.8' inside 9 5/8" casir	Estim ging Neutron: Density: Caliper: No. of Bags: 2 Interval: ic Rock Sent To:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: 294.3' slotted 7" casi	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. (Y or N), Type: <u>NA</u> 7" casing overlaps ng below 279.5' soli	NA NA directional hole- no logg ., Drift, Dep., Sonic): N 39.8' inside 9 5/8" casin id 7" casing. Landed at	Estim ging Neutron: Density: Caliper: No. of Bags: 2 Interval: ic Rock Sent To: ng. 2482'.	ated Inflow Rates: yds for 9 5/8" annulus o surface NA	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: 294.3' slotted 7" casi	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. (Y or N), Type: <u>NA</u> 7" casing overlaps ng below 279.5' soli	NA NA directional hole- no logg ., Drift, Dep., Sonic): N 39.8' inside 9 5/8" casir	Estim ging Neutron: Density: Caliper: No. of Bags: 2 Interval: ic Rock Sent To: ng. 2482'.	ated Inflow Rates: yds for 9 5/8" annulus o surface NA	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 294.3' slotted 7" casi Drilled directionally fr	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. I (Y or N), Type: NA 7" casing overlaps ng below 279.5' solitom 504-1952'. Botto	NA NA directional hole- no logg , Drift, Dep., Sonic): N 39.8' inside 9 5/8" casin id 7" casing. Landed at om of 9 5/8" casing loca	Estim ging Neutron: Density: Caliper: Caliper: No. of Bags: 2 Interval: to Rock Sent To: ng. 2482'. ated 330' at azimuti	ated Inflow Rates: yds for 9 5/8" annulus o surface NA h 300.66 degrees.	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 294.3' slotted 7" casi Drilled directionally fr	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. I (Y or N), Type: NA 7" casing overlaps ng below 279.5' solitom 504-1952'. Botto	NA NA directional hole- no logg ., Drift, Dep., Sonic): N 39.8' inside 9 5/8" casin id 7" casing. Landed at	Estim ging Neutron: Density: Caliper: Caliper: No. of Bags: 2 Interval: to Rock Sent To: ng. 2482'. ated 330' at azimuti	ated Inflow Rates: yds for 9 5/8" annulus o surface NA h 300.66 degrees.	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 294.3' slotted 7" casi Drilled directionally fr	epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ng below 279.5' soli om 504-1952'. Botto oned to surface with	NA NA directional hole- no logg ., Drift, Dep., Sonic): _ N 39.8' inside 9 5/8" casin id 7" casing. Landed at om of 9 5/8" casing loca 34 cubic yards portland	Estim ging Neutron: Density: Caliper: No. of Bags: 2 Interval: to Rock Sent To: 12482'. ated 330' at azimuti d cement slurry July	ated Inflow Rates: yds for 9 5/8" annulus o surface NA h 300.66 degrees.	

nanan ara ar an an an ar an ar					n hens her sen et se litter i her eine sen
Hole Number	: GVB 17-07	Project ID .	Elle Orock Mine Ge	- Vant Barahalas	
Lease Number		(State or Federal)	Elk Creek Mine Go	USFS	
Date Commenced		Date Completed:			
	·	. Date completed.	1-061-10		
Contractor	: Himes Drilling	Pia Tupo:	Atlas Copco RD20		
Geologist		Date :		Toolpusher:	Matt Himes
	Jim Weatherton	Truck Driver:		Helper:	Jake C.
	Sam Homedew		Will Juusola	Leiher-	Trey H.
Coordinates: N		, E	38363.21	<u> </u>	пеуп.
Location: Townsh		E.	38363.21 SW 1/4, Sec. 32, T		
Ground Elevation:	8314'		SW 1/4, Sec. 32, 1	. 12 J., R. JU W.	
		Collar Elevation:	Pf		
Geophysical Log N			Elevation	Eluid Lovali	N1 A
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	<u>9 5/8"</u> 7"	
	sol/slot steel T&C		Size:	<u> </u>	
Depth:		Recovered (Y or N):	<u> </u>		
Depth:	2303-2479'	Recovered (Y or N):	N		
Bit Information	101 - 1 (101	7.1.411 2 1		<u></u>	. <u></u>
Surface Casing		(14" surface casing)			
Main Hole	12 1/4" PDC from	42-2410'			
Core:					
Bottom Hole	8 3/4" Tricone fron	n 2410-2515'			
	A A E 4 E 1	A 1			
Footage Plugged:		Cored:	NA Mud:		
		Econo Nilatori	N I L L A L L	Ecom Inicction	
Drilling Medium:		Foam /Water:	Iviua.	Foam Injection:	
Drilling Medium: Depths:		610-2515'	Wuu.	Foan mjection.	
Depths:	0-610'	610-2515'	······································		
Depths: Lost Cir	0-610' rculation Depths:	610-2515' NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D	0-610' rculation Depths: epth or Intervals:	610-2515' NA NA	Reg		
Depths: Lost Cir Water Invasion D	0-610' rculation Depths:	610-2515' NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-610' rculation Depths: epth or Intervals: Depth or Interval:	610-2515' NA NA NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-610' rculation Depths: epth or Intervals: Depth or Interval:	610-2515' NA NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor:	610-2515' NA NA NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor:	610-2515' NA NA NA	Reg Estima Neutron:	ained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	610-2515' NA NA NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	610-2515' NA NA NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	610-2515' NA NA NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	610-2515' NA NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estim Neutron: Density: Caliper: cement dump bailer	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	610-2515' NA NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	610-2515' NA NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estim Neutron: Density: Caliper: cement dump bailer	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	0-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	610-2515' NA NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	610-2515' NA NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags:	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	O-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA	610-2515' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N	Reg Estimation Neutron: Density: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	O-610' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	610-2515' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u> N 107' inside 9 5/8" casin	Reg Estimation Neutron: Density: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: 9 5/8" annulus cemei	O-610' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps nted with 3 yds neal	610-2515' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 107' inside 9 5/8" casin t cement slurry.	Reg Estimation Neutron: Density: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	O-610' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps nted with 3 yds neal	610-2515' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 107' inside 9 5/8" casin t cement slurry.	Reg Estimation Neutron: Density: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: Caliper: No. of Bags: Interval: Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>9 5/8" annulus cemented</u> Tagged gravel at 248	0-610' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps nted with 3 yds neat 84', tagged cement p	610-2515' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): _c N 107' inside 9 5/8" casin t cement slurry. olug at 2479'.	Reg Estim: Neutron: Density: Caliper: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>9 5/8" annulus cemented</u> Tagged gravel at 248	0-610' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps nted with 3 yds neat 84', tagged cement p	610-2515' NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 107' inside 9 5/8" casin t cement slurry.	Reg Estim: Neutron: Density: Caliper: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>9 5/8" annulus cemented</u> Tagged gravel at 248	O-610' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ted with 3 yds neat A4', tagged cement p ned to surface with	610-2515' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 107' inside 9 5/8" casin t cement slurry. olug at 2479'. 19 cubic yards portland	Reg Estim: Neutron: Density: Caliper: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y	

، يو رسور المؤركة، والمعنون المرارة الرق والمان والموان المراقع المان والم			والالالي وعور المارش فعادوان والبارا فالمعد معتمد معتمد التعريب		
Hole Number:	GVB 17-08	Project ID -	Elk Creek Mine Go	h Vent Boreholes	
Lease Number:			Surface Owner:		
Date Commenced:		Date Completed:			
Date Commenced.	20-301-11	- Date completed.	23-Jui-11		
Contractor	Himes Drilling	Dia Tupo	Atlas Copco RD20		
Geologist:		Date :		Toolpusher:	Matt Himes
	Jim Weatherton			Helper:	Nick D.
Dillici.	Kirk Homedew	. HUCK DIIVEL.	Will Juusola	Lieiber.	Jimmy L.
Coordinates: N.		E.		_	Janny L.
Location: Townshi			SW 1/4, Sec. 32, T	12 C D 00 W	
Ground Elevation:	8137'	Collar Elevation:	<u>377 1/4, 360, 32, 1</u>	. 12 3., 17. 30 11.	
			Elevation		
Geophysical Log M		ground		Fluid Level:	NA
Total Depth:		Probe Depth:	2377' Size:	9 5/8"	
Casing Type:			Size:	<u> </u>	
	sol/slot steel T&C			1	•
Depth:		Recovered (Y or N):			
Depth:	1981-2347'	Recovered (Y or N):	IN		
Bit Information Surface Casing	17" 1 Jammar to 10	(11 aurtona acaina)			
v v	12 1/4" PDC from	(14" surface casing)			
Main Hole Core:	12 1/4 PDC 110111	40-2043			
••••	8 3/4" PDC from 2	0/2 2/58			·····
Bollom Hole	0 3/4 FDC 110111 2	.043-2400			······
Footage Plugged:	0-2384'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:		40-2384'	inddi	- rounnijoodoni	
Deptilot		10 2001			
Lost Cir	culation Depths:	NA	Reg	gained ? (Y or N):	
Water Invasion De		NA		ated Inflow Rates:	
	Depth or Interval:	NA			
	•				
Geophysical Log	ging Contractor:	Jetwest Geophysical			
	-				
Logs Run:	Gamma:	Υ	Neutron:		
	Temperature:		Density:	Y	
	Resistivity:	Y	Caliper:	Y	
Oti	her (SP, Foc. Elec	., Drift, Dep., Sonic):	cement dump bailer	·	
Hole Cemented	(<u>Y</u> or N), Type:	<u>N</u>		yds for 9 5/8" annulus	
			Interval: to	surface	
			-		
Coal Core Sent To:	NA		Rock Sent To:	NA	
_	. ·	0011-11-0 5/01 1			
Comments:	/" casing overlaps	62' inside 9 5/8" casing]		
Tagged gravel at 235	2, tagged cement	piug at 2347			
<u></u>					
0.5/01		01 aubia varda nartian	d comont alurny lub	, 2012	
9 5/8" casing abando	ned to surface with	21 cubic yards portlan			
	de water well licen				
Himes Drilling Colora	do water well licens	50 #1200			

Hole Number	: GVB 17-08C	Project ID	Elly Crook Mine Cr	h Vont Parahalaa	
Lease Number			Elk Creek Mine Go Surface Owner:	USFS	
Date Commenced		Date Completed:		0010	
bate oonmendeu	. 0-1viay=12	- Date completed.	10-101ay-12		
Contractor	: Himes Drilling	Pia Tuno:	Atlas Copco RD20		
Geologist		Date :		Toolpusher:	Matt Himes
Driller			Brandon Yates	Helper:	Chuck
Dimer	Kirk Homedew	. Huck Driver.	Richard Moores	Leiher.	Jimmy Lovato
Coordinates: N		E.	the second s	-	
Location: Townsh			SW 1/4, Sec. 32, T	12 C D 00 W	
Ground Elevation:	8138'	Collar Elevation:	<u>377 1/4, 360, 32, 1</u>	. 12. 5., 17. 30 W.	
Geophysical Log N		•	Elevation		
Total Depth:		ground Probe Depth:		Fluid Level:	NA
Casing Type:		Probe Depth:	Size:	9 5/8"	NA
				<u>9 5/6</u> 7"	
	sol/slot steel T&C 0-2214'		Size:	1	
Depth: Depth:		Recovered (Y or N): Recovered (Y or N):			
Bit Information	2162.7-2318'	Recovered (1 or N):	IN		
Surface Casing	17" Hommorto 10	1/1/1 ourfage apping)			
Main Hole	12 1/4" PDC from	(14" surface casing)			
	12 1/4 PDC IIOIN	40-2214			•
Core: Bottom Hole	0.2/4" DDC from 0	044.00008			
Dolloin noie	8 3/4" PDC from 2	214-2320	······································		<u> </u>
	0-2320'	Cored:	NA		
Footage Plugged: Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
	All.	FUalli / Walei.	muu.	ruan mjeuton.	
		10 22201			
Depths:		40-2320'	· · · · · · · · · · · · · · · · · · ·		
Depths:	0-40'		Rec	nained ? (Y or N)	
Depths: Lost Cit	0-40' rculation Depths:	NA		pained ? (Y or N):	25/5 gpm
Depths: Lost Cir Water Invasion D	0-40' rculation Depths: epth or Intervals:	NA 500/700'		ained ? (Y or N): ated Inflow Rates:	25/5 gpm
Depths: Lost Cir Water Invasion D	0-40' rculation Depths:	NA			25/5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I	0-40' rculation Depths: epth or Intervals: Depth or Interval:	NA 500/700' NA	Estim		25/5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I	0-40' rculation Depths: epth or Intervals: Depth or Interval:	NA 500/700'	Estim		25/5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA 500/700' NA	Estim:		25/5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	NA 500/700' NA	Estim ging Neutron:	ated Inflow Rates:	25/5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA 500/700' NA	Estim ging Neutron: Density:		25/5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA 500/700' NA directional hole- no log	Estim ging Neutron:	ated Inflow Rates:	25/5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA 500/700' NA	Estim ging Neutron: Density:	ated Inflow Rates:	25/5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 500/700' NA directional hole- no log	Estim ging Neutron: Density: Caliper:	ated Inflow Rates:	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 500/700' NA directional hole- no log	Estim ging Neutron: Density: Caliper:	ated Inflow Rates: yds for 9 5/8" annulus	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 500/700' NA directional hole- no log	Estima ging Neutron: Density: Caliper: No. of Bags: 7 Interval: to	ated Inflow Rates:	3
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA 500/700' NA directional hole- no log ., Drift, Dep., Sonic): N	Estima ging Neutron: Density: Caliper: No. of Bags: 7 Interval: to	ated Inflow Rates:	3
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA 500/700' NA directional hole- no log	Estima ging Neutron: Density: Caliper: No. of Bags: 7 Interval: to	ated Inflow Rates: yds for 9 5/8" annulus	3
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	NA 500/700' NA directional hole- no log ., Drift, Dep., Sonic): N 51.3' inside 9 5/8" casi	Estima ging Neutron: Density: Caliper: No. of Bags: 7 Interval: to Rock Sent To:	ated Inflow Rates:	3
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: 122.4' slotted 7" casia	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ng below 32.9' solid	NA 500/700' NA directional hole- no log ., Drift, Dep., Sonic): N 51.3' inside 9 5/8" casil 7" casing. Landed at 2	Estim ging Neutron: Density: Caliper: No. of Bags: 7 Interval: to Rock Sent To: ng. 2318'.	ated Inflow Rates:	5
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: 122.4' slotted 7" casia	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ng below 32.9' solid	NA 500/700' NA directional hole- no log ., Drift, Dep., Sonic): N 51.3' inside 9 5/8" casi	Estim ging Neutron: Density: Caliper: No. of Bags: 7 Interval: to Rock Sent To: ng. 2318'.	ated Inflow Rates:	5
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 122.4' slotted 7" casii Drilled directionally fr	0-40' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ng below 32.9' solid om 500-2162'. Botto	NA 500/700' NA directional hole- no log , Drift, Dep., Sonic): N 51.3' inside 9 5/8" casin 7" casing. Landed at 2 om of 9 5/8" casing loca	Estim ging Neutron: Density: Caliper: No. of Bags: 7 Interval: to Rock Sent To: ng. 2318'. ated 393.7' at azimu	ated Inflow Rates: yds for 9 5/8" annulus surface NA ith 83.59 degrees.	5
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 122.4' slotted 7" casii Drilled directionally fr	0-40' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ng below 32.9' solid om 500-2162'. Botto	NA 500/700' NA directional hole- no log ., Drift, Dep., Sonic): N 51.3' inside 9 5/8" casil 7" casing. Landed at 2	Estim ging Neutron: Density: Caliper: No. of Bags: 7 Interval: to Rock Sent To: ng. 2318'. ated 393.7' at azimu	ated Inflow Rates: yds for 9 5/8" annulus surface NA ith 83.59 degrees.	5
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: 122.4' slotted 7" casi Drilled directionally fr 9 5/8" casing abando	0-40' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ng below 32.9' solid om 500-2162'. Botte ned to surface with	NA 500/700' NA directional hole- no log ., Drift, Dep., Sonic): N 51.3' inside 9 5/8" casis 7" casing. Landed at 2 om of 9 5/8" casing loca 32 cubic yards portland	Estim ging Neutron: Density: Caliper: No. of Bags: 7 Interval: to Rock Sent To: ng. 2318'. ated 393.7' at azimu	ated Inflow Rates: yds for 9 5/8" annulus surface NA ith 83.59 degrees.	5
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> 122.4' slotted 7" casii Drilled directionally fr	0-40' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ng below 32.9' solid om 500-2162'. Botte ned to surface with	NA 500/700' NA directional hole- no log , Drift, Dep., Sonic): N 51.3' inside 9 5/8" casin 7" casing. Landed at 2 om of 9 5/8" casing loca 32 cubic yards portland	Estim ging Neutron: Density: Caliper: No. of Bags: 7 Interval: to Rock Sent To: ng. 2318'. ated 393.7' at azimu d cement slurry July	ated Inflow Rates: yds for 9 5/8" annulus surface NA ith 83.59 degrees.	3

				and the second	والمتحديق ويستنق فيستر ومتشاط ومعادلته ومعاديه والمستعد والمتعاد
Hole Number	: GVB 17-09	Broingt ID .	Elle Orack Mino G	- Vant Parahalas	
Lease Number			Elk Creek Mine Go	USFS	
		(State or Federal)		0373	
Date Commenced	<u> </u>	Date Completed:	5-Aug-11		
O a vatura at a v	- Uline - Dulline -	D			
Contractor			Atlas Copco RD20		
Geologist		Date :	26-Oct-11	Toolpusher:	Matt Himes
Driller	: Jim Weatherton	Truck Driver:		Helper:	Nick D.
	Kirk Homedew		Will Juusola	<u></u>	Jimmy L.
Coordinates: N		Ε.	39898.57		
Location: Townsh		on:	SE 1/4, Sec. 32, T.	12 S., R. 90 W.	
Ground Elevation:		Collar Elevation:			
Geophysical Log N			Elevation		
Total Depth		Probe Depth:	2339'	Fluid Level:	NA
Casing Type			Size:	9 5/8"	
Casing Type	sol/slot steel T&C		Size:	7"	
Depth	. 0-2003'	Recovered (Y or N):	Ν -		
Depth	: 1945-2313'	Recovered (Y or N):	N		
Bit Information					
Surface Casing	17" Hammer to 40	' (14" surface casing)			
Main Hole	12 1/4" PDC from	40-2003'		· · · · · ·	
Core:					
Bottom Hole	8 3/4" PDC from 2	003-2353'			
Footage Plugged:	0-2353'	Cored:	NA		
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
	AIG	i valii / watci .	muu.	ruanninjection.	
Drining Medium. Depths:		40-2353'		roam mjection.	
-					
Depths:		40-2353' NA	Reg	pained ? (Y or N):	
Depths: Lost Ci	0-40'	40-2353' NA 1170'	Reg		5 gpm
Depths: Lost Ci Water Invasion D	0-40' rculation Depths:	40-2353' NA	Reg	pained ? (Y or N):	5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion I	0-40' rculation Depths: epth or Intervals: Depth or Interval:	40-2353' NA 1170'	Reg	pained ? (Y or N):	5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion I Geophysical Log	0-40' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor:	40-2353' NA 1170' NA	Reç Estim	pained ? (Y or N):	5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion I	0-40' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma:	40-2353' NA 1170' NA Jetwest Geophysical	Reg Estima Neutron:	jained ? (Y or N): ated inflow Rates:	5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion I Geophysical Log	0-40' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature:	40-2353' NA 1170' NA Jetwest Geophysical	Reg Estima Neutron: Density:	pained ? (Y or N):	5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-40' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	40-2353' NA 1170' NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N): ated inflow Rates: Y	5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-40' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	40-2353' NA 1170' NA Jetwest Geophysical	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N): ated inflow Rates: Y	5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	40-2353' NA 1170' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estim: Neutron: Density: Caliper: cement dump bailer	jained ? (Y or N): ated inflow Rates: Y Y 5 yds for 9 5/8" annulu:	
Depths: Lost Ci Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	40-2353' NA 1170' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estim: Neutron: Density: Caliper: cement dump bailer No. of Bags: 14	jained ? (Y or N): ated inflow Rates: Y 5 yds for 9 5/8" annulu: surface	
Depths: Lost Ci Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-40' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (<u>Y</u> or N), Type: NA 7" casing overlaps	40-2353' NA 1170' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 56' inside 9 5/8" casing	Reg Estim: Density: Caliper: cement dump bailer No. of Bags: <u>1</u> Interval: to Rock Sent To:	jained ? (Y or N): ated inflow Rates: Y 5 yds for 9 5/8" annulu: surface	<u>s</u>
Depths: Lost Ci Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 231	0-40' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps 1', bottom of 7" cas ned to surface with	40-2353' NA 1170' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 56' inside 9 5/8" casing ing at 2313'. 34 cubic yards portland	Reg Estim: Neutron: Density: Caliper: cement dump bailer No. of Bags: <u>1</u> Interval: <u>to</u> Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y 5 yds for 9 5/8" annulu: surface NA	<u>s</u>

		Oxbow Mir	ing LLC		
		Elk Cree	k Mine		
					annais an ganagan an tao 2000 ang
Hole Number	: GVB 18-03B	Project ID.:	Elk Creek Mine Go	b Vent Boreholes	
Lease Number		(State or Federal)		Hotchkiss	
Date Commenced	: <u>1-Oct-11</u>	Date Completed:	6-Oct-11		
Contractor	Himes Drilling	Rig Type:	Atlas Copco RD20		
Geologist		Date :	26-Oct-11	Toolpusher:	Matt Himes
Driller		Truck Driver:	Mike Hibberd	Helper:	Brandon Y.
	Kirk Homedew		Will Juusola	-	Jimmy L.
Coordinates: N		E.	35373.62		
Location: Townsh			NE 1/4, Sec. 31, T.	12 S., R. 90 W.	
Ground Elevation:	8309'	Collar Elevation:			
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	2660'	Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	•
Depth:		Recovered (Y or N):	<u> </u>		
Depth:	2155-2496'	Recovered (Y or N):	N		
Bit Information	470 ()				
Surface Casing		" (14" surface casing)			
Main Hole	12 1/4" PDC from	40-2230			
Core:	0.0/41 Triagno from	0000 00701			
Bottom Hole	8 3/4" Tricone from	1 2230-2670			· · · · · · · · · · · · · · · · · · ·
Footage Plugged:	0-2670'	Cored:	NA		
Toolage Tugges.					
Drilling Medium:				Foam Injection:	
Drilling Medium: Depths:	Air:	Foam /Water:		Foam Injection:	
Drilling Medium: Depths:				Foam Injection:	
Depths:	Air: 0-40'	Foam /Water: 40-2670'	Mud:		
Depths: Lost Cir	Air: 0-40' rculation Depths:	Foam /Water:	Mud: Reg	Foam Injection: ained ? (Y or N): ated Inflow Rates:	5 gpm
Depths: Lost Cin Water Invasion De	Air: 0-40' rculation Depths:	Foam /Water: 40-2670' NA	Mud: Reg	ained? (Y or N):	5 gpm
Depths: Lost Cin Water Invasion De	Air: 0-40' rculation Depths: epth or Intervals:	Foam /Water: 40-2670' NA 1700'	Mud: Reg	ained? (Y or N):	5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I	Air: 0-40' rculation Depths: epth or Intervals: Depth or Interval:	Foam /Water: 40-2670' NA 1700'	Mud: Reg	ained? (Y or N):	5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	Air: 0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical	Mud: Reg Estima	ained? (Y or N):	5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I	Air: 0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y	Mud: Reg Estima Neutron:	ained? (Y or N):	5 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	Air: 0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y	Mud: Reg Estima Neutron: Density:	ained ? (Y or N): ated Inflow Rates: Y	5 gpm
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run:	Air: 0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y	Mud: Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	5 gpm
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run:	Air: 0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y	Mud: Reg Estima Neutron: Density: Caliper: ement dump bailer	ained ? (Y or N): ated Inflow Rates: Y Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	Air: 0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): or	Mud: Reg Estima Neutron: Density: Caliper: ement dump bailer	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	Air: 0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): or	Mud: Reg Estima Neutron: Density: Caliper: ement dump bailer	ained ? (Y or N): ated Inflow Rates: Y Yds for 9 5/8" annulus	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	Air: 0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u> N	Mud: Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 5 Interval: to	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	Air: 0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u> N	Mud: Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 5 y	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	Air: 0-40' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA	Foam /Water:	Mud: Reg Estima Neutron: Density: Caliper: Caliper: Mo. of Bags: 5 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	Air: 0-40' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): N 56' inside 9 5/8" casing	Mud: Reg Estima Neutron: Density: Caliper: Caliper: Mo. of Bags: 5 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	Air: 0-40' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): N 56' inside 9 5/8" casing	Mud: Reg Estima Neutron: Density: Caliper: Caliper: Mo. of Bags: 5 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	Air: 0-40' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): N 56' inside 9 5/8" casing	Mud: Reg Estima Neutron: Density: Caliper: Caliper: Mo. of Bags: 5 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 250	Air: 0-40' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps 6', bottom of 7" cas	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): _c N 56' inside 9 5/8" casing sing at 2496'.	Mud: Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 5 Interval: to Rock Sent To:	ained ? (Y or N):	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 250	Air: 0-40' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps 6', bottom of 7" cas	Foam /Water: 40-2670' NA 1700' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): N 56' inside 9 5/8" casing	Mud: Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 5 Interval: to Rock Sent To:	ained ? (Y or N):	

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Hole Number	: GVB 18-07	Duck of ID .	The One of Mine Co	ah Vant Barahalaa	
Lease Number			Elk Creek Mine Go	USFS	
			Surface Owner:	0353	•
Date Commenced	: 17-Nov-10	Date Completed:	August, 2011		
• • •					
Contractor			Atlas Copco RD2C		
Geologist		. Date :		Toolpusher:	
Driller	: Jim Weatherton	Truck Driver:	the second se	Helper:	Richard H.
	Sam Homedew		Will Juusola		Trey H.
Coordinates: N	. 18167.80	E.	38708.10		
Location: Townsh	nip, Range & Secti	on:	SW 1/4, Sec. 32, T	⁻ . 12 S., R. 90 W.	
Ground Elevation:	8217'	Collar Elevation:			
Geophysical Log I	Measured From:	ground	Elevation		
Total Depth		Probe Depth:	2513'	Fluid Level:	NA
Casing Type			Size:	9 5/8"	
Casing Type			Size:		
Depth		Recovered (Y or N):			
•		Recovered (Y or N):			
Depth Dit Information		Recovered (1 of N).			
Bit Information	(0) 7 . (00)	74.411 5	······································	······································	
Surface Casing		(14" surface casing)			
Main Hole	12 1/4" PDC from	63-2362			
Core:					
Bottom Hole	8 3/4" Tricone from	n 2362-2516'			
Footage Plugged	0-2516'	Cored:	NA		
Drilling Medium	Air:	Foam /Water:	Mud:	Foam Injection:	
-	the second se	220-2516'			
Depths	the second se				
Depths	0-220'	220-2516'		jained ? (Y or N):	
Depths: Lost Ci	rculation Depths:	220-2516' NA	Reg	jained ? (Y or N):_	20 gpm/ 5 gpm
Depths: Lost Ci Water Invasion D	rculation Depths: epth or Intervals:	220-2516' NA 220'/ 1200'	Reg		20 gpm/ 5 gpm
Depths: Lost Ci Water Invasion D	rculation Depths:	220-2516' NA	Reg	jained ? (Y or N):_	20 gpm/ 5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion	culation Depths: epth or Intervals: Depth or Interval:	220-2516' NA 220'/ 1200' NA	Reg	jained ? (Y or N):_	20 gpm/ 5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion	culation Depths: epth or Intervals: Depth or Interval:	220-2516' NA 220'/ 1200'	Reg	jained ? (Y or N):_	20 gpm/ 5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log	: 0-220' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor:	220-2516' NA 220'/ 1200' NA Jetwest Geophysical	Reg Estim	jained ? (Y or N):_	20 gpm/ 5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion	: 0-220' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma:	220-2516' NA 220'/ 1200' NA	Reg Estim Neutron:	jained ? (Y or N): _ ated Inflow Rates: _	20 gpm/ 5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log	: 0-220' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature:	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y	Reg Estim Neutron: Density:	jained ? (Y or N): _ ated Inflow Rates: _ Y	20 gpm/ 5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run:	: 0-220' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y Y	Reg Estim Neutron: Density: Caliper:	jained ? (Y or N): _ ated Inflow Rates: _	20 gpm/ 5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run:	: 0-220' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y	Reg Estim Neutron: Density: Caliper:	jained ? (Y or N): _ ated Inflow Rates: _ Y	20 gpm/ 5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot	: 0-220' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y ., Drift, Dep., Sonic):	Reg Estim Neutron: Density: Caliper: ABI	jained ? (Y or N): ated Inflow Rates: 	20 gpm/ 5 gpm
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot	: 0-220' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y Y	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: <u>5</u>	jained ? (Y or N): ated Inflow Rates: Y Y 8 sacks annulus	
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot	: 0-220' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y ., Drift, Dep., Sonic):	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: <u>5</u>	jained ? (Y or N): ated Inflow Rates: 	
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot Hole Cemented	culation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: <u>5</u> Interval:	jained ? (Y or N): ated Inflow Rates: 	
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot Hole Cemented	culation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y ., Drift, Dep., Sonic):	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: <u>5</u>	jained ? (Y or N): ated Inflow Rates: 	
Depths Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	culation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: 5 Interval: Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y 8 sacks annulus NA	
Depths Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	i O-220' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec I (Y or N), Type: NA Hole bridged below	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y v 9 5/8" casing at lip of	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: 5 Interval: Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y 8 sacks annulus NA , unable	
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: to keep open to bott	: 0-220' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec I (Y or N), Type: NA Hole bridged below om after tripping in	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y v 9 5/8" casing at lip of 8 3/4" bit, unable to du	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: 5 Interval: Rock Sent To: 8 3/4" hole (2360') mp bail. Opt to leav	jained ? (Y or N): ated Inflow Rates: Y Y 8 sacks annulus NA , unable	
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: to keep open to bott	: 0-220' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec I (Y or N), Type: NA Hole bridged below om after tripping in	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y v 9 5/8" casing at lip of	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: 5 Interval: Rock Sent To: 8 3/4" hole (2360') mp bail. Opt to leav	jained ? (Y or N): ated Inflow Rates: Y Y 8 sacks annulus NA , unable	
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: to keep open to bott until able to pressure	Contractor: Contr	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y v 9 5/8" casing at lip of 8 3/4" bit, unable to du ner. Canceled plan to t	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: 5 Interval: Rock Sent To: 8 3/4" hole (2360') mp bail. Opt to leav frac with gas gun.	jained ? (Y or N): ated Inflow Rates: Y Y 8 sacks annulus NA , unable re hole sil	
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: to keep open to bott until able to pressure	Contractor: Contr	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y v 9 5/8" casing at lip of 8 3/4" bit, unable to du ner. Canceled plan to t	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: 5 Interval: Rock Sent To: 8 3/4" hole (2360') mp bail. Opt to leav frac with gas gun.	jained ? (Y or N): ated Inflow Rates: Y Y 8 sacks annulus NA , unable re hole sil	
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: to keep open to bott until able to pressure Summer 2011: Mine	culation Depths: epth or Intervals: Depth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec I (<u>Y</u> or N), Type: <u>NA</u> Hole bridged below om after tripping in e cement next summ	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y v 9 5/8" casing at lip of 8 3/4" bit, unable to du mer. Canceled plan to to ng 2011 and hole no lo	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: 5 Interval: Rock Sent To: 8 3/4" hole (2360') mp bail. Opt to leav frac with gas gun.	jained ? (Y or N): ated Inflow Rates: Y Y 8 sacks annulus NA , unable re hole sii	
Depths: Lost Ci Water Invasion D Gas Invasion Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: to keep open to bott until able to pressure Summer 2011: Mine	Contractor: Contr	220-2516' NA 220'/ 1200' NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y v 9 5/8" casing at lip of 8 3/4" bit, unable to du ner. Canceled plan to to ng 2011 and hole no lo n 24 yds portland type	Reg Estim Neutron: Density: Caliper: ABI No. of Bags: 5 Interval: Rock Sent To: 8 3/4" hole (2360') mp bail. Opt to leav frac with gas gun.	jained ? (Y or N): ated Inflow Rates: Y Y 8 sacks annulus NA , unable re hole sii	

	Oxbow Mi	-		
	Elk Cre	ek Mine		
Hole Number: GVB 19-01 A	Project ID	: Elk Creek MineE	xploration	
Lease Number: COC-61357	(State or Federal			
Date Commenced: 10-Aug-09	Date Completed			
Contractory I line of Delilie	-			
Contractor: Himes Drilling Geologist: Doug Allen	_ Kig Type: Date :	Atlas Copco RD2		Matt Himes
Driller: Jim Weatherton	 Truck Driver:		Toolpusher: Helper:	Dave T.
Sam Homedew	- IIGGA DI1461.	Tommy Dennis	riciper	Eldon S.
Coordinates: N. 20961.06	Е.	33440.49		
Location: Township, Range & Secti		NW 1/4, Sec. 31, 1	12 S., R. 90 W.	
Ground Elevation: 8140'	Collar Elevation:	Dat d a s		
Geophysical Log Measured From: Total Depth: 2398.5'	ground Probe Depth:	Elevation	Fluid Level:	NA
Total Depth: 2398.5' Casing Type: steel	robe pepth:	2399' Size:	7"	
Casing Type: <u>steel</u> T&C		512¢. Size:	4 1/2"	
Depth: 0-70'	Recovered (Y or N):	N -		
Depth: 0-2200'	Recovered (Y or N):	Ν		
Bit Information				
Surface Casing 97/8" Tricone to 7				
Main Hole 6 1/4" Tricone from Core: 3.838" from 2200-		· · · · · · · · · · · · · · · · · · ·		
Bottom Hole	2390.0			
Footage Plugged: 0-2200'	Cored:	2200-2398.5'		
Drilling Medium: Air:	Foam /Water:	Mud:	Foam Injection:	
Depths: 0-2200'				
Lost Circulation Depths:	NA	Rea	ained? (Y or N):	
Water Invasion Depth or Intervals:	53'		ated Inflow Rates:	10 gpm
Gas Invasion Depth or Interval:	NA			
Geophysical Logging Contractor:	letwest Geophysical			
Logs Run: Gamma:	Y	Neutron:		
Temperature:		Density:	Y	
Resistivity:	Y	Caliper	Y	
Other (SP, Foc. Elec.	, Drift, Dep., Sonic):			
Hole Cemented (\underline{Y} or N), Type:	Y	No. of Bags: 60	0 gallons plug gel	
The Cemented (1 of M), Types_		Interval: Ce		
Coal Core Sent To: SGS		Rock Sent To:	Agapito	
Comments: Cored from 2200-23	208 5' with air Calon H	medew_Driller [,] Por	u () / Span V holpora	
comments: Coled from 2200-20	130.0 WILL AIL GAIGHTIN	Miledem-Duiller, D65	au 0.7 Gean v neipels	• <u> </u>
·····				
•				
				A
Himes Drilling Colorado water well licens	#1285			

			an and an and a second s		
Hole Number	- 01/0 10_03	Project ID -	TH Crock Mino Fi		
Lease Number		(State or Federal)	Elk Creek Mine Ex		
Date Commenced		Date Completed:		TOULINISS	
Date Commences	12-7/ug-00	Date completed.	0-0ep-va		
Contractor	: Himes Drilling	Ria Type:	Atlas Copco RD20		
Geologist		Date :		Toolpusher:	Matt Himes
-	: Jim Weatherton	Truck Driver:		Helper:	Jared F.
Brine.	Sam Homedew		Tommy Dennis	Ticher.	Will Juusola
Coordinates: N		E.	35285.96	-	
Location: Townsh			NE 1/4, Sec. 31, T	12 C R 90 W	
Ground Elevation:	8327'	Collar Elevation:	NE 174, 000. 01, 1	. 12 0., 11. 00 11.	
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	2633'	Fluid Level:	NA
Casing Type:		1 1 WW	Size:	7"	
Casing Type:			Size:	4 1/2"	
Depth:		Recovered (Y or N):	N 0120		
Depth:		Recovered (Y or N):	N		
Bit Information	<u> </u>				
Surface Casing	9 7/8" Tricone to 2	2.5	<u> </u>		
Main Hole	6 1/4" Tricone from				
Core:	3.830" from 2400-2				
Bottom Hole					
Footage Plugged:		Cored:	2400-2635'		
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
-					
Depths:		30-2400'			
•	0-30'				
Lost Cir	0-30' rculation Depths:	NA	Reg	gained ? (Y or N):	<u>.</u>
Lost Cir Water Invasion D	0-30' rculation Depths: epth or Intervals:	NA NA	Reg		······
Lost Cir Water Invasion D	0-30' rculation Depths:	NA	Reg	gained ? (Y or N):	
Lost Cir Water Invasion D Gas Invasion I	0-30' rculation Depths: epth or Intervals: Depth or Interval:	NA NA NA	Reg	gained ? (Y or N):	
Lost Cir Water Invasion D Gas Invasion I	0-30' rculation Depths: epth or Intervals: Depth or Interval:	NA NA	Reg	gained ? (Y or N):	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-30' rculation Depths: epth or Intervals: Depth or Interval:	NA NA NA Jetwest Geophysical	Reg Estim	gained ? (Y or N):	
Lost Cir Water Invasion D Gas Invasion I	0-30' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma:	NA NA NA	Reg Estim Neutron:	gained ? (Y or N): ated Inflow Rates:	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-30' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature:	NA NA NA Jetwest Geophysical Y	Reç Estim Neutron: Density:	gained ? (Y or N): ated Inflow Rates: Y	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-30' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y	Reg Estim Neutron:	gained ? (Y or N): ated Inflow Rates:	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-30' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y	Reç Estim Neutron: Density:	gained ? (Y or N): ated Inflow Rates: Y	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-30' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper:	gained ? (Y or N): ated Inflow Rates: Y	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-30' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: No. of Bags: 66	gained ? (Y or N): ated Inflow Rates: Y Y 00 gallons plug gel	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-30' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: No. of Bags: 66	gained ? (Y or N): ated Inflow Rates: Y	
Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	0-30' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: No. of Bags: <u>6</u> Interval: <u>ce</u>	gained ? (Y or N): ated Inflow Rates: Y Y 00 gallons plug gel ement 0-10'	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-30' rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: No. of Bags: 66	gained ? (Y or N): ated Inflow Rates: Y Y 00 gallons plug gel ement 0-10'	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-30' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: SGS	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: No. of Bags: <u>6</u> Interval: <u>ca</u> Rock Sent To:	gained ? (Y or N): ated Inflow Rates: Y Y 00 gallons plug gel ement 0-10' Agapito	 FS.
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-30' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: SGS	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y	Reg Estim Neutron: Density: Caliper: No. of Bags: <u>6</u> Interval: <u>ca</u> Rock Sent To:	gained ? (Y or N): ated Inflow Rates: Y Y 00 gallons plug gel ement 0-10' Agapito	 FS.
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-30' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: SGS	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y	Reg Estim Neutron: Density: Caliper: No. of Bags: <u>6</u> Interval: <u>ca</u> Rock Sent To:	gained ? (Y or N): ated Inflow Rates: Y Y 00 gallons plug gel ement 0-10' Agapito	 /S.
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-30' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: SGS	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y	Reg Estim Neutron: Density: Caliper: No. of Bags: <u>6</u> Interval: <u>ca</u> Rock Sent To:	gained ? (Y or N): ated Inflow Rates: Y Y 00 gallons plug gel ement 0-10' Agapito	rs.
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-30' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: SGS	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y	Reg Estim Neutron: Density: Caliper: No. of Bags: <u>6</u> Interval: <u>ca</u> Rock Sent To:	gained ? (Y or N): ated Inflow Rates: Y Y 00 gallons plug gel ement 0-10' Agapito	rs.
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	0-30' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2672-24	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 811.5' with air. Galen H	Reg Estim Neutron: Density: Caliper: No. of Bags: <u>6</u> Interval: <u>ca</u> Rock Sent To:	gained ? (Y or N): ated Inflow Rates: Y Y 00 gallons plug gel ement 0-10' Agapito	rs.
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-30' rculation Depths: epth or Intervals: Depth or Intervals: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2672-24	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 811.5' with air. Galen H	Reg Estim Neutron: Density: Caliper: No. of Bags: <u>6</u> Interval: <u>ca</u> Rock Sent To:	gained ? (Y or N): ated Inflow Rates: Y Y 00 gallons plug gel ement 0-10' Agapito	

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	a) (m) (a) a =				
Hole Number			Elk Creek Mine Go		
Lease Number			Surface Owner:	Hotchkiss	
Date Commenced	19-Sep-09	Date Completed:	23-Sep-09		
• • •		D. 7	AUL 0 DD00		
	Himes Drilling		Atlas Copco RD20	T	
Geologist		Date :		Toolpusher: _	Matt Himes
Driller	Jim Weatherton	Truck Driver:		Helper:	Dave T.
.	Sam Homedew	_	Tommy Dennis	-	Eldon S.
Coordinates: N		E.		10.0 0.00	
Location: Townsh			NE 1/4, Sec. 31, T.	12 S., R. 90 W.	
Ground Elevation:	8095'	Collar Elevation:			
Geophysical Log N		ground	Elevation		N 1 A
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth		Recovered (Y or N):			
Depth	2025-2185'	Recovered (Y or N):	N		
Bit Information					
Surface Casing		(14" surface casing)			
Main Hole	12 1/4" PDC from	20-2085'			······································
Core:					
Bottom Hole	8 3/4" Tricone fron	1 2085-2220'			
Footage Plugged:	0-2220'	Cored:	NA		
Drilling Medium:	the second se	Foam /Water:	Mud:	Foam Injection:	
Depths		1792-2220'			
Deptilo	0 1702				
Lost Ci	rculation Depths:	NA	Re	gained?(Y or N): _	
	rculation Depths:	the second s		gained?(Y or N): ated Inflow Rates: _	
Water Invasion D	rculation Depths: epth or Intervals: Depth or Interval:	the second s			
Water Invasion D Gas Invasion	epth or Intervals: Depth or Interval:	NA NA			
Water Invasion D Gas Invasion	epth or Intervals: Depth or Interval:	NA			
Water Invasion D Gas Invasion Geophysical Log	epth or Intervals: Depth or Interval: gging Contractor:	NA NA			
Water Invasion D Gas Invasion	epth or Intervals: Depth or Interval: gging Contractor: Gamma:	NA NA	Estim		
Water Invasion D Gas Invasion Geophysical Log	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature:	NA NA Jetwest Geophysical Y	Estim	ated Inflow Rates:	
Water Invasion D Gas Invasion Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical Y Y	Estim Neutron: _ Density: _ Caliper:	ated Inflow Rates:	
Water Invasion D Gas Invasion Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical Y	Neutron: Density: Caliper: _ cement dump baile	ated Inflow Rates:	
Water Invasion D Gas Invasion Geophysical Log Logs Run: O	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec	NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic):	Neutron: Density: Caliper: _ cement dump baile	ated Inflow Rates:	
Water Invasion D Gas Invasion Geophysical Log Logs Run: O	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec	NA NA Jetwest Geophysical Y Y	Neutron: Density: Caliper: _ cement dump baile	ated Inflow Rates:	
Water Invasion D Gas Invasion Geophysical Log Logs Run: O Hole Cemented	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N	Estim Neutron: _ Density: _ Caliper: _ cement dump baile No. of Bags: _ Interval: _	Ated Inflow Rates: Y r	
Water Invasion D Gas Invasion Geophysical Log Logs Run: O	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N	Neutron: Density: Caliper: _ cement dump baile	Ated Inflow Rates: Y r	
Water Invasion D Gas Invasion Geophysical Log Logs Run: O Hole Cemented Coal Core Sent To:	epth or Intervals: Depth or Intervals gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec I (<u>Y</u> or N), Type: <u>NA</u>	NA NA Jetwest Geophysical Y Y ., Drift, Dep., Sonic): N	Estim Neutron: Density: Caliper: cement dump baile No. of Bags: Interval:	Ated Inflow Rates:	
Water Invasion D Gas Invasion Geophysical Log Logs Run: O Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec I (<u>Y</u> or N), Type: <u>NA</u> 7" casing overlaps	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 60' inside 9 5/8" casin	Estim Neutron: Density: Caliper: cement dump baile No. of Bags: Interval:	Ated Inflow Rates: Y r	
Water Invasion D Gas Invasion Geophysical Log Logs Run: O Hole Cemented Coal Core Sent To: Comments: 95/8" annulus ceme	epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec I (<u>Y</u> or N), Type: <u>NA</u> 7" casing overlaps inted with 8 vds nea	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 60' inside 9 5/8" casin t cement slurry.	Estim Neutron: Density: Caliper: cement dump baile No. of Bags: Interval: Rock Sent To: g.	Ated Inflow Rates:	
Water Invasion D Gas Invasion Geophysical Log Logs Run: O Hole Cemented Coal Core Sent To: <u>Comments:</u> 95/8" annulus ceme Tagged gravel at 21	epth or Intervals: Depth or Interval: Gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec I (Y or N), Type: <u>NA</u> 7" casing overlaps nted with 8 yds nea 80', tagged cement	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 60' inside 9 5/8" casin t cement slurry. plug at 2188'. Rechec	Estim Neutron: Density: Caliper: cement dump baile No. of Bags: Interval: Rock Sent To: g.	Ated Inflow Rates:	
Water Invasion D Gas Invasion Geophysical Log Logs Run: O Hole Cemented Coal Core Sent To: <u>Comments:</u> 95/8" annulus ceme Tagged gravel at 21	epth or Intervals: Depth or Interval: Gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec I (Y or N), Type: <u>NA</u> 7" casing overlaps nted with 8 yds nea 80', tagged cement	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 60' inside 9 5/8" casin t cement slurry.	Estim Neutron: Density: Caliper: cement dump baile No. of Bags: Interval: Rock Sent To: g.	Ated Inflow Rates:	
Water Invasion D Gas Invasion Geophysical Log Logs Run: O Hole Cemented Coal Core Sent To: <u>Comments:</u> 95/8" annulus ceme Tagged gravel at 21 gravel must have br	epth or Intervals: Depth or Intervals: Gging Contractor: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec I (Y or N), Type: <u>NA</u> 7" casing overlaps nted with 8 yds nea 80', tagged cement dged, then settled a	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 60' inside 9 5/8" casin t cement slurry. plug at 2188'. Rechec fter dump bailing. Bot	Estim Neutron: Density: Caliper: cement dump baile No. of Bags: Interval: Rock Sent To: g. ked with bailer for c om of 7"casing 5 fe	Ated Inflow Rates:	
Water Invasion D Gas Invasion Geophysical Log Logs Run: O Hole Cemented Coal Core Sent To: <u>Comments:</u> 95/8" annulus ceme Tagged gravel at 21 gravel must have br	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ther (SP, Foc. Elec I (Y or N), Type: NA 7" casing overlaps inted with 8 yds nea 80', tagged cement dged, then settled a	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 60' inside 9 5/8" casin t cement slurry. plug at 2188'. Rechec ifter dump bailing. Bot	Estim Neutron: Density: Caliper: cement dump baile No. of Bags: Interval: Rock Sent To: g. ked with bailer for c om of 7"casing 5 fe	Ated Inflow Rates:	

	<u></u>	Oxbow Mi	ning LLC		
		Elk Cre	ek Mine		
	n an				
Hole Number Lease Number Date Commenced	: COC-61357		: Elk Creek Mine Gol) Surface Owner: :5-Aug-10	o Vent Boreholes Hotchkiss	
Geologist Driller: Coordinates: Ň	Jim Weatherton Sam Homedew 17504.25	Date Truck Driver	Kirk Homedew Will Juusola	Toolpusher: _ Helper: _ _	Matt Himes Sean Vivian Cameron S.
Location: Townsh Ground Elevation: Geophysical Log N	8194'	on: Collar Elevation: ground	SE 1/4, Sec. 31, T.	12 S., R. 90 W.	
Total Depth: Casing Type: Casing Type: Depth:	1581' steel T&C sol/slot steel T&C	Probe Depth: Recovered (Y or N):		Fluid Level: 9 5/8" 7"	NA
Depth: Bit Information		Recovered (Y or N):	<u>N</u>		
Surface Casing Main Hole Core: Bottom Hole	16" Tricone to 62' 12 1/4" PDC from	(14" surface casing) 62-1581'			
Footage Plugged: Drilling Medium:	0-1581' Air :	Cored: Foam /Water:	NA Mud: F	oam Injection:	
Depths:	0-800'	800-1581'			
Water Invasion De Gas Invasion D	epth or Interval:	NA 1500' NA letwest Geophysical		ned?(Y or N): ed Inflow Rates:	100 gpm
Logs Run:	- Gamma: Temperature: Resistivity:		bonony.	······································	
Hole Cemented (<u>Y</u> or N), Type:	Y	No. of Bags: 27 c Interval: 158	ubic yards 1' to surface	
Coal Core Sent To:	NA		Rock Sent To:	NA	
Comments: <u>E</u> Hole abandoned- filled		om H2O @ 1500'. Swi ment slurry.	tched to mud, no retu		
		······································			
Himes Drilling Colorac	lo water well licens	e #1285	······		

Hole Number	Dewater I	Project ID	Elk Creek Mine De	water Walle	
Lease Number			Surface Owner:		
Date Commenced		Date Completed:	25-Mov 13	00/0	
		- Duie dompieteu.	20-11/ay-10		
Contractor	: Himes Drilling	Ria Type	Atlas Copco RD20		
Geologist			22-Aug-13		Matt Himes
Driller			Jim Weatherton	Toolpusher: Helper:	
Brition	Kirk Homedew	-	Richard Moores	neihei.	
Coordinates: N		- E.		•	Jerry Blair
Location: Townsh				12 C P 00 W	
Ground Elevation:	7966'	Collar Elevation:	NW 1/4, Sec. 32, T	. 12 J., R. 90 W.	
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:		Eluial Laurah	
Casing Type:		Frobe Deptit.		Fluid Level:	NA
Casing Type: Casing Type:			Size:	14"	
Depth:		Becovered (V or N).	Size:	9 5/8"	
Depth:	the second	Recovered (Y or N):	<u>N</u>		
Bit Information	0-2595'	Recovered (Y or N):	N		
Surface Casing	16" Tricone to 120	11	·····		
Main Hole	12 1/4" PDC from				
Core:	12 1/4 PDC IIUIII	120-2090			
Bottom Hole	Directional drilled	from E001 into mine @	10750 00011 44000		·····
bollom note	Directional drilled	from 500' into mine @	19759.33N/ 41826.	14E	
Footage Plugged:	0-2595'	Caradi	NA		
Drilling Medium:	<u>Air:</u>	Cored: Foam /Water:	NA	For some for the settle some	
	0-120'		Mud:	Foam Injection:	
Depths:	0-120	120-2595'			
Loof Ci	vaulation Dontha	0207! @ mine reaf	De er		
Lost Cir Water Invesion D	culation Depths:	2387' @ mine roof		ained? (Y or N):	NN
Water Invasion De	epth or Intervals:	NA		ained ? (Y or N): ated Inflow Rates:	N
Water Invasion De	culation Depths: epth or Intervals: Depth or Interval:				<u>N</u>
Water Invasion D Gas Invasion [epth or Intervals: Depth or Interval:	NA NA			<u>N</u>
Water Invasion D Gas Invasion [epth or Intervals: Depth or Interval:	NA			<u>N</u>
Water Invasion Do Gas Invasion I Geophysical Log	epth or Intervals: Depth or Interval: ging Contractor:	NA NA Jetwest Geophysical	Estima		N
Water Invasion D Gas Invasion [epth or Intervals: Depth or Interval: ging Contractor: Gamma:	NA NA Jetwest Geophysical X	Estima Neutron:		<u>N</u>
Water Invasion Do Gas Invasion I Geophysical Log	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA NA Jetwest Geophysical X	Estima Neutron: Density:		<u>N</u>
Water Invasion Do Gas Invasion I Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical X	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical X	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Otl	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical X , Drift, Dep., Sonic): <u>v</u>	Estima Neutron: Density: Caliper: ideo/ perforate 9 5/4	ated Inflow Rates:	rizon
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Otl	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical X	Estima Neutron: Density: Caliper: ideo/ perforate 9 5/4	ated Inflow Rates:	rizon
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Otl	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical X , Drift, Dep., Sonic): <u>v</u>	Neutron: Density: Caliper: ideo/ perforate 9 5/4 No. of Bags: <u>6</u> (ated Inflow Rates:	rizon annulus
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Otl Hole Cemented	epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA NA Jetwest Geophysical X , Drift, Dep., Sonic): <u>v</u>	Neutron: Density: Caliper: ideo/ perforate 9 5/4 No. of Bags: <u>6</u> (ated Inflow Rates:	rizon annulus
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Otl	epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA NA Jetwest Geophysical X , Drift, Dep., Sonic): <u>v</u>	Neutron: Density: Caliper: ideo/ perforate 9 5/4 No. of Bags: <u>6</u> (ated Inflow Rates:	rizon annulus
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA	NA NA Jetwest Geophysical X , Drift, Dep., Sonic): <u>v</u> N	Neutron: Density: Caliper: ideo/ perforate 9 5/ No. of Bags: 6 (Interval: to Rock Sent To:	ated Inflow Rates: 8" casing iin mine hor cubic yds cement for surface NA	rizon annulus
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 197' be	NA NA Jetwest Geophysical X , Drift, Dep., Sonic): <u>N</u> N	Neutron: Density: Caliper: ideo/ perforate 9 5/ No. of Bags: 6 (Interval: to Rock Sent To:	ated Inflow Rates: 8" casing iin mine hor cubic yds cement for surface NA	rizon annulus
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> of 5.5" drop tubing. To	epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 197' be po of pump at 2495	NA NA Jetwest Geophysical X , Drift, Dep., Sonic): <u>V</u> N low mine floor to accon .17' below surface.	Estima Neutron: Density: Caliper: ideo/ perforate 9 5/4 No. of Bags: 6 (Interval: to Rock Sent To:	ated Inflow Rates: 8" casing iin mine hor cubic yds cement for surface NA	rizon annulus
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> of 5.5" drop tubing. To 9-21-15 Push plug to	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 197' be po of pump at 2495 60', mix 2x80# sacl	NA NA Jetwest Geophysical X , Drift, Dep., Sonic): V N Iow mine floor to accon .17' below surface. ks concrete, put on top	Estima Neutron: Density: Caliper: ideo/ perforate 9 5/4 No. of Bags: 6 (Interval: to Rock Sent To: modate pump asse	ated Inflow Rates: 8" casing iin mine hor cubic yds cement for surface NA embly. Pump hung off	rizon annulus
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> of 5.5" drop tubing. To 9-21-15 Push plug to 9-22-15 - mix 39.5 sa	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 197' be po of pump at 2495 60', mix 2x80# sact cks of concrete and	NA NA Jetwest Geophysical X , Drift, Dep., Sonic): N N low mine floor to accon .17' below surface. ks concrete, put on top dump down hole back	Estima Neutron: Density: Caliper: ideo/ perforate 9 5/4 No. of Bags: 6 (Interval: to Rock Sent To: modate pump asse	ated Inflow Rates: 8" casing iin mine hor cubic yds cement for surface NA embly. Pump hung off	rizon annulus
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> of 5.5" drop tubing. To 9-21-15 Push plug to	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 197' be po of pump at 2495 60', mix 2x80# sact cks of concrete and	NA NA Jetwest Geophysical X , Drift, Dep., Sonic): N N low mine floor to accon .17' below surface. ks concrete, put on top dump down hole back	Estima Neutron: Density: Caliper: ideo/ perforate 9 5/4 No. of Bags: 6 d Interval: to Rock Sent To: modate pump asse of plug. to within 2" of surfa	ated Inflow Rates: 8" casing iin mine hor cubic yds cement for surface NA embly. Pump hung off	rizon annulus
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> of 5.5" drop tubing. To 9-21-15 Push plug to 9-22-15 - mix 39.5 sa	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 197' be op of pump at 2495 60', mix 2x80# sacl cks of concrete and acks concrete and	NA NA Jetwest Geophysical X , Drift, Dep., Sonic): <u>N</u> N low mine floor to accon .17' below surface. cs concrete, put on top I dump down hole back put in hole.	Estima Neutron: Density: Caliper: ideo/ perforate 9 5/4 No. of Bags: 6 Interval: to Rock Sent To: modate pump asse of plug. to within 2" of surfa	ated Inflow Rates: 8" casing iin mine hor cubic yds cement for surface NA embly. Pump hung off ce.	rizon annulus

Hole Number:	: Dewater II	Project ID :	Clic Crook Mino De		
Lease Number:		Project ID	Elk Creek Mine De	Water wens	
		(State or Federal)		USFS	
Date Commenced:	: 18-Jun-13	Date Completed:	29-Jun-13		
Contractor	Line - Delling	Dia Turat			
Contractor:			Atlas Copco RD20		A de la de Barrana
Geologist:		Date :		Toolpusher:	Matt Himes
Driller:	: Jim Weatherton	Truck Driver:	Jimmy Lovato	Helper:	Chuck M.
· • • •	Kirk Homedew		Richard Moores		Galen Homedew
Coordinates: N.		Ē.			
Location: Townshi			NW 1/4, Sec. 32, T	. 12 S., R. 90 W.	
Ground Elevation:		Collar Elevation:			
Geophysical Log M			Elevation		
Total Depth:	2595'	Probe Depth:		Fluid Level:	NA
Casing Type:		-	Size:	14"	
Casing Type:			Size:	9 5/8"	
Depth:		Recovered (Y or N):	N -		
Depth:		Recovered (Y or N):			
Bit Information					
Surface Casing	17.5" Tricone to 10	02'	·····		<u> </u>
Main Hole	12 1/4" PDC from				
Core:					
Bottom Hole	Directional drilled	from 500' into mine @ a	annrox, 19792N/41	701 F	
64164111 - 14-2	Divolution			1012	······
Footage Plugged:	0-2590'	Cored:	NA		
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
Depths:		102-2590'	1 1 7 47 47 4	T van injeet.	
				······	
Lost Cir	culation Depths:	2384' @ mine roof	Rec	gained? (Y or N):	Ν
Water Invasion De		NA		ated Inflow Rates:	
	Depth or Interval:			-	<u></u>
**					
Geophysical Log	aina Contractor:	Jetwest Geophysical			
Geophysical Log	iging Contractor: _	Jetwest Geophysical		<u></u>	
Geophysical Log Logs Run:		Jetwest Geophysical	Neutron:		
			Density:	,	
Logs Run:	Gamma: Gamma: Temperature: Resistivity:	Χ	Density: Caliper:		
Logs Run:	Gamma: Gamma: Temperature: Resistivity:		Density: Caliper:	'8" casing lin mine ho	rizon
Logs Run: Oti	Gamma: _ Temperature: _ Resistivity: _ her (SP, Foc. Elec.	X ., Drift, Dep., Sonic): <u>\</u>	Density: Caliper: video/ perforate 9 5/		
Logs Run: Oti	Gamma: Gamma: Temperature: Resistivity:	X ., Drift, Dep., Sonic): <u>\</u>	Density: Caliper: video/ perforate 9 5/	/8" casing iin mine ho 2 cubic yds cement fo	
Logs Run: Oti	Gamma: _ Temperature: _ Resistivity: _ her (SP, Foc. Elec.	X ., Drift, Dep., Sonic): <u>\</u>	Density: Caliper: video/ perforate 9 5/ No. of Bags: 1/	2 cubic yds cement fo	
Logs Run: Oti Hole Cemented	Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	X ., Drift, Dep., Sonic): <u>\</u>	Density: Caliper: video/ perforate 9 5/ No. of Bags: 1: Interval: to	2 cubic yds cement fo o surface	
Logs Run: Oti	Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	X ., Drift, Dep., Sonic): <u>\</u>	Density: Caliper: video/ perforate 9 5/ No. of Bags: 1/	2 cubic yds cement fo o surface	
Logs Run: Oti Hole Cemented Coal Core Sent To:	Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	X ., Drift, Dep., Sonic): <u>\</u> N	Density: Caliper: video/ perforate 9 5/ No. of Bags: 1 Interval: to Rock Sent To:	2 cubic yds cement fo o surface NA	or annulus
Logs Run: Oti Hole Cemented Coal Core Sent To: Comments:	Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 206' be	X ., Drift, Dep., Sonic): <u>N</u> N	Density: Caliper: video/ perforate 9 5/ No. of Bags: 1 Interval: to Rock Sent To:	2 cubic yds cement fo o surface NA	or annulus
Logs Run: Oti Hole Cemented Coal Core Sent To: Comments: of 5.5" drop tubing. To	Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 206' be op of pump at 2491	X ., Drift, Dep., Sonic): <u>N</u> N elow mine floor to accor	Density: Caliper: video/ perforate 9 5 No. of Bags: 1: Interval: to Rock Sent To: mmodate pump ass	2 cubic yds cement fo o surface NA	or annulus
Logs Run: Oti Hole Cemented Coal Core Sent To: <u>Comments:</u> of 5.5" drop tubing. To 9-21-15 Push plug to	Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 206' be op of pump at 2491 60', mix 2x80# sacl	X ., Drift, Dep., Sonic): <u>N</u> N elow mine floor to accor .77' below surface. ks concrete, put on top	Density: Caliper: video/ perforate 9 5 No. of Bags: 1: Interval: to Rock Sent To: mmodate pump ass	2 cubic yds cement fo o surface NA embly. Pump hung o	or annulus
Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: of 5.5" drop tubing. To 9-21-15 Push plug to 9-22-15 - mix 39.5 sa	Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 206' be op of pump at 2491 60', mix 2x80# sacl acks of concrete and	X ., Drift, Dep., Sonic): <u>N</u> N N N N N N N N N N N N N N N N N N	Density: Caliper: video/ perforate 9 5 No. of Bags: 1: Interval: to Rock Sent To: mmodate pump ass	2 cubic yds cement fo o surface NA embly. Pump hung o	or annulus
Logs Run: Oti Hole Cemented Coal Core Sent To: <u>Comments:</u> of 5.5" drop tubing. To 9-21-15 Push plug to	Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 206' be op of pump at 2491 60', mix 2x80# sacl acks of concrete and	X ., Drift, Dep., Sonic): <u>N</u> N N N N N N N N N N N N N N N N N N	Density: Caliper: video/ perforate 9 5 No. of Bags: 1: Interval: to Rock Sent To: mmodate pump ass	2 cubic yds cement fo o surface NA embly. Pump hung o	or annulus
Logs Run: Oti Hole Cemented Coal Core Sent To: <u>Comments:</u> of 5.5" drop tubing. To 9-21-15 Push plug to 9-22-15 - mix 39.5 sa 9-25-15 - mix 2x80# s	Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 206' be op of pump at 2491 60', mix 2x80# sach acks of concrete and sacks concrete and	X ., Drift, Dep., Sonic): N N elow mine floor to accor .77' below surface. .ks concrete, put on top d dump down hole back put in hole.	Density: Caliper: video/ perforate 9 5 No. of Bags: 1: Interval: to Rock Sent To: mmodate pump ass	2 cubic yds cement fo o surface NA embly. Pump hung o	or annulus
Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: of 5.5" drop tubing. To 9-21-15 Push plug to 9-22-15 - mix 39.5 sa	Gamma: Temperature: Resistivity: ther (SP, Foc. Elec. (Y or N), Type: NA Hole drilled 206' be op of pump at 2491 60', mix 2x80# sach acks of concrete and sacks concrete and	X ., Drift, Dep., Sonic): N N elow mine floor to accor .77' below surface. .ks concrete, put on top d dump down hole back put in hole.	Density: Caliper: video/ perforate 9 5 No. of Bags: 1: Interval: to Rock Sent To: mmodate pump ass	2 cubic yds cement fo o surface NA embly. Pump hung o	or annulus

Hole Number:	: TGBMPA	Droject ID -	Elk Creek Mine Ga	- Cample Malle	
Lease Number:		(State or Federal)		Hotchkiss	-
Date Commenced:		Date Completed:		MULUIIKISS	
Valo ovinitarios.	2.1-1110y-10	- Date on inhister.	20-101ay-10		
Contractor:	: Himes Drilling	Ria Type	Atlas Copco RD20		
Geologist:		Date :		Toolpusher:	Matt Himes
Driller:			Jim Weatherton	•	
	Sam Homedew	- ITUGK DITVGI.		Helper:	Kenny Nobriga
Coordinates: N.		-	Chad Homedew		Jimmy Lovato
Location: Townshi		E.			
Ground Elevation:	8026'	on: Collar Elevation:	NW 1/4, Sec. 31, T	. 12 S., R. 90 W.	
Geophysical Log M			Elevation		
Total Depth:		Probe Depth:			NIA
Casing Type:		Linne nehur		Fluid Level:	NA
Casing Type: Casing Type:			Size:	<u>7"</u> 4.5"	
Depth:		" "	Size:	4.5	
•		Recovered (Y or N):			
Depth: Bit Information	0-2230	Recovered (Y or N):	<u>N</u>		
Surface Casing	0 7/0" Tricono to ?				
0	97/8" Tricone to 3				
	6 1/4" PDC from 3	2-2230			
Core: Bottom Hole	Dissettenet dellod /	Contration (10001 0711 000007		
Bottom noie	Directional unlieu i	from 500' into mine @ '	19634.27N/ 33320.0)2E	
Footage Plugged:	0-2230'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-32'	32-2230'			
		52-2250			
• •					
Lost Cire	culation Depths:	NA		ained ? (Y or N): _	
Lost Cire Water Invasion De	culation Depths: _ opth or Intervals:	NA NA		ained ? (Y or N): ated Inflow Rates:	
Lost Cire Water Invasion De	culation Depths:	NA			
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval:	NA NA			
Lost Cire Water Invasion De Gas Invasion D Geophysical Loge	culation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA NA NA	Estima		
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	NA NA NA Jetwest Geophysical	Estima Neutron:		
Lost Cire Water Invasion De Gas Invasion D Geophysical Loge	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA NA NA	Estima Neutron: Density:		
Lost Cire Water Invasion De Gas Invasion D Geophysical Loge Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical X-97.8deg F in mine	Estima Neutron: Density: Caliper:		
Lost Cire Water Invasion De Gas Invasion D Geophysical Loge Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical	Estima Neutron: Density: Caliper:		
Lost Cire Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical X-97.8deg F in mine ., Drift, Dep., Sonic): v	Estima Neutron: Density: Caliper: /ideo		annulus
Lost Cire Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth	culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical X-97.8deg F in mine ., Drift, Dep., Sonic): v	Neutron: Density: Caliper: /ideo No. of Bags: <u>3</u>	ated Inflow Rates:	annulus
Lost Cire Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	NA NA Jetwest Geophysical X-97.8deg F in mine ., Drift, Dep., Sonic): v	Neutron: Density: Caliper: /ideo No. of Bags: <u>3 (</u> Interval: to	ated Inflow Rates:	annulus
Lost Cire Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth	culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	NA NA Jetwest Geophysical X-97.8deg F in mine ., Drift, Dep., Sonic): v	Neutron: Density: Caliper: /ideo No. of Bags: <u>3</u>	ated Inflow Rates:	annulus
Lost Circ Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To:	culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	NA NA Jetwest Geophysical X-97.8deg F in mine ., Drift, Dep., Sonic): v	Neutron: Density: Caliper: /ideo No. of Bags: <u>3 (</u> Interval: to	ated Inflow Rates:	annulus
Lost Circ Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments:	culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA	NA NA NA Jetwest Geophysical X-97.8deg F in mine ., Drift, Dep., Sonic): v N	Neutron: Density: Caliper: /ideo No. of Bags: <u>3 (</u> Interval: to Rock Sent To:	ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments:</u> 1 1/4" tubing hung from	culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA NA	NA NA NA Jetwest Geophysical X-97.8deg F in mine , Drift, Dep., Sonic): v N	Estima Neutron: Density: Caliper: //deo No. of Bags: 3 (Interval: to Rock Sent To: //deo	ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments:</u> <u>1 1/4" tubing hung from</u> <u>9-24-15 - Pulled 1.25"</u>	culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA MA	NA NA NA Jetwest Geophysical X-97.8deg F in mine , Drift, Dep., Sonic): v N N embly on 4.5" casing w ag to 60', mix 2x80# sac	Estima Neutron: Density: Caliper: /ideo No. of Bags: 3 (Interval: to Rock Sent To: ith 10' slotted joint in cks concrete and pu	ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments:</u> <u>1 1/4" tubing hung from</u> <u>9-24-15 - Pulled 1.25"</u>	culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA MA	NA NA NA Jetwest Geophysical X-97.8deg F in mine , Drift, Dep., Sonic): v N	Estima Neutron: Density: Caliper: /ideo No. of Bags: 3 (Interval: to Rock Sent To: ith 10' slotted joint in cks concrete and pu	ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments:</u> <u>1 1/4" tubing hung from</u> <u>9-24-15 - Pulled 1.25"</u>	culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA MA	NA NA NA Jetwest Geophysical X-97.8deg F in mine , Drift, Dep., Sonic): v N N embly on 4.5" casing w ag to 60', mix 2x80# sac	Estima Neutron: Density: Caliper: /ideo No. of Bags: 3 (Interval: to Rock Sent To: ith 10' slotted joint in cks concrete and pu	ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented o Coal Core Sent To: <u>Comments:</u> 1 1/4" tubing hung from 9-24-15 - Pulled 1.25" 9-28-15 - use cement	culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA m flange/valve asset tubing, pushed plu truck to fill up 4.5" of	NA NA NA Jetwest Geophysical X-97.8deg F in mine , Drift, Dep., Sonic): v N N embly on 4.5" casing w ig to 60', mix 2x80# sac casing back to surface	Estima Neutron: Density: Caliper: /ideo No. of Bags: 3 (Interval: to Rock Sent To: ith 10' slotted joint in cks concrete and pu	ated Inflow Rates:	
Lost Circ Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments:</u> <u>1 1/4" tubing hung from</u> <u>9-24-15 - Pulled 1.25"</u>	culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA m flange/valve asset tubing, pushed plu truck to fill up 4.5" of	NA NA NA Jetwest Geophysical X-97.8deg F in mine , Drift, Dep., Sonic): v N N embly on 4.5" casing w ig to 60', mix 2x80# sac casing back to surface	Estima Neutron: Density: Caliper: /ideo No. of Bags: 3 (Interval: to Rock Sent To: ith 10' slotted joint in cks concrete and pu	ated Inflow Rates:	

Hole Number: TGA Project ID.: Elk Creek Mine Gas Sample Wells Lease Number: COC43557 State or Federal's Surface Owner: USFS Date Commenced: 29-Apr-13 Date Completed: 3-May-13 Contractor: Himes Drilling Geologist: Rig Type: Atlas Copco R020 Toolpusher: Matt Himes Driller: Mick Homedew Truck Driver: Jim Weatherton Helper: Kenny Nobriga Coordinates: N. 18503.20 Collar Elevation: Geologist: Matt Himes Coordinates: N. 18508.20 Collar Elevation: Geoly Section: Jerry Blair Casing Type: steel T&C Size: 7" Fluid Level: NA Casing Type: steel T&C Size: 7" Size: 4.5" Depth: 0-122 Recovered (Y or N): N Size: 4.5" Depth: 0-2632 Recovered (Y or N): N Size: 4.5" Depth: 0-2632 Recovered (Y or N): N Size: 4.5" Depth: 0-2632 Cored: NA Size: 4.5"	Hole Number	: TGA	Project ID -	Elle Crock Mine G	a Comple Walls	
Date Commenced: 29-Apr-13 Date Completed: 3-May-13 Contractor: Himes Drilling Doilg Allen Rig Type: Atlas Copco RD20 Date : Toolpusher: Matt Himes Methand Moores Driller: Mike Hibbard Kirk Homedew Coordinates: N. Truck Driver: Jim Weatherton Helper: Matt Himes Jerry Blair Coordinates: N. 18603.21 E. 37846.87 Jerry Blair Coordinates: N. 18603.21 E. 37846.87 Jerry Blair Coordinates: N. 18603.21 E. 37846.87 Jerry Blair Goodinates: N. 18603.21 E. 37846.87 Jerry Blair Goodinates: N. 18503.21 E. 37846.87 Jerry Blair Goodination: 8386 Collar Elevation: SW 1/4. Sec. 32, T. 12.5, R. 90 W. Jerry Blair Geophysical Log Measured From: ground Elevation: Size: 7" NA Date Trace Casing Type: 5186178.C Size: 7" NA Surface Casing JPS: 7/8° Tricone to 112 Size: Matt Himes Bit Information Diffing Medium: AIr: Foam Injection: Diffing Med						
Contractor: Himes Drilling Doig Allen Doig Allen Driller: Rig Type: Atlas Copco RD20 Dag Allen Doig Allen Driller: Toolpusher: Mat Himes Helper: Mike Hibbard Kirk Homedew Coordinates: N. Truck Driver: Jim Weatherton Helper: Toolpusher: Mat Himes Helper: Coordinates: N. 16503.21 E. 37846.87 Jerry Blair Coasing Type: 5362 Collar Elevation: Star. 7' Casing Type: Steel T&C Star. Star. 7' Casing Type: Steel T&C Star. Star. Star. 1.5' Bit Information 5//// Throne to 112' Nadr. Nadr. Star.		manual contraction of the second s				
Geologist: Doug Allen Mike Hibbard Date: 22.Aug-13 m Weatherton Foolpusher: Matt Himes Matt Himes Ordinates: N. 18503.21 E. 37846.87 Jerry Blair Coordinates: N. 18503.21 E. 37846.87 Jerry Blair Ground Elevation: 8366' Collar Elevation: SW 1/4, Sec. 32, T. 12 S., R. 90 W. Jerry Blair Ground Elevation: 8386' Collar Elevation: SW 1/4, Sec. 32, T. 12 S., R. 90 W. Jerry Blair Geophysical Log Measured From: ground Elevation Truck Driver: SW 1/4, Sec. 32, T. 12 S., R. 90 W. Gasing Type: steel T&C Size: 7" Na Casing Type: steel T&C Size: 7" Depth: 0.412 Recovered (Y or N): N Bit Information Size: 4.5" Size: Surface Casing 97/8" Tricone to 112" Na Size: 4.5" Nain Hole Elevation Depth: 0.412 Truce 2632" Coreat: NA Directional drilled from 500° Into mine @ 18497.72N/ 37891.73E Footage Plugged: 0.2762' Cored: NA<			- Date completion.	J-11/ay-10		
Geologist: Doug Allen Mike Hibbard Date: 22.Aug-13 m Weatherton Foolpusher: Matt Himes Matt Himes Ordinates: N. 18503.21 E. 37846.87 Jerry Blair Coordinates: N. 18503.21 E. 37846.87 Jerry Blair Ground Elevation: 8366' Collar Elevation: SW 1/4, Sec. 32, T. 12 S., R. 90 W. Jerry Blair Ground Elevation: 8386' Collar Elevation: SW 1/4, Sec. 32, T. 12 S., R. 90 W. Jerry Blair Geophysical Log Measured From: ground Elevation Truck Driver: SW 1/4, Sec. 32, T. 12 S., R. 90 W. Gasing Type: steel T&C Size: 7" Na Casing Type: steel T&C Size: 7" Depth: 0.412 Recovered (Y or N): N Bit Information Size: 4.5" Size: Surface Casing 97/8" Tricone to 112" Na Size: 4.5" Nain Hole Elevation Depth: 0.412 Truce 2632" Coreat: NA Directional drilled from 500° Into mine @ 18497.72N/ 37891.73E Footage Plugged: 0.2762' Cored: NA<	Contractor	Himes Drilling	Ria Type:	Atlas Conco RD20	1	
Driller: Mike Hibbard Kirk Homedew Truck Driver: Jim Weatherton Richard Moores Helper: Kenny Nobriga Jerry Blair Coordinates: N. 18503.21 E. 378446.87 Location: rownship, Range & Section: ground Elevation: SW 1/4, Sec. 32, T. 12 S., R. 90 W. Ground Elevation: 8386' Collar Elevation: ground Elevation Total Depth: 2632' Probe Depth: 2637' Casing Type: steel T&C Size: 7' Casing Type: steel T&C Size: 7' Depth: 0-112' Recovered (Y or N): N Bit Information Surface Casing 9.7/8' Tricone to 112' N Surface Casing 9.7/8' Tricone to 112' Cored: NA Surface Casing 0.7/82' Tricone to 112' Cored: NA Bit Information Interval: NA Regalned ? (Y or N): Interval: Surface Casing 9.7/8' Tricone to 112' NA Estimated Inflow Rates: Interval: Bottom Hole Directional drilled from 500' Into mine @ 18497.72N/ 37891.73E Footage Plugged: 0-2762' Coreet: NA						Matt Himes
Kirk Homedew Richard Moores Jeny Blair Location: 18503.21 E. 37846.87 Location: 8386' Collar Elevation: SW 1/4, Sec. 32, T. 12 S, R. 90 W. Ground Elevation: 8386' Collar Elevation: Elevation Total Depth: 2632' Probe Depth: 2637' Fluid Level: NA Casing Type: steel T&C Size: 7' Size: 4.5' Depth: 0-112' Recovered (Y or N): N N Depth: 0-12' Size: 4.5' Bit Information Surface Casing 97/8' Tricone to 112' Na Na Size: 4.5' Bit Information Size: 0-2762' Cored: NA Na Na Na Footage Plugged: 0-2762' Cored: NA Na Stimated Inflow Rates: Size: Gas Invasion Depth or Intervals: NA Regained ? (Y or N): Na Lost Circulation Depths: NA Regained ? (Y or N): Casing as Invasion Depth or Intervals: NA Estimated Inflow Rates: Gas Invasion Depth or Intervals: NA Geophysic						
Coordinates: N. 18503.21 E. 37846.87 100 Junior Location: Township, Range & Section: SW 1/4, Sec. 32, T. 12 S, R. 90 W. Ground Elevation: 100 Junior Geophysical Log Measured From: ground Elevation: 2637 Fluid Level: NA Casing Type: steel T&C Size: 7" Casing Type: NA Casing Type: steel T&C Size: 7" Casing Type: NA Depth: 0.2632 Recovered (Y or N): N N Depth: 0.2632 Bit Information 2037 Recovered (Y or N): N N Depth: 0.2632 Core: Bottom Hole Directional drilled from 500' Into mine @ 18497.72N/ 37891.73E No Directional Footage Plugged: 0.2762' Cored: NA Drilling Medium: Air: Foom /Water: Mud: Foam Injection: Direction: Depths: 0.112' 112:2632' Cored: NA Estimated Inflow Rates: Cored: Sa and sa invasion Depth or Intervals: NA Estimated Inflow Rates: Cored: Cored: Sa and sa invasion Depth or Interval: N						
Location: Township, Range & Section: SW 1/4, Sec. 32, T. 12 S, R. 90 W. Ground Elevation: 8386' Coliar Elevation: Elevation: Ground Elevation: 8386' Casing Type: siteel T&C Size: 7' Casing Type: siteel T&C Depth: 0-112' Recovered (Y or N): N Depth: 0-2632' Recovered (Y or N): N Bufface Casing 97/8' Tricone to 112' Nain Hole 61/4' PDC from 112-2632' Core: Bottom Hole Directional drilled from 500' into mine @ 18497.72N/ 37891.73E Footage Plugged: 0-2762' Cored: NA Drilling Medium: AIr: Foam /Water: Mud: Points: 0-112' It2-2632' Cored: Lost Circulation Depths: NA Reside Inflow Rates: Caliper: Gas Invasion Depth or Interval: NA Gas Invasion Depth or Interval: NA Reside Inflow Rates: Caliper: Cother (SP, Foc. Elec, Drift, Dep., Sonic):	Coordinates: N.				-	Joiry Dian
Ground Elevation: 8386' Collar Elevation: Image: Collar Elevation: Geophysical Log Measured From: ground Elevation: 2637' Fluid Level: NA Total Depth: 2632' Size: 7" Size: 4.5" Depth: 0-112' Recovered (Y or N): N N N Bit Information 7/8" Tricone to 112' Recovered (Y or N): N N N Surface Casing 9.7/8" Tricone to 112' Recovered (Y or N): N N N N Bit Information 0-2632' Recovered (Y or N): N				The second secon	12 S., R. 90 W.	
Geophysical Log Measured From: ground Elevation Total Depth: 2637 Fluid Level: NA Casing Type: siteel T&C Size: 7" Casing Type: siteel T&C Size: 7" Depth: 0-112 Recovered (Y or N): N Depth: 0-2632 Recovered (Y or N): N Bit Information 0-2632 Coreational drilled from 500° into mine @ 18497.72N/ 37891.73E Coreational drilled from 500° into mine @ 18497.72N/ 37891.73E Footage Plugged: 0-2762 Cored: NA Regained ? (Y or N): Drilling Medium: Air: Foam Water: Mud: Foam Injection: Depths: 0-112' 112-2632 Estimated Inflow Rates: Gas Invasion Depth or Intervals: NA Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Caliper: Coliper: Coliper: Coliper: Coliper: <				WIT 11 13 W 221 2. 3		
Total Depth: 2632' Probe Depth: 2637' Fluid Level: NA Casing Type: steel T&C Size: 7' 7' Depth: 0-112' Recovered (Y or N): N N Depth: 0-2632' Recovered (Y or N): N N Bit Information 97/8' Tricone to 112' Recovered (Y or N): N N Bit Information 97/8' Tricone to 112' Nain Hole 61/4'' PDC from 112-2632' Corea: NA Core: Directional drilled from 500' into mine @ 18497.72N/ 37891.73E Foatage Plugged: 0-2762' Cored: NA Footage Plugged: 0-2762' Cored: NA Regained ? (Y or N):		leasured From:		Elevation		
Casing Type: steel T&C Size: 7" Casing Type: steel T&C Size: 7" Depth: 0-112" Recovered (Y or N): N Depth: 0-2632" Recovered (Y or N): N Surface Casing 9 7/8" Tricone to 112: N Surface Casing 9 7/8" Tricone to 112: N Bit Information 0 114" PDC from 112:2632" 0 Core: Directional drilled from 500" into mine @ 18497.72N/ 37891.73E 0 Footage Plugged: 0-2762' Cored: NA Drilling Medium: Air: Foam Water: Mud: Foam Injection: Depths: 0-112' 112:2632' 0 0 0 Lost Circulation Depths: NA Regained ? (Y or N): 0 Water Invasion Depth or Intervals: NA Estimated Inflow Rates: 0 0 Geophysical Logging Contractor: Jetwest Geophysical Density: Caliper: 0 Other (SP, Foc. Elec., Drift, Dep., Sonic): video Video No. of Bags: 4 cubic yds cement for annulus 0 Hole Cemented (Y or N), Type:	Total Depth:	2632'			Fluid Level:	NA
Depth: 0-112' Recovered (Y or N): N Bit Information Surface Casing 97/8" Tricone to 112' Main Hole 61/4" PDC from 112-2632' Coreat: Core: Directional drilled from 500' into mine @ 18497.72N/ 37891.73E Footage Plugged: 0-2762' Cored: NA Foam Injection: Depths: 0-112' Ill: To an Injection: Depths: 0-112' Ill: Foam INater: Mud: Foam Injection: Depths: 0-112' Ill: Segmed ? (Y or N): Water Invasion Depth or Intervals: NA Gesphysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Neutron: Resistivity: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: No. of Bags: 4 cubic yds cement for annulus Interval: Interval: Interval: Coal Core Sent To: NA Rock Sent To: 9:23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9:23-15 cuse cemen	Casing Type:	steel T&C		Size:	7" -	
Depth: 0-2632' Recovered (Y or N): N Bit Information 97/8" Tricone to 112' N Main Hole 6 1/4" PDC from 112-2632' Core: Bottom Hole Directional drilled from 500" into mine @ 18497.72N/ 37891.73E Footage Plugged: 0-2762' Cored: NA Drilling Medium: Air: Foam Water: Mud: Foam Injection: Depths: 0-112' 112-2632' Cored: NA Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Secondary (Y or N): Geophysical Logging Contractor: Jetwest Geophysical Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Video Interval: Interval: Mole Corre Sent To: NA Rock Sent To: NA Secondary (Y or N) Secondary (Y or N) 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-23-15 use cement truck to fill up 4.5" casing back to surface 1/4 Y d concrete.					4.5"	
Bit Information 97/8" Tricone to 112" Main Hole 61/4" PDC from 112-2632" Core: Directional drilled from 500" into mine @ 18497.72N/ 37891.73E Bottom Hole Directional drilled from 500" into mine @ 18497.72N/ 37891.73E Footage Plugged: 0-2762" Core: NA Drilling Medium: Air: Footage Plugged: 0-2762" Coreiting Medium: Air: Bettoring Medium: NA Regained ? (Y or N): Lost Circulation Depths: NA Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: X-89deg F in min	-					
Surface Casing 9 7/8" Tricone to 112' Main Hole 6 1/4" PDC from 112-2632' Core: Directional drilled from 500° into mine @ 18497.72N/ 37891.73E Bottom Hole Directional drilled from 500° into mine @ 18497.72N/ 37891.73E Footage Plugged: 0-2762' Cored: NA Drilling Medium: Air: Footage Plugged: 0-2762' Cored: NA Depths: 0-112' 112-2632' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Gas Invasion Depth or Interval: NA Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Temperature: X-89deg F in mine Resistivity: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: Interval: Coal Core Sent To: NA Rock Sent To: NA 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concre		0-2632'	Recovered (Y or N):	N		
Main Hole 6 1/4" PDC from 112-2632" Core: Directional drilled from 500" into mine @ 18497.72N/ 37891.73E Bottom Hole Directional drilled from 500" into mine @ 18497.72N/ 37891.73E Footage Plugged: 0-2762' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-112' 112-2632' Image: State of the state of			*** <u></u> *****		- · · · · · · · · · · · · · · · · · · ·	
Core:	.					······
Bottom Hole Directional drilled from 500' into mine @ 18497.72N/ 37891.73E Footage Plugged: 0-2762' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-112' 112-2632' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Geophysical Logging Contractor: Jetwest Geophysical Na Geophysical Logging Contractor: Jetwest Geophysical Density: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video No. of Bags: 4 cubic yds cement for annulus Interval: Io surface Rock Sent To: NA Coal Core Sent To: NA Rock Sent To: NA 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 928-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.		6 1/4" PDC from 1	12-2632'			
Footage Plugged: 0-2762' Cored: NA Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-112' 112-2632' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Neutron: Temperature: X-89deg F in mine Density: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: Io surface Coal Core Sent To: NA Rock Sent To: 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9:23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9:28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.			FOOL Intermine Qu	· · · · · · · · · · · · · · · · · · ·		
Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-112' 112-2632' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Neutron: Temperature: X-89deg F in mine Density: Resistivity: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: Interval: Io surface Coal Core Sent To: NA Rock Sent To: NA 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9:23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9:28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Bottom mole	Directional unlieu	rom 500' into mine @	18497.72N/ 37891.	73E	
Drilling Medium: Air: Foam /Water: Mud: Foam Injection: Depths: 0-112' 112-2632' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Neutron: Temperature: X-89deg F in mine Density: Resistivity: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: Interval: Io surface Coal Core Sent To: NA Rock Sent To: NA 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9:23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9:28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Footore Olucided.	0 2762	Cored	NIA		
Depths: 0-112' 112-2632' Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Geophysical Logging Contractor: Jetwest Geophysical Estimated Inflow Rates: Logs Run: Gamma: Neutron: Temperature: X-89deg F in mine Density: Resistivity: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: Io surface Coal Core Sent To: NA Rock Sent To: 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.					Com Inicotion	
Lost Circulation Depths: NA Regained ? (Y or N): Water Invasion Depth or Intervals: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Neutron: Temperature: X-89deg F in mine Density: Resistivity: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: to surface Coal Core Sent To: NA Rock Sent To: 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	-			Muu.	roalli injection.	
Water Invasion Depth or Intervals: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Neutron: Temperature: X-89deg F in mine Density: Resistivity: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: to surface Coal Core Sent To: NA 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Depths:	0-112'	112_2632'			
Water Invasion Depth or Intervals: NA Estimated Inflow Rates: Gas Invasion Depth or Interval: NA Estimated Inflow Rates: Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Neutron: Temperature: X-89deg F in mine Density: Resistivity: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: to surface Coal Core Sent To: NA 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Depths:	0-112'	112-2632'		·····	
Gas Invasion Depth or Interval: NA Geophysical Logging Contractor: Jetwest Geophysical Logs Run: Gamma: Neutron: Temperature: X-89deg F in mine Density: Resistivity: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: to surface Coal Core Sent To: NA NA 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete. Na	•			Reg	ained? (Y or N):	
Logs Run: Gamma: Neutron: Temperature: X-89deg F in mine Density: Resistivity: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: to surface Coal Core Sent To: NA Rock Sent To: 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir	culation Depths:	NA			
Logs Run: Gamma: Neutron: Temperature: X-89deg F in mine Density: Resistivity: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: to surface Coal Core Sent To: NA Rock Sent To: 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De	culation Depths:	NA NA			
Temperature: X-89deg F in mine Resistivity: Density: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: to surface Coal Core Sent To: NA 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion D	culation Depths: apth or Intervals: Depth or Interval:	NA NA NA			
Temperature: X-89deg F in mine Resistivity: Density: Caliper: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: to surface Coal Core Sent To: NA 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion D	culation Depths: apth or Intervals: Depth or Interval:	NA NA NA			
Resistivity: Caliper: Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: to surface Coal Core Sent To: NA Comments: 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion D Geophysical Log	culation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA NA NA	Estima		
Other (SP, Foc. Elec., Drift, Dep., Sonic): video Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: to surface Coal Core Sent To: NA Comments: 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion D Geophysical Log	culation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA NA NA Jetwest Geophysical	Estima Neutron:		
Hole Cemented (Y or N), Type: N No. of Bags: 4 cubic yds cement for annulus Interval: to surface Coal Core Sent To: NA Comments: NA 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion D Geophysical Log	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA NA NA Jetwest Geophysical	Estima Neutron: Density:		
Interval: to surface Coal Core Sent To: NA Rock Sent To: NA Comments: 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical X-89deg F in mine	Estima Neutron: Density: Caliper:		
Interval: to surface Coal Core Sent To: NA Rock Sent To: NA Comments: 11/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical X-89deg F in mine	Estima Neutron: Density: Caliper:		
Coal Core Sent To: NA Comments:	Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA NA Jetwest Geophysical X-89deg F in mine , Drift, Dep., Sonic): <u>v</u>	Estima Neutron: Density: Caliper: /ideo	ated Inflow Rates:	annulus
Coal Core Sent To: NA Comments:	Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA NA Jetwest Geophysical X-89deg F in mine , Drift, Dep., Sonic): <u>v</u>	Estima Neutron: Density: Caliper: /ideo	ated Inflow Rates:	annulus
Comments: 1 1/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA NA Jetwest Geophysical X-89deg F in mine , Drift, Dep., Sonic): <u>v</u>	Neutron: Density: Caliper: /ideo No. of Bags: 4	ated Inflow Rates:	·····
1 1/4" tubing hung from flange/valve assembly on 4.5" casing with 10' slotted joint in mine horizon for gas sampling. 9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	NA NA NA Jetwest Geophysical X-89deg F in mine , Drift, Dep., Sonic) : <u>v</u> N	Neutron: Density: Caliper: /ideo No. of Bags: 4	ated Inflow Rates:	·····
9-23-15 pulled 1.25" tubing, pushed plug to 60', mix 2x80# sacks concrete and put on top of plug. 9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	NA NA NA Jetwest Geophysical X-89deg F in mine , Drift, Dep., Sonic) : <u>v</u> N	Neutron: Density: Caliper: /ideo No. of Bags: 4	ated Inflow Rates:	·····
9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA	NA NA NA Jetwest Geophysical X-89deg F in mine , Drift, Dep., Sonic): <u>v</u> N	Neutron: Density: Caliper: video No. of Bags: 4 Interval: to Rock Sent To:	ated Inflow Rates:	
9-28-15- use cement truck to fill up 4.5" casing back to surface 1/4 Yd concrete.	Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA	NA NA NA Jetwest Geophysical X-89deg F in mine , Drift, Dep., Sonic): <u>v</u> N	Neutron: Density: Caliper: video No. of Bags: 4 Interval: to Rock Sent To:	ated Inflow Rates:	
	Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 11/4" tubing hung fro	culation Depths: peth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA MA	NA NA NA Jetwest Geophysical X-89deg F in mine , Drift, Dep., Sonic): <u>v</u> N	Estima Neutron: Density: Caliper: /ideo No. of Bags: 4 Interval: to Rock Sent To:	ated Inflow Rates:	
Himes Drilling Colorado water well license #1285	Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>11/4" tubing hung fro</u> 9-23-15 pulled 1.25" t	culation Depths: peth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA m flange/valve asse ubing, pushed plug	NA NA NA Jetwest Geophysical X-89deg F in mine , Drift, Dep., Sonic): <u>v</u> N embly on 4.5" casing w to 60', mix 2x80# sack	Neutron: Density: Caliper: ideo No. of Bags: 4 Interval: to Rock Sent To: ith 10' slotted joint in s concrete and put	ated Inflow Rates:	
Himes Drilling Colorado water well license #1285	Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>11/4" tubing hung fro</u> 9-23-15 pulled 1.25" t	culation Depths: peth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA m flange/valve asse ubing, pushed plug	NA NA NA Jetwest Geophysical X-89deg F in mine , Drift, Dep., Sonic): <u>v</u> N embly on 4.5" casing w to 60', mix 2x80# sack	Neutron: Density: Caliper: ideo No. of Bags: 4 Interval: to Rock Sent To: ith 10' slotted joint in s concrete and put	ated Inflow Rates:	
	Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 11/4" tubing hung fro 9-23-15 pulled 1.25" t 9-28-15- use cement	culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA MA m flange/valve asso ubing, pushed plug truck to fill up 4.5" of	NA NA NA Jetwest Geophysical X-89deg F in mine , Drift, Dep., Sonic): v N embly on 4.5" casing w to 60', mix 2x80# sack casing back to surface	Estima Neutron: Density: Caliper: /ideo No. of Bags: 4 Interval: to Rock Sent To: ith 10' slotted joint in s concrete and put 1/4 Yd concrete.	ated Inflow Rates:	s sampling.

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Hole Number	: HGA	Project ID.:	Flk Creek Mine	Gas Sample Wells	
Lease Number		(State or Federal)	Surface Owne	r: USFS	
Date Commenced	: 5-May-13	Date Completed:			
	·····				
Contractor	: Himes Drilling	Ria Type:	Atlas Copco RD	20	
Geologist		Date :		Toolpusher:	Matt Himes
Driller			Jim Weathertor		
	Kirk Homedew	-	Richard Moores		Jerry Blair
Coordinates: N		E.			
Location: Townsh		on:		, T. 12 S., R. 90 W.	
Ground Elevation:	8323'	Collar Elevation:			
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	2634'	Fluid Level:	NA
Casing Type:			Size		***************************************
Casing Type:		•	Size	: 4.5"	
Depth:		Recovered (Y or N):	<u>N</u>	_	
Depth:	0-2623'	Recovered (Y or N):	N	-	
Bit Information	0.7/01.7.1.1.1.1				w
Surface Casing	97/8" Tricone to 8				
Main Hole Core:	6 1/4" PDC from 1	12-2623			
Bottom Hole	Directional drilled	from EOOI into mine O	0050 0 111 0700	0.45	
	Directional drilled	from 500' into mine @ 1	19659.04N/ 3796	6.94E	
Footage Plugged:	0-2623'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:		
Depths:		83-2623'	wuu.	Foam Injection:	
			·····		
Lost Cir	culation Depths:	NA	R	egained? (Y or N):	
Water Invasion De		NA	Esti	mated Inflow Rates:	
Gas Invasion D	epth or Interval:	NA			
Geophysical Log	- . :aina Contractor	Jetwest Geophysical			
		othoot oophyoloa	*******		
Logs Run:	Gamma:		Neutron:		
•	Temperature:	X-87.4deg F in mine	Density:		
	Resistivity:		Caliper;		
Oth	ner (SP, Foc. Elec.	, Drift, Dep., Sonic): v	ideo .		
			······································		
Hole Cemented	(<u>Y</u> or N), Type: _	<u>N</u>	No. of Bags:	2 cubic yds cement for a	annulus
			Interval:		
Coal Core Sent To: _	NA	·····	Rock Sent To:	NA	
Comments:					
		· · · · · · · · · · · · · · · · · · ·		·	
1 1/4" tubing hung from	n flange/valve asse	embly on 4.5" casing wi	th 10' slotted join	in mine horizon for das	sampling.
9-23-15 - Pulled 1.25"	tubing, pushed plu	g to 60', mix 2x80# sac	ks concrete and r	out on top of plug.	
9-28-15 - use cement	truck to fill up 4.5" of	casing back to surface,	1/4 Yd concrete.		
Himes Drilling Colorad		/// 00g			

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Hole Number					
				· · · · · · · · · · · · · · · · · · ·	
			Elk Creek Mine		
Lease Number		(State or Federal)		Hotchkiss	
Date Commenced	: 24-Apr-13	Date Completed:	28-Apr-13	-	
Contractor				•	
Contractor			Atlas Copco RD2		
Geologist		Date :		Toolpusher:	Matt Himes
Driller		_ Truck Driver:	Chad Homedew	Helper:	Jimmy Lovato
A H A H	Kirk Homedew	-	Richard Moores		Jerry Blair
Coordinates: N.		. E.	36167.48		
Location: Townshi			NW 1/4, Sec. 31,	T. 12 S., R. 90 W.	
Ground Elevation:	8457'	Collar Elevation:			
Geophysical Log N		ground	Elevation		
Total Depth:		Probe Depth:	2758'	Fluid Level:	NA
Casing Type:			Size:	7" -	
Casing Type:			Size:	4.5"	
Depth:		Recovered (Y or N):	N		
Depth:	0-2762'	Recovered (Y or N):	N		
Bit Information					
Surface Casing	9 7/8" Tricone to 1		······		
Main Hole	6 1/4" PDC from 1	64.5-2762'			
Core:					······
Bottom Hole	Directional drilled	from 500' into mine @	20614.24N/ 36044	.54E	
					······
Footage Plugged:		Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-164.5'	164.5-2762'			
	culation Depths:	NA		gained? (Y or N):	
Water Invasion De		NA	Estim	ated Inflow Rates:	
Gas Invasion D					
	Depth or Interval:	NA			
	•				
	•	INA Jetwest Geophysical			
	•		Neutron:		
Geophysical Log	ging Contractor:		Neutron:		. .
Geophysical Log	ging Contractor:	Jetwest Geophysical			
Geophysical Log Logs Run:	ging Contractor: Gamma: Temperature: Resistivity:	Jetwest Geophysical	Density: _ Caliper: _		
Geophysical Log Logs Run: Oth	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u>	Density: _ Caliper: _		
Geophysical Log Logs Run: Oth	ging Contractor: Gamma: Temperature: Resistivity:	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u>	Density: Caliper: /ideo	cubic yds cement for a	annulus
Geophysical Log Logs Run: Oth	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u>	Density: Caliper: /ideo No. of Bags: <u>3</u>		annulus
Geophysical Log Logs Run: Oth Hole Cemented	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type:	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u>	Density: Caliper: ideo No. of Bags: <u>3</u> Interval: to	surface	annulus
Geophysical Log Logs Run: Oth	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type:	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u>	Density: Caliper: /ideo No. of Bags: <u>3</u>	surface	annulus
Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:_	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type:	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u>	Density: Caliper: ideo No. of Bags: <u>3</u> Interval: to	surface	annulus
Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:_ Comments:	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type: NA	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic) : <u>v</u> N	Density: Caliper: No. of Bags: <u>3</u> Interval: to Rock Sent To:	o surface NA	
Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 1 1/4" tubing hung fro	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (⊻ or N), Type: NA	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u> N	Density: Caliper: No. of Bags: 3 Interval: to Rock Sent To: ith 10' slotted joint	o surface NA in mine horizon for gas	
Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>1 1/4" tubing hung fro</u> 9-24-15-pulled 1.25" t	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA MA	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u> N embly on 4.5" casing w to 60', mix 2x80# sack	Density: Caliper: ideo No. of Bags: 3 Interval: ic Rock Sent To: ith 10' slotted joint s concrete & put or	o surface NA in mine horizon for gas	
Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>1 1/4" tubing hung fro</u> 9-24-15-pulled 1.25" t	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA MA	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u> N	Density: Caliper: ideo No. of Bags: 3 Interval: ic Rock Sent To: ith 10' slotted joint s concrete & put or	o surface NA in mine horizon for gas	
Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>1 1/4" tubing hung fro</u> 9-24-15-pulled 1.25" t	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA MA	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u> N embly on 4.5" casing w to 60', mix 2x80# sack	Density: Caliper: ideo No. of Bags: 3 Interval: ic Rock Sent To: ith 10' slotted joint s concrete & put or	o surface NA in mine horizon for gas	
Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> 1 1/4" tubing hung fro 9-24-15-pulled 1.25" t 9-28-15-use cement to	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA m flange/valve assubing, pushed plug ruck to fill up 4.5" c	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u> N embly on 4.5" casing w to 60', mix 2x80# sack asing back to surface 1	Density: Caliper: ideo No. of Bags: 3 Interval: ic Rock Sent To: ith 10' slotted joint s concrete & put or	o surface NA in mine horizon for gas	
Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>1 1/4" tubing hung fro</u> 9-24-15-pulled 1.25" t	ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA m flange/valve assubing, pushed plug ruck to fill up 4.5" c	Jetwest Geophysical X-87.5deg F in mine , Drift, Dep., Sonic): <u>v</u> N embly on 4.5" casing w to 60', mix 2x80# sack asing back to surface 1	Density: Caliper: ideo No. of Bags: 3 Interval: ic Rock Sent To: ith 10' slotted joint s concrete & put or	o surface NA in mine horizon for gas	

·····				····	
Hole Number			Elk Creek Mine Ga		-
Lease Number		(State or Federal)		Hotchkiss	-
Date Commenced	: <u>15-Apr-13</u>	Date Completed:	20-Apr-13		
Contractor	Limon Drilling	P!- Tunou			
Contractor: Geologist			Atlas Copco RD20		,
Geologist: Driller:		Date :		Toolpusher:	
Driller:		Truck Driver:		Helper:	
Coordinates: N.	Kirk Homedew	. e	Richard Moores		Jimmy Lovato
		E.,			
Location: Townshi Ground Elevation:			SW 1/4, Sec. 31, T	. 12 S., R. 90 W.	
Ground Elevation: Geophysical Log M	8131'	Collar Elevation:	=1		
Geophysical Log M Total Depth:			Elevation	Finis Lovolu	ALA
Casing Type:		Probe Depth:	2374' Size:	Fluid Level: _ 7"	NA
Casing Type: Casing Type:			Size: Size:	4.5"	
Casing Type: Depth:		Recovered (Y or N):	N Size:	4.U	
Depth: Depth:		Recovered (Y or N): Recovered (Y or N):	<u> </u>		
Bit Information	U-2012	Recovered (1 of 17).	11		
Surface Casing	9 7/8" Tricone to 1	18'			
Main Hole	6 1/4" PDC from 1				
Core:		10-2012	w ^{an} ta	••••••••••••••••••••••••••••••••••••••	
Bottom Hole	Directional drilled f	from 500' into mine @ 2	20876.85N/ 33768.4	19F	
	Dirocional				
Footage Plugged:	0-2372'	Cored:	NA		
		Foam /Water:	Mud:	Foam Injection:	
Drilling Medium:		roam/water;	wua:		
Drilling Medium: Depths:		118-2372'		Toannigection.	
Depths:	0-118'	118-2372'	······		
Depths: Lost Cir	0-118' rculation Depths:	118-2372' NA	Reg	jained ? (Y or N):	
Depths: Lost Cir Water Invasion De	0-118' rculation Depths: _ epth or Intervals:	118-2372' NA 42'	Reg		20 gpm
Depths: Lost Cir Water Invasion De	0-118' rculation Depths:	118-2372' NA	Reg	jained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-118' rculation Depths: epth or Intervals: _ Depth or Interval:	118-2372' NA 42' NA	Reg	jained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-118' rculation Depths: epth or Intervals: _ Depth or Interval:	118-2372' NA 42'	Reg	jained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	0-118' rculation Depths: _ epth or Intervals: _ Depth or Interval: _ ging Contractor: _	118-2372' NA 42' NA	Reg Estima	jained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-118' rculation Depths: _ epth or Intervals: _ Depth or Interval: _ ging Contractor: _ Gamma:	118-2372' NA 42' NA Jetwest Geophysical	Reg Estima Neutron:	jained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	0-118' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature:	118-2372' NA 42' NA	Reg Estima Neutron: Density:	jained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-118' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-118' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	118-2372' NA 42' NA Jetwest Geophysical	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N):	20 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	0-118' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec.,	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine , Drift, Dep., Sonic): v	Reg Estima Neutron: Density: Caliper: /ideo	jained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	0-118' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec.,	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine	Reg Estima Neutron: Density: Caliper: /ideo	jained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	0-118' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec.,	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine , Drift, Dep., Sonic): v	Reg Estima Neutron: Density: Caliper: video No. of Bags: <u>3</u>	pained ? (Y or N): ated Inflow Rates: cubic yds cement for	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented	0-118' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (<u>Y</u> or N), Type:	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine , Drift, Dep., Sonic): v	Reg Estima Neutron: Density: Caliper: video No. of Bags: <u>3</u> Interval: to	jained ? (Y or N): ated Inflow Rates: 	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	0-118' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (<u>Y</u> or N), Type:	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine , Drift, Dep., Sonic): v	Reg Estima Neutron: Density: Caliper: video No. of Bags: <u>3</u>	jained ? (Y or N): ated Inflow Rates: 	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	0-118' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine , Drift, Dep., Sonic): v N	Reg Estima Neutron: Density: Caliper: /ideo No. of Bags: <u>3 (</u> Interval: to Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: cubic yds cement for surface NA	annulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 1	O-118' culation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA First attempt cased	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine , Drift, Dep., Sonic): v N off to 53', but encounted	Reg Estima Neutron: Density: Caliper: /ideo No. of Bags: <u>3</u> Interval: 10 Rock Sent To:	pained ? (Y or N): ated Inflow Rates: cubic yds cement for surface NA vater at 75'. Hole unst	annulus table,
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: I eventually forced to a	0-118' culation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA First attempt cased bandon after inabilit	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine , Drift, Dep., Sonic): v N	Reg Estima Neutron: Density: Caliper: /ideo No. of Bags: <u>3</u> Interval: 10 Rock Sent To:	pained ? (Y or N): ated Inflow Rates: cubic yds cement for surface NA vater at 75'. Hole unst	annulus
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: I eventually forced to al plug and 1 sack ceme	0-118' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA First attempt cased bandon after inabiliteent.	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine , Drift, Dep., Sonic): v N off to 53', but encounte ty to directional drill bot	Reg Estima Neutron: Density: Caliper: rideo No. of Bags: <u>3</u> Interval: to Rock Sent To: ered more ground w tom hole. Abandone	Jained ? (Y or N): ated Inflow Rates: cubic yds cement for surface NA vater at 75'. Hole unsta ed with 3 supersacks	table,
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: I eventually forced to al plug and 1 sack ceme 1 1/4" tubing hung from	0-118' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA First attempt cased bandon after inabilit ent. m flange/valve asse	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine , Drift, Dep., Sonic): v N off to 53', but encounter ty to directional drill bot embly on 4.5" casing with	Reg Estima Neutron: Density: Caliper: rideo No. of Bags: <u>3</u> Interval: to Rock Sent To: ered more ground w tom hole. Abandone	Jained ? (Y or N): ated Inflow Rates: cubic yds cement for surface NA vater at 75'. Hole unst ed with 3 supersacks n mine horizon for gas	table,
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: I eventually forced to al plug and 1 sack ceme 11/4" tubing hung fro 9-24-15-pulled 1.25" t	0-118' culation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA First attempt cased bandon after inabilit ent. m flange/valve asse tubing, pushed plug	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine , Drift, Dep., Sonic): v N off to 53', but encounte ty to directional drill bot	Reg Estima Neutron: Density: Caliper: ideo No. of Bags: <u>3</u> Interval: to Rock Sent To: ered more ground wittom hole. Abandona	Jained ? (Y or N): ated Inflow Rates: cubic yds cement for surface NA vater at 75'. Hole unst ed with 3 supersacks n mine horizon for gas	table,
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: I eventually forced to al plug and 1 sack ceme 11/4" tubing hung fro 9-24-15-pulled 1.25" t	O-118' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA First attempt cased bandon after inabilit ent. m flange/valve asse tubing, pushed plug truck to fill up 4.5"ca	118-2372' NA 42' NA Jetwest Geophysical X-90.7deg F in mine , Drift, Dep., Sonic): N off to 53', but encounter ty to directional drill bot embly on 4.5" casing wit to 60' mix 2x80#sacks casing to surface w/1/4	Reg Estima Neutron: Density: Caliper: ideo No. of Bags: <u>3</u> Interval: to Rock Sent To: ered more ground wittom hole. Abandona	Jained ? (Y or N): ated Inflow Rates: cubic yds cement for surface NA vater at 75'. Hole unst ed with 3 supersacks n mine horizon for gas	table,

Hole Number:	GVB 16-08	Drainet ID	Elk Crock Mine C	-h Vont Boroholoo	
Lease Number:			Elk Creek Mine Go Surface Owner:	USFS	
Date Commenced:		Date Completed:	-	0000	
Date commenced.	12-06p-10	. Date completed.	21-Sep-10		
Contractor:	Himes Drilling	Rig Type:	Atlas Copco RD20	I	
Geologist:		Date :		Toolpusher:	Matt Himes
	Jim Weatherton	Truck Driver:		Helper:	Will K.
Billion.	Sam Homedew	HUOR DIIYOL	Will Juusola	Liciher.	Trey H.
Coordinates: N.		E.	39356.35		Поута
Location: Townshi			SW 1/4, Sec. 32, T	12 S R 90 W	
Ground Elevation:	8172'	Collar Elevation:	011 17-1, 000. 02, .	. 12.0., 10.00 11.	
Geophysical Log M			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:		• • • • • • • • • • • • • • • • • • •	Size:	9 5/8"	,
	sol/slot steel T&C		Size:	7"	
Depth:	0-2200'	Recovered (Y or N):	N 0120.		
Depth:	2136-2309'	Recovered (Y or N):	N		
Bit Information					
Surface Casing	16" Tricone to 42'	(14" surface casing)	••••••		
Main Hole	12 1/4" PDC from				
Core:			<u></u>	<u> </u>	
	8 3/4" Tricone from	n 2200-2351'			
Footage Plugged:	0-2351'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-710'	710-2351'			
Depths:		·····		- 10 % NN	
Depths:	culation Depths:	NA	Reg	ained ? (Y or N):	
Depths: Lost Cire Water Invasion De	culation Depths: _ pth or Intervals: _	NA NA	Reg	ained ? (Y or N):	
Depths: Lost Cire Water Invasion De	culation Depths:	NA	Reg		
Depths: Lost Cin Water Invasion De Gas Invasion D	culation Depths: _ pth or Intervals: _ epth or Interval: _	NA NA NA	Reg		
Depths: Lost Cin Water Invasion De Gas Invasion D	culation Depths: _ pth or Intervals: _ epth or Interval: _	NA NA	Reg		
Depths: Lost Cin Water Invasion De Gas Invasion D	culation Depths: _ pth or Intervals: _ epth or Interval: _	NA NA NA	Reg		
Depths: Lost Cire Water Invasion De Gas Invasion D Geophysical Log	culation Depths: _ ppth or Intervals: _ lepth or Interval: _ ging Contractor: _	NA NA NA Jetwest Geophysical	Reg Estima		
Depths: Lost Cin Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: _ epth or Intervals: _ epth or Interval: _ ging Contractor: _ Gamma: _ Temperature: _ Resistivity:	NA NA NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Depths: Lost Cin Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: _ epth or Intervals: _ epth or Interval: _ ging Contractor: _ Gamma: _ Temperature: _ Resistivity:	NA NA NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Depths: Lost Cire Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	culation Depths: ppth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer	Ated Inflow Rates:	
Depths: Lost Cire Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	culation Depths: ppth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	NA NA NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Depths: Lost Cin Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented	culation Depths: _ epth or Intervals: _ epth or Interval: _ ging Contractor: _ Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec. (<u>Y</u> or N), Type: _	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval:	Ated Inflow Rates:	
Depths: Lost Cire Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	culation Depths: _ epth or Intervals: _ epth or Interval: _ ging Contractor: _ Gamma: _ Temperature: _ Resistivity: _ er (SP, Foc. Elec. (<u>Y</u> or N), Type: _	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval:	Ated Inflow Rates:	
Depths: Lost Cin Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	culation Depths: pepth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To:	Ated Inflow Rates:	
Depths: Lost Cin Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	culation Depths: pth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA NA	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 64' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To:	Ated Inflow Rates:	
Depths: Lost Cin Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: 2</u> 9 5/8" annulus cemen Tagged gravel at 231	culation Depths: peth or Intervals: peth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (ted with 9 yds neat 4', tagged cement p	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 64' inside 9 5/8" casin <u>c</u> t cement slurry. Diug at 2309'.	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To: J	Ated Inflow Rates:	
Depths: Lost Cin Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: 2</u> 9 5/8" annulus cemen Tagged gravel at 231	culation Depths: peth or Intervals: peth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (ted with 9 yds neat 4', tagged cement p	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 64' inside 9 5/8" casing t cement slurry.	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To: J	Ated Inflow Rates:	
Depths: Lost Cin Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments: 7</u> 9 5/8" annulus cemen Tagged gravel at 231. 9-25-15 - push 9 5/8"	culation Depths: pepth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps of ted with 9 yds near 4', tagged cement p plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 64' inside 9 5/8" casin <u>c</u> t cement slurry. Diug at 2309'.	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To: g.	Ated Inflow Rates:	
Depths: Lost Cin Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments: 7</u> 9 5/8" annulus cemen Tagged gravel at 231. 9-25-15 - push 9 5/8"	culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.) (Y or N), Type: NA 7" casing overlaps (ited with 9 yds neat 4', tagged cement p plug to 60', mix 2x8 ruck to fill 9 5/8 " ca	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 64' inside 9 5/8" casing t cement slurry. blug at 2309'. 30# sacks concrete and asing up to surface with	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: Interval: Rock Sent To: g.	Ated Inflow Rates:	

		an dh' ann an an 19 an an Anna ann an ann an an an an Anna an A			
Hole Number	: GVB 17-02B	Project ID.:	Elk Creek Mine G	oh Vent Roreholes	
Lease Number		(State or Federal)			
Date Commenced		Date Completed:			
Contractor			Atlas Copco RD20		
Geologist		Date :		Toolpusher:	Matt Himes
Driller	: Jim Weatherton	Truck Driver:		Helper:	Kenny
A	Kirk Homedew	- 	Will Juusola		Cameron
Coordinates: N.		E.			
Location: Townsh Ground Elevation:	• • •	on: Collar Elevation:	SW 1/4, Sec. 31, T	. 12 S., K. 90 W.	
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	IN/3
	sol/slot steel T&C	• •	Size:	7"	
Depth:		Recovered (Y or N):	N	······································	
Depth:		Recovered (Y or N):			
Bit Information					
Surface Casing)' (14" surface casing)			
Main Hole	12 1/4" PDC from	40-1985'			
Core:					
Bottom Hole	8 3/4" Tricone from	n 1985-2292"			
Footage Plugged:	0-2292'	Cored:	NA		
Drilling Medium:		Foam Water:	NA	Foam Injection:	
Drining Medium. Depths:		40-2292'	INUV:	FVanningeonom	
p		10			
Lost Cir	rculation Depths:	NA		gained? (Y or N):	
	• •	······································	Fetim	ated Inflow Rates:	
Water Invasion D		NA	P3(11)		
Water Invasion D	epth or Intervals: Depth or Interval:	NA NA	Lotini		
Water Invasion De Gas Invasion I	Depth or Interval:	NA			
Water Invasion De Gas Invasion I	Depth or Interval:				
Water Invasion D Gas Invasion I Geophysical Log	Depth or Interval:	NA	ging		
Water Invasion De Gas Invasion I	Depth or Interval: gging Contractor: Gamma:	NA	ging Neutron:		
Water Invasion D Gas Invasion I Geophysical Log	Depth or Interval:	NA	ging		
Water Invasion D Gas Invasion I Geophysical Log Logs Run:	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA	ging Neutron: Density: _		
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	NA directional hole- no log , Drift, Dep., Sonic):	ging Neutron: _ Density: _ Caliper: _		
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	NA directional hole- no log	ging Neutron: Density: Caliper: No. of Bags: 6	yds for 9 5/8" annulus	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	NA directional hole- no log , Drift, Dep., Sonic):	ging Neutron: Density: Caliper: No. of Bags: 6		
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (<u>Y</u> or N), Type:	NA directional hole- no log , Drift, Dep., Sonic):	ging Neutron: _ Density: _ Caliper: _ No. of Bags: 6 Interval: to	yds for 9 5/8" annulus o surface	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (<u>Y</u> or N), Type:	NA directional hole- no log , Drift, Dep., Sonic):	ging Neutron: Density: Caliper: No. of Bags: 6	yds for 9 5/8" annulus o surface	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA	NA directional hole- no log ., Drift, Dep., Sonic): N	ging Neutron: Density: Caliper: No. of Bags: 6 Interval: ic Rock Sent To:	yds for 9 5/8" annulus o surface	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps	NA directional hole- no logg ., Drift, Dep., Sonic): N 47.7' inside 9 5/8" casir	ging Neutron: Density: Caliper: No. of Bags: 6 Interval: ic Rock Sent To:	yds for 9 5/8" annulus o surface	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments: 298.0' slotted 7" casin	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ng below 56.7' solid	NA directional hole- no logg ., Drift, Dep., Sonic): N 47.7' inside 9 5/8" casin 7" casing. Landed at 2	ging Neutron: Density: Caliper: No. of Bags: 6 Interval: 10 Rock Sent To:	yds for 9 5/8" annulus o surface NA	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oti Hole Cemented Coal Core Sent To: 298.0' slotted 7" casin Drilled directionally fro 9-25-15 - push 9 5/8"	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ng below 56.7' solid om 325-1985'. Botto plug to 60', mix 2x6	NA directional hole- no logg , Drift, Dep., Sonic): N 47.7' inside 9 5/8" casin 7" casing. Landed at 2 om of 9 5/8" casing loca 80# sacks concrete and	ging Neutron: Density: Caliper: No. of Bags: 6 Interval: to Rock Sent To: 2290'. ated 303' at azimuti	yds for 9 5/8" annulus o surface NA h 318.01 degrees.	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oti Hole Cemented Coal Core Sent To: 298.0' slotted 7" casin Drilled directionally fro 9-25-15 - push 9 5/8"	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps ng below 56.7' solid om 325-1985'. Botto plug to 60', mix 2x6	NA directional hole- no logg , Drift, Dep., Sonic): N 47.7' inside 9 5/8" casin 7" casing. Landed at 2 om of 9 5/8" casing loca 80# sacks concrete and	ging Neutron: Density: Caliper: No. of Bags: 6 Interval: to Rock Sent To: 2290'. ated 303' at azimuti	yds for 9 5/8" annulus o surface NA h 318.01 degrees.	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: 298.0' slotted 7" casin Drilled directionally fro 9-25-15 - push 9 5/8" 9-28-15 use cement t	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ng below 56.7' solid om 325-1985'. Botte plug to 60', mix 2x6 truck to fill 9 5/8 " ca	NA directional hole- no logg ., Drift, Dep., Sonic): _ N 47.7' inside 9 5/8" casin 7" casing. Landed at 2 om of 9 5/8" casing loca 80# sacks concrete and asing up to surface with	ging Neutron: Density: Caliper: No. of Bags: 6 Interval: to Rock Sent To: 2290'. ated 303' at azimuti	yds for 9 5/8" annulus o surface NA h 318.01 degrees.	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oti Hole Cemented Coal Core Sent To: 298.0' slotted 7" casin Drilled directionally fro 9-25-15 - push 9 5/8"	Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps ng below 56.7' solid om 325-1985'. Botte plug to 60', mix 2x6 truck to fill 9 5/8 " ca	NA directional hole- no logg ., Drift, Dep., Sonic): _ N 47.7' inside 9 5/8" casin 7" casing. Landed at 2 om of 9 5/8" casing loca 80# sacks concrete and asing up to surface with	ging Neutron: Density: Caliper: No. of Bags: 6 Interval: to Rock Sent To: 2290'. ated 303' at azimuti	yds for 9 5/8" annulus o surface NA h 318.01 degrees.	

	nan a sera filogo y yoka wana inia kongo ya maakaya n	Oxbow Mi	aing TIC		
		Elk Cree	-		
L		RIV CLG	er mtue	a sala manaka sa	nya da katalan
			17. Talahan manang kang di kang	an a	an utta ing kapatan na pagatan pa
Hole Number Lease Number			Elk Creek Mine G Surface Owner:		
Date Commenced	territoria de la companya de la comp	Date Completed:		HOTCHKISS	
			0-00p-11	•	
Contractor			Atlas Copco RD20		
Geologist		Date :		Toolpusher:	Matt Himes
Driller:	Jim Weatherton	- Truck Driver:	Mike Hibberd	Helper:	Connor
Coordinates: N.	Kirk Homedew 17184.83	Е.	Will Juusola 37764.65		Jimmy L.
Location: Townshi			SW 1/4, Sec. 32, 1	T 12 S. R. 90 W	
Ground Elevation:	8227'	Collar Elevation:			
Geophysical Log M		ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	<u>NA</u>
Casing Type:			Size:	9 5/8"	
Casing Type: Depth:	sol/slot steel T&C 0-2132'		Size:	7"	
Depth:		Recovered (Y or N): Recovered (Y or N):			
Bit Information	2017 2100				
Surface Casing		' (14" surface casing)			•••••••
Main Hole	12 1/4" PDC from	40-2132'			
Core:		400.0400	······	······	
Bottom Hole	8 3/4" PDC from 2	132-2423	·····		
Footage Plugged:	0-2423'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-500'	500-2423'			
Last O	euletien Deuther	814	5.		
Water Invasion De	culation Depths:	NA NA		gained ? (Y or N): ated Inflow Rates:	
	Depth or Interval:	NA	Latur		
Geophysical Log	ging Contractor:	Directional hole- no log	ging.		
Logs Run:	Gamma:		Neutron:		
	Temperature:		Density:	······	
	Resistivity:		Caliper:		1
Oti	her (SP, Foc. Elec.	., Drift, Dep., Sonic):	·		
Hole Comented	(<u>Y</u> or N), Type:	N	No of Base: 1	0 yds for 9 5/8" annulus	、 I
The Cemented		14	Interval: to		, [
Coal Core Sent To:	NA		Rock Sent To:	NA	
		91' inside 9 5/8" casing at azimuth 57.40 degre			
		/4" hole, approx. 31' at			
		hole on plan. Drilled o		don	
E seam elevations en	countered while dri	lling and correlations w	ith adjacent holes.		
		30# sacks concrete and			
		sing, got 1/2 Yard and			
9-20-10 - reset anothe	er y 5/8" plug to 60'	, mix 2x80# sacks conc id put on top of concret	and fill hole book	or plug.	
Himes Drilling Colorad	lo water well license	e #1285			
		<u> </u>			

			and the second		
Hole Number	: GVB 18-01B	Project ID	Elk Crook Mino G	nh Vant Parahalan	
Lease Number			Elk Creek Mine Go Surface Owner:		
Date Commenced		Date Completed:		TIULUINISS	
		- wate completes			
Contractor	: Himes Drilling	Rig Type:	Atlas Copco RD20		
Geologist		Date :		Toolpusher:	Matt Himes
	: Jim Weatherton	Truck Driver:		Helper:	Brandon Y.
	Kirk Homedew		Jimmy L.		Drangon 7.
Coordinates: N		E.			
Location: Townsh			NW 1/4, Sec. 31, T	12 S. R. 90 W	
Ground Elevation:	8113'	Collar Elevation:			
Geophysical Log N	leasured From:	ground	Elevation		
Total Depth:	2372'	Probe Depth:		Fluid Level:	NA
Casing Type:	steel T&C	•	Size:	9 5/8"	
Casing Type:	sol/slot steel T&C		Size:	7"	
Depth:	0-2153'	Recovered (Y or N):			
Depth:	1978-2314'	Recovered (Y or N):	N		
Bit Information					
Surface Casing	17" Hammer to 40	' (14" surface casing)			
Main Hole	12 1/4" PDC from	40-2153'			******
Core:					
Bottom Hole	8 3/4" Tricone fron	n 2153-2372'			
Footage Plugged:		Cored:	<u>NA</u>		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
		10 0070			
Depths:	0-40'	40-2372'			
·					
Lost Cir	culation Depths:	NA		ained? (Y or N):	
Lost Cir Water Invasion De	culation Depths: epth or Intervals:	NA 1400'		ained ? (Y or N): ated Inflow Rates:	5 gpm
Lost Cir Water Invasion De	culation Depths:	NA			5 gpm
Lost Cir Water Invasion De Gas Invasion I	culation Depths: epth or Intervals: Depth or Interval:	NA 1400' NA			5 gpm
Lost Cir Water Invasion De Gas Invasion I	culation Depths: epth or Intervals: Depth or Interval:	NA 1400'			5 gpm
Lost Cir Water Invasion De Gas Invasion I Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA 1400' NA Jetwest Geophysical	Estima		5 gpm
Lost Cir Water Invasion De Gas Invasion I	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	NA 1400' NA	Estima Neutron:	ated Inflow Rates:	5 gpm
Lost Cir Water Invasion De Gas Invasion I Geophysical Log	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA 1400' NA Jetwest Geophysical	Estima Neutron: Density:		5 gpm
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA 1400' NA Jetwest Geophysical Y Y	Estima Neutron: Density: Caliper:	ated Inflow Rates:	5 gpm
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA 1400' NA Jetwest Geophysical	Estima Neutron: Density: Caliper:	ated Inflow Rates:	<u>5 gpm</u>
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Otl	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 1400' NA Jetwest Geophysical Y Y	Estima Neutron: Density: Caliper: ement dump bailer	Y Y Y Y	5 gpm
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Otl	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA 1400' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Neutron: Density: Caliper: ement dump bailer	Ated Inflow Rates:	5 gpm
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Otl	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 1400' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: ement dump bailer	Ated Inflow Rates:	<u>5 gpm</u>
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Otl	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 1400' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Neutron: Density: Caliper: ement dump bailer	Ated Inflow Rates:	<u>5 gpm</u>
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Otl Hole Cemented Coal Core Sent To:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA	NA 1400' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Neutron: Density: Caliper: eement dump bailer No. of Bags: 7 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" annulus surface	<u>5 gpm</u>
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Otl Hole Cemented Coal Core Sent To: Comments:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA	NA 1400' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Estima Neutron: Density: Caliper: eement dump bailer No. of Bags: 7 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" annulus surface NA	5 gpm
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 231	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA <u>NA</u> 7" casing overlaps 7	NA 1400' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 175' inside 9 5/8" casin ing at 2314'. (Gravel se	Neutron: Density: Caliper: ement dump bailer No. of Bags: 7 Interval: to Rock Sent To: g.	Y Y Y yds for 9 5/8" annulus surface NA	<u>5 gpm</u>
Lost Cir Water Invasion D Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 231 9-24-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 7 4', bottom of 7" casi plug to 60', mix 2x8	NA 1400' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 175' inside 9 5/8" casin ing at 2314'. (Gravel se 0# sacks concrete and	Neutron: Density: Caliper: cement dump bailer No. of Bags: No. of Bags: Interval: to Rock Sent To: g. ttled during dump b put on top of plug.	Y Y Y yds for 9 5/8" annulus surface NA	<u>5 gpm</u>
Lost Cir Water Invasion D Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 231 9-24-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 7 4', bottom of 7" casi plug to 60', mix 2x8	NA 1400' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 175' inside 9 5/8" casin ing at 2314'. (Gravel se	Neutron: Density: Caliper: cement dump bailer No. of Bags: No. of Bags: Interval: to Rock Sent To: g. ttled during dump b put on top of plug.	Y Y Y yds for 9 5/8" annulus surface NA	<u>5 gpm</u>
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 231 9-24-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 7 4', bottom of 7" casi plug to 60', mix 2x8	NA 1400' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 175' inside 9 5/8" casin ing at 2314'. (Gravel se 0# sacks concrete and	Neutron: Density: Caliper: cement dump bailer No. of Bags: No. of Bags: Interval: to Rock Sent To: g. ttled during dump b put on top of plug.	Y Y Y yds for 9 5/8" annulus surface NA	<u>5 gpm</u>
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 231 9-24-15 - push 9 5/8" 9-28-15 use cement tr	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 4', bottom of 7" casi plug to 60', mix 2x8 ruck to fill 9 5/8 " ca	NA 1400' NA letwest Geophysical Y Y Drift, Dep., Sonic): <u>c</u> N 175' inside 9 5/8" casin ing at 2314'. (Gravel se 0# sacks concrete and sing up to surface with	Neutron: Density: Caliper: cement dump bailer No. of Bags: No. of Bags: Interval: to Rock Sent To: g. ttled during dump b put on top of plug.	Y Y Y yds for 9 5/8" annulus surface NA	<u>5 gpm</u>
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 231 9-24-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 4', bottom of 7" casi plug to 60', mix 2x8 ruck to fill 9 5/8 " ca	NA 1400' NA letwest Geophysical Y Y Drift, Dep., Sonic): <u>c</u> N 175' inside 9 5/8" casin ing at 2314'. (Gravel se 0# sacks concrete and sing up to surface with	Neutron: Density: Caliper: cement dump bailer No. of Bags: No. of Bags: Interval: to Rock Sent To: g. ttled during dump b put on top of plug.	Y Y Y yds for 9 5/8" annulus surface NA	5 gpm

		Oxbow Min		na - Energia El Concentra - Sanàn de Proven	
		Elk Crea	ek Mine	น้องหนายหนึ่งมีและเหตุ และจากการการการการการการการการการการการการกา	aparata ang ang ang ang ang ang ang ang ang an
Hole Numbe	r: GVB 18-02	Project ID.	: Elk Creek Mine Go	b Vent Boreholes	
Lease Number	r: COC-61357		Surface Owner:		
Date Commenced	15-Oct-11	Date Completed		·	
Contractor		Rig Type:	Atlas Copco RD20		
Geologist		Date :		Toolpusher:	Matt Himes
Driller	Jim Weatherton	Truck Driver:		Helper:	Brandon Y.
Coordinates: N	Kirk Homedew	-	Jimmy L.		Chuck
	. 20120.00 iip, Range & Section	- E.	01100100	12 C D 00 W	
Ground Elevation:		Collar Elevation:	NW 1/4, Sec. 31, T.	12 J., R. 90 W.	
Geophysical Log N			Elevation		
Total Depth		Probe Depth:		Fluid Level:	NA
Casing Type		· · ·	Size:	9 5/8"	
	sol/slot steel T&C	- 	Size:	7"	
Depth:		Recovered (Y or N):			
Depth: Bit Information	2197-2377'	Recovered (Y or N):	N		
Surface Casing	17" Hammer to 40	' (14" surface casing)			
Vain Hole	12 1/4" PDC from		······	·····	
Core:					
Bottom Hole	8 3/4" Tricone fron	n 2273-2426'			
Footage Plugged:	0-2426'	Cored:	NA		
Drilling Medium:	Air:	Foam Water:	Mud:	Foam Injection:	
Depths:	0-40'	40-2426'			
Lost Cir	culation Depths:	NA	Rega	ined? (Y or N):	
Water Invasion D		NA		ted Inflow Rates:	
Gas Invasion [Depth or Interval:	NA			
Geophysical Log	ging Contractor:	Jetwest Geophysical			
Logs Run:	Gamma:	Y	Neutron:		
e e	Temperature:		Density:	Y	
	Resistivity:	Y	Caliper:	Y	
Ot	ner (SP, Foc. Elec.	, Drift, Dep., Sonic): <u>c</u>	ement dump bailer		
Hole Cemented	(<u>Y</u> or N), Type: _	<u>N</u>		ds for 9 5/8" casing	
			Interval: to s	urface	
oal Core Sent To:	NA		Rock Sent To:	NA	
Comments:	7" casing overlaps 7	76' inside 9 5/8" casing.			
agged gravel at 237	B', bottom of 7" casi	ng at 2377'. (Gravel se	ttled after dump baili	ng.)	
25-15 - push 9 5/8"	plug to 60', mix 2x8	0# sacks concrete and	put on top of plug,		
28-15 use cement ti	uck to fill 9 5/8 " ca	sing up to surface with	1 Yd concrete.		
mes Drilling Colorad	lo water well license	#1285		······································	
nee brinning colorad		· · · · · · · · · · · · · · · · · · ·			

Hole Number	: GVB 18-02B	Project ID.:	Elk Creek Mine Go	h Vent Boreholes	
Lease Number	: COC-61357		Surface Owner:	Hotchkiss	
Date Commenced	: 21-Sep-11	Date Completed:			
Contractor	Himes Drilling	Rig Type:	Atlas Copco RD20	1	
Geologist		Date :		Toolpusher:	Matt Himes
Driller	Jim Weatherton	Truck Driver:		Helper:	Brandon Y.
	Kirk Homedew	•	Will Juusola		Jimmy L.
Coordinates: N.	19755.78	E.			
Location: Townshi	ip, Range & Section	on:	NW 1/4, Sec. 31, T	. 12 S., R. 90 W.	
Ground Elevation:	8233'	Collar Elevation:			
Geophysical Log M	leasured From:	ground	Elevation		
Total Depth:		Probe Depth:	2489'	Fluid Level:	NA
Casing Type:		· · · ·	Size:	9 5/8"	·····
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	N	·······	
Depth:	2091-2450'	Recovered (Y or N):	N		
Bit Information		•			
Surface Casing	17" Hammer to 40	' (14" surface casing)			
Main Hole	12 1/4" PDC from	40-2150'			
Core:					
Bottom Hole	8 3/4" Tricone from	1 2150-2497'			
	0.04071	•			
Footage Plugged:	0-2497'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
	and the second			· • • • • • • • • • • • • • • • • • • •	
Depths:	0-40'	40-2497'			
Depths:	0-40'	40-2497'			
Depths: Lost Cir	0-40' culation Depths:	40-2497' NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De	0-40' culation Depths: _ epth or Intervals:	40-2497' NA 1100'	Reg		10 gpm
Depths: Lost Cir Water Invasion De	0-40' culation Depths:	40-2497' NA	Reg	ained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-40' culation Depths: epth or Intervals: epth or Interval:	40-2497' NA 1100' NA	Reg	ained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-40' culation Depths: epth or Intervals: epth or Interval:	40-2497' NA 1100'	Reg	ained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge	0-40' culation Depths: _ epth or Intervals: _ Depth or Interval: _ ging Contractor: _	40-2497' NA 1100' NA letwest Geophysical	Reg Estima	ained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-40' culation Depths: pepth or Intervals: pepth or Interval: ging Contractor: Gamma:	40-2497' NA 1100' NA	Reg Estima Neutron:	ained ? (Y or N): ated Inflow Rates:	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge	0-40' culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature:	40-2497' NA 1100' NA letwest Geophysical Y	Reg Estima Neutron: Density:	ained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-40' culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	40-2497' NA 1100' NA letwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-40' culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	40-2497' NA 1100' NA letwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth	0-40' culation Depths: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	40-2497' NA 1100' NA letwest Geophysical Y Y , Drift, Dep., Sonic): o	Reg Estima Neutron: Density: Caliper: ement dump bailer	ained ? (Y or N): ated Inflow Rates: Y	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth	0-40' culation Depths: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	40-2497' NA 1100' NA letwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 7 y	ained ? (Y or N): ated Inflow Rates: Y Y	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth	0-40' culation Depths: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	40-2497' NA 1100' NA letwest Geophysical Y Y , Drift, Dep., Sonic): o	Reg Estima Neutron: Density: Caliper: ement dump bailer	ained ? (Y or N): ated Inflow Rates: Y Y	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented	0-40' culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	40-2497' NA 1100' NA letwest Geophysical Y Y , Drift, Dep., Sonic): o	Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 7 y Interval: to	ained ? (Y or N): ated Inflow Rates: Y Y /ds for 9 5/8" annulus surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth	0-40' culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	40-2497' NA 1100' NA letwest Geophysical Y Y , Drift, Dep., Sonic): o	Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 7 y Interval: to	ained ? (Y or N): ated Inflow Rates: Y Y	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7	0-40' culation Depths: pepth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA NA	40-2497' NA 1100' NA letwest Geophysical Y , Drift, Dep., Sonic): o N 59' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 7 y Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y Y /ds for 9 5/8" annulus surface NA	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7 Tagged gravel at 2455	0-40' culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps { bottom of 7" casi	40-2497' NA 1100' NA letwest Geophysical Y Y , Drift, Dep., Sonic): o N 59' inside 9 5/8" casing ng at 2450'.	Reg Estima Neutron: Density: Caliper: Caliper: Mo. of Bags: 7 y Interval: to Rock Sent To:	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7 Tagged gravel at 2455	0-40' culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps { bottom of 7" casi	40-2497' NA 1100' NA letwest Geophysical Y Y , Drift, Dep., Sonic): o N 59' inside 9 5/8" casing ng at 2450'.	Reg Estima Neutron: Density: Caliper: Caliper: nement dump bailer No. of Bags: 7 y Interval: to	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: 7</u> Tagged gravel at 2456 9-25-15 - push 9 5/8"	0-40' culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps { by bottom of 7" casing plug to 60', mix 2x8	40-2497' NA 1100' NA letwest Geophysical Y , Drift, Dep., Sonic): o N 59' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: caliper: ement dump bailer No. of Bags: 7 interval: to Rock Sent To:	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: 7</u> Tagged gravel at 2456 9-25-15 - push 9 5/8"	0-40' culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps { by bottom of 7" casing plug to 60', mix 2x8	A0-2497' NA 1100' NA letwest Geophysical Y Y Drift, Dep., Sonic): o N 59' inside 9 5/8" casing ng at 2450'. 0# sacks concrete and	Reg Estima Neutron: Density: Caliper: caliper: ement dump bailer No. of Bags: 7 interval: to Rock Sent To:	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments: 7</u> Tagged gravel at 2458 9-25-15 - push 9 5/8" 9-28-15 use cement tr	0-40' culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps & Diug to 60', mix 2x8 uck to fill 9 5/8 " ca	40-2497' NA 1100' NA letwest Geophysical Y , Drift, Dep., Sonic): 0 N 59' inside 9 5/8" casing ng at 2450'. 0# sacks concrete and sing up to surface with	Reg Estima Neutron: Density: Caliper: caliper: ement dump bailer No. of Bags: 7 interval: to Rock Sent To: put on top of plug. 1 Yd concrete.	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented (Coal Core Sent To: <u>Comments: 7</u> Tagged gravel at 2456 9-25-15 - push 9 5/8"	0-40' culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps & Diug to 60', mix 2x8 uck to fill 9 5/8 " ca	40-2497' NA 1100' NA letwest Geophysical Y , Drift, Dep., Sonic): 0 N 59' inside 9 5/8" casing ng at 2450'. 0# sacks concrete and sing up to surface with	Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 7 y Interval: to Rock Sent To: put on top of plug. 1 Yd concrete.	ained ? (Y or N):	

	the second s		in the second state of the		. No contras deservativos e contras de servicios de
Hole Number	• GVB 18-03	Project ID	Elle Crook Mine E	Surfacetion	
Lease Number		(State or Federal)	Elk Creek Mine E	Hotchkiss	
Date Commenced		Date Completed:		HOLCHKISS	
		- Date Completed.	23-JUI-09	-	
Contractor	: Himes Drilling	Dia Tuno	Atlas Copco RD2		
Geologist		_ Date :			Mott Lines
	: Sam Homedew		Tommy Dennis	Toolpusher:	Matt Himes Bill W.
Britio	Jim Weatherton		Shaun L.	Helper:	Dave T.
Coordinates: N		- E.		-	
Location: Townsh				T. 12 S., R. 90 W.	
Ground Elevation:	8269'	Collar Elevation:	1111 1/4, 060. 01,	1. 12 0., IX. 30 W.	
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	2494'	Fluid Level:	NA
Casing Type:		, i ione pebui:	Size:		<u>INA</u>
Casing Type:			Size:	4 1/2"	
Depth:		Recovered (Y or N):	N 0126.	4 1/2	
Depth:		Recovered (Y or N):	N		
Bit information	02100		14		
Surface Casing	9 7/8" Tricone to 2	20'			
Main Hole	6 1/4" Tricone from				
Core:	3.937" from 2400-		·····		
Bottom Hole					·
				······································	
Footage Plugged:	0-2400'	Cored:	2400-2493.5'		
Drilling Medium:	Air:	Foam Water:	Mud:	Foam Injection:	
Depths:		108-2400'		r van nijoonom	
•				·····	
Lost Cir	culation Depths:	NA	Re	gained? (Y or N):	
Lost Cir Water Invasion De		NA NA		gained ? (Y or N): nated Inflow Rates:	
Water Invasion De				gained?(Y or N): nated Inflow Rates:	
Water Invasion De	epth or Intervals:	NA			
Water Invasion D Gas Invasion I	epth or Intervals: Depth or Interval:	NA			
Water Invasion Do Gas Invasion I Geophysical Log	epth or Intervals: Depth or Interval: ging Contractor:	NA NA Jetwest Geophysical	Estin		
Water Invasion D Gas Invasion I	epth or Intervals: Depth or Interval: ging Contractor: Gamma:	NA NA	Estin Neutron: _		
Water Invasion Do Gas Invasion I Geophysical Log	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA NA Jetwest Geophysical	Estin Neutron: Density:	nated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical Y Y	Estin Neutron: _		
Water Invasion Do Gas Invasion I Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical	Estin Neutron: Density:	nated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oti	epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estin Neutron: Density: Caliper:	nated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oti	epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical Y Y	Estin Neutron: Density: Caliper: No. of Bags: 3	Anated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oti	epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estin Neutron: Density: Caliper: No. of Bags: 3	nated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oti Hole Cemented	epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estin Neutron: Density: Caliper: No. of Bags: <u>3</u> Interval: c	Anated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oti	epth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estin Neutron: Density: Caliper: No. of Bags: 3	Anated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: SGS	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y	Estin Neutron: Density: Caliper: No. of Bags: 3 Interval: c Rock Sent To:	Y Y Y 300 galions plug gel ement 0-10' Agapito	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: SGS	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estin Neutron: Density: Caliper: No. of Bags: 3 Interval: c Rock Sent To:	Y Y Y 300 galions plug gel ement 0-10' Agapito	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2400-24	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 493.5' with air. Galen H	Estin Neutron: Density: Caliper: No. of Bags: 3 Interval: Rock Sent To: omedew-Driller; Ba	Aated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2400-24	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y	Estin Neutron: Density: Caliper: No. of Bags: 3 Interval: Rock Sent To: omedew-Driller; Ba	Aated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2400-24	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 493.5' with air. Galen H	Estin Neutron: Density: Caliper: No. of Bags: 3 Interval: Rock Sent To: omedew-Driller; Ba	Aated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2400-24	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 493.5' with air. Galen H	Estin Neutron: Density: Caliper: No. of Bags: 3 Interval: Rock Sent To: omedew-Driller; Ba	Aated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2400-24	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 493.5' with air. Galen H resume sealed with 20	Estin Neutron: Density: Caliper: No. of Bags: 3 Interval: Rock Sent To: omedew-Driller; Ba	Aated Inflow Rates:	
Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2400-24	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 493.5' with air. Galen H resume sealed with 20	Estin Neutron: Density: Caliper: No. of Bags: 3 Interval: Rock Sent To: omedew-Driller; Ba	Aated Inflow Rates:	

		ana ana amin'ny solatana amin'ny solatana amin'ny solatana amin'ny solatana amin'ny solatana amin'ny solatana a		Strand a second department of the second states and the second second second second second second second second	
Hole Number	r: GVB 18-04	Project ID	- Elle Oreale Mina G	- Mart Darahalaa	
Lease Number			: Elk Creek Mine Go) Surface Owner:		
Date Commenced		Date Completed:		FIU(UIIKISS	
846V VVIII	·	- Date ovinproton	24-Muy-11		
Contractor	: Himes Drilling	Ria Type	: Atlas Copco RD20	١	
Geologist		Date :		, Toolpusher:	Matt Himes
	: Jim Weatherton			Helper:	Nick D.
	Kirk Homedew	4 1 11 11 11 11 11 11 11 11 11 11 11 11	Will Juusola		Jimmy L.
Coordinates: N		- E.			<u> </u>
Location: Townsh			NE 1/4, Sec. 31, T	12 S., R. 90 W.	
Ground Elevation:		Collar Elevation:			
Geophysical Log N		· · · · · · · · · · · · · · · · · · ·	Elevation		
Total Depth:	: 2534'	Probe Depth:		Fluid Level:	NA
Casing Type:	steel T&C		Size:	9 5/8"	
	sol/slot steel T&C	-	Size:	7"	
Depth:		Recovered (Y or N):	N -		
Depth:	2146-2457'	Recovered (Y or N):			
Bit Information				····	
Surface Casing	17" Hammer to 40)' (14" surface casing)			
Main Hole	12 1/4" PDC from	40-2214'			
Core:					····
Bottom Hole	8 3/4" PDC from 2	214-2534'			
- A Standards	0.050.41	A 1			
Footage Plugged:		Cored:	NA	- • •	
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
Depths:	0-40'	40-2534'		······	
Lost Cir	rculation Depths:	NA	Roc	gained ? (Y or N):	
Water Invasion De		NA NA		ated inflow Rates:	······································
	Depth or Intervals.	NA	He Villis	ateu Innow Nates	N-T-ML
₩7¥1₩7 81	Jopui vi interrai.				
Geophysical Log	aina Contractor:	Jetwest Geophysical			
				<u></u>	
Logs Run:	Gamma:	Y	Neutron:		
-	Temperature:	- <u></u>	Density:	Y	
	Resistivity:	Y	Caliper:	Ŷ	
Oti	her (SP, Foc. Elec	., Drift, Dep., Sonic): c			
	-	· · · -			
Hole Cemented	(<u>Y</u> or N), Type: _	<u>N</u>		yds for 9 5/8" annulus	
			Interval: to	surface	
Coal Core Sent To:	NA		Rock Sent To:	NA	
A	•••••				
		68' inside 9 5/8" casing	J		
Tagged gravel at 245			ton of nive		
		80# sacks concrete and			
U_7X_15 Hea comon r	FUOL TO THE G DIX . P.	asing up to surface with	1 Ya concrete.		
<u>3-20- 13 use cement t</u>					
			······································		·····
			······································		
Himes Drilling Colorad					

Language and the second se			E BALING STREET BERTELEN STREET STREET STREET BERTELEN STREET BERTELEN STREET BERTELEN STREET BERTELEN STREET B		
Hole Number	: GVB 18-04B	Project ID.:	Elk Creek Mine Go	h Vent Boreholes	
Lease Number		(State or Federal)		Hotchkiss	
Date Commenced:		Date Completed:			
		• • •			
Contractor:	Himes Drilling	Rig Type:	Atlas Copco RD20	i	
Geologist:	Doug Allen	Date :		Toolpusher:	Matt Himes
	Jim Weatherton	Truck Driver:		Helper:	Brandon Y.
	Kirk Homedew	A	Will Juusola		Jimmy L.
Coordinates: N.		E.		_	
Location: Townshi		on:	NE 1/4, Sec. 31, T.	12 S., R. 90 W.	
Ground Elevation:	8320'	Collar Elevation:		······	
Geophysical Log M		V	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:	0-2243'	Recovered (Y or N):	<u>N</u>		
Depth:	2147-2243'	Recovered (Y or N):	N		
Bit Information Surface Casing	17" Lammor to 10	(11) - fear anging)			
Surface Casing Main Hole	17" Hammer to 40"	' (14" surface casing)			
Core:	12 1/4 FDC 110111	40-2243		····	
	8 3/4" Tricone from	- 00/2 0505'			~~~~ <u>~~~</u>
		1 2240"2000			
Footage Plugged:	0-2595'	Cored:	NA		
	Air:	Foam /Water:	Mud:	Foam Injection:	
urillind Niedium:	AIL.	·	INI (J C).	COMPANY TO DECOUNT,	
Drilling Medium: Depths:	0-40'	40-2595'		roan ngection,	
Depths:	0-40'			roan njecton.	
Depths:	0-40' culation Depths:	40-2595' NA		ained? (Y or N):	
Depths: Lost Cir Water Invasion De	0-40' culation Depths: _ epth or Intervals: _	40-2595' NA 1100'	Reg	**	5 gpm
Depths: Lost Cir Water Invasion De	0-40' culation Depths:	40-2595' NA	Reg	ained? (Y or N):	5 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-40' culation Depths: pepth or Intervals: Depth or Interval:	40-2595' NA 1100'	Reg	ained? (Y or N):	5 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	0-40' culation Depths: _ epth or Intervals: _ Depth or Interval: _ ging Contractor: _	40-2595' NA 1100' NA Jetwest Geophysical	Reg Estima	ained? (Y or N):	5 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-40' culation Depths: _ epth or Intervals: _ Depth or Interval: _ ging Contractor: _ Gamma:	40-2595' NA 1100' NA	Reg Estima Neutron:	ained? (Y or N):	5 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	40-2595' NA 1100' NA Jetwest Geophysical	Reg Estima Neutron: Density:	ained ? (Y or N): ated Inflow Rates:	5 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	40-2595' NA 1100' NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	5 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	40-2595' NA 1100' NA Jetwest Geophysical	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	<u>5 gpm</u>
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	0-40' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	40-2595' NA 1100' NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper: cement dump bailer	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	40-2595' NA 1100' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 2 Interval: to	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" annulus surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	40-2595' NA 1100' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 2 1	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" annulus surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 7	0-40' culation Depths: peth or Intervals: peth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps S	40-2595' NA 1100' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 96' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 2 Interval: to	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 7 Tagged gravel at 255	0-40' culation Depths: peth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps § 3', bottom of 7" casi	40-2595' NA 1100' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 96' inside 9 5/8" casing ing at 2543.5'.	Reg Estima Neutron: Density: Caliper: Caliper: Caliper: No. of Bags: 2 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 7 Tagged gravel at 2553 9-25-15 - push 9 5/8"	0-40' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps S 3', bottom of 7" casi plug to 60', mix 2x8	40-2595' NA 1100' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 96' inside 9 5/8" casing ing at 2543.5'. 30# sacks concrete and	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 2 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 7 Tagged gravel at 2553 9-25-15 - push 9 5/8"	0-40' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps S 3', bottom of 7" casi plug to 60', mix 2x8	40-2595' NA 1100' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 96' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: caliper: caliper: No. of Bags: 2 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 7 Tagged gravel at 2553 9-25-15 - push 9 5/8"	0-40' culation Depths: pepth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps S 3', bottom of 7" casi plug to 60', mix 2x8	40-2595' NA 1100' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 96' inside 9 5/8" casing ing at 2543.5'. 30# sacks concrete and	Reg Estima Neutron: Density: Caliper: caliper: caliper: No. of Bags: 2 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 7 Tagged gravel at 255 9-25-15 - push 9 5/8" 9-28-15 use cement tr	0-40' culation Depths: peth or Intervals: peth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps § 3', bottom of 7" casi plug to 60', mix 2x8 uck to fill 9 5/8 " ca	40-2595' NA 1100' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 96' inside 9 5/8" casing ing at 2543.5'. 30# sacks concrete and sing up to surface with	Reg Estima Neutron: Density: Caliper: caliper: caliper: No. of Bags: 2 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" annulus surface NA	
Depths: Lost Cirr Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 7 Tagged gravel at 2553 9-25-15 - push 9 5/8"	0-40' culation Depths: peth or Intervals: peth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps § 3', bottom of 7" casi plug to 60', mix 2x8 uck to fill 9 5/8 " ca	40-2595' NA 1100' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 96' inside 9 5/8" casing ing at 2543.5'. 30# sacks concrete and sing up to surface with	Reg Estima Neutron: Density: Caliper: caliper: caliper: No. of Bags: 2 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" annulus surface NA	

an a				2014 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 -	
Hole Number	r: GVB 18-04C	Project ID.	: Elk Creek Mine Go	-h Vent Roreholes	
Lease Number		(State or Federal)		Hotchkiss	
Date Commenced		Date Completed:			
- •	·X				
Contractor	: Himes Drilling	Rig Type:	: Atlas Copco RD20	I	
Geologist	V	Date :		Toolpusher:	Matt Himes
	: Jim Weatherton			Helper:	Jason G.
	Kirk Homedew	•	Will Juusola		Jimmy L.
Coordinates: N.		E.	36762.88		
Location: Townshi			NE 1/4, Sec. 31, T.	. 12 S., R. 90 W.	
Ground Elevation:		Collar Elevation:		······································	
Geophysical Log M			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:		-	Size:	9 5/8"	
	sol/slot steel T&C	-	Size:	7"	
Depth:		Recovered (Y or N):			
Depth: Bit Information	2209-2090	Recovered (Y or N):	N		
Surface Casing	17" Hommer to 3()' (14" surface casing)			*
Main Hole	12 1/4" PDC from 3				
Core:		30-2205			
Bottom Hole	8 3/4" PDC from 2	245-2609			
	00/4 100	<u></u>	<u></u>		
Footage Plugged:	0-2609'	Cored:	NA		
Drilling Medium:		Foam /Water:		Foam Injection:	
Depths:		30-2609'			
-					
	rculation Depths:	NA		jained? (Y or N):	
Water Invasion De		120'	Estima	ated Inflow Rates:	30 gpm
Gas Invasion E	Depth or Interval:	NA			
Geophysical Log	uning Contractor:	Jetwest Geophysical			
					<u>M. 111</u>
Logs Run:		Υ	Neutron:		
	Temperature:		Density:	<u> </u>	
04	Resistivity:	γ	Caliper:	<u> </u>	
Ott	ner (SP, Foc. Elec.	., Drift, Dep., Sonic): <u>c</u>	cement dump baller		
Hole Cemented	(YorN), Type:	N	No of Bags: 1/	4 yds for 9 5/8" annulus	10
			Interval: to		3
				<u></u>	
Coal Core Sent To:	NA		Rock Sent To:	NA	·····
A		COLLECTE O EVOI ADDING			
		36' inside 9 5/8" casing		4	·····
(ifave) Dacknee oz.		9.9' slottted, 66.4' blank			
	with asmant nlug a	ADD DIAVELAUX SUBJEST			
**Casing likely fell thro			incide of 7" with 6 4.		
**Casing likely fell thro Attempted retrieval of	f 7", but unsuccesful	I. Attempted to drill out			
**Casing likely fell thro Attempted retrieval of but also unsuccesful.	f 7", but unsuccesful Will mill out casing	II. Attempted to drill out or remove from underg		1/4" tricone, 25-15 - push 9 5/8" plu	ıg to 60',
**Casing likely fell three Attempted retrieval of but also unsuccesful. mix 2x80# sacks conc	f 7", but unsuccesful Will mill out casing crete on top of plug.	II. Attempted to drill out or remove from underg	ground. 9-2		ıg to 60',
**Casing likely fell three Attempted retrieval of but also unsuccesful. mix 2x80# sacks conc	f 7", but unsuccesful Will mill out casing crete on top of plug. t truck to fill up 9 5/8	II. Attempted to drill out or remove from underg B' casing back to surface	ground. 9-2		ıg to 60',

	n in post of the state of the				NAMES OF A DESCRIPTION OF A DESCRIPTION OF A DESCRIPTION
Hole Number	GVB 18-05	Ductostil		a h Marat Davata da a	
Lease Number		(State or Federal)	Elk Creek Mine G	المتحدث والمرجوب والمتتحقل المرباطة منادة فشودوا والاكتريج بالمراجع	
Date Commenced		Date Completed:		Hotchkiss	
	. <u>0-/ug-11</u>	- Date Completed.	9-Aug-11		
Contractor	: Himes Drilling	Rig Type	Atlas Copco RD20)	
Geologist		Date :		, Toolpusher:	Matt Himes
	Jim Weatherton	- Truck Driver:		Helper:	Nick D.
211101	Kirk Homedew	- THOM DIVEL	Will Juusola	Lieihei.	Jimmy L.
Coordinates: N		E.			
Location: Townsh			NE 1/4, Sec. 31, T	12 S R 90 W	
Ground Elevation:		Collar Elevation:	112 11 1, 000. 01, 1	. 12 0.91 . 00 11.	
Geophysical Log N		ground	Elevation		
Total Depth		Probe Depth:	2622'	Fluid Level:	NA
Casing Type			Size:	9 5/8"	
	sol/slot steel T&C	•	Size:	7"	
Depth		Recovered (Y or N):	N		
	2239.9-2601.5'	Recovered (Y or N):	N		
Bit Information		· · · ·			
Surface Casing	17" Hammer to 40	' (14" surface casing)	***************************************	····	
Main Hole	12 1/4" PDC from	40-2305'		••••••••••••••••••••••••••••••••••••••	
Core:				······	
Bottom Hole	8 3/4" PDC from 2	305-2645'			

Footage Plugged:	0-2645'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
			MINN.	rvan mjeouon.	
Depths:		40-2645'		r oan injection.	
Depths:	0-40'	40-2645'	······································	·····	
Depths: Lost Cir	0-40' rculation Depths:	40-2645' NA	Reg	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D	0-40' rculation Depths: epth or Intervals:	40-2645' NA 180'	Reg	·····	10 gpm
Depths: Lost Cir Water Invasion D	0-40' rculation Depths:	40-2645' NA	Reg	jained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I	0-40' rculation Depths: epth or Intervals: Depth or Interval:	40-2645' NA 180' NA	Reg	jained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I	0-40' rculation Depths: epth or Intervals: Depth or Interval:	40-2645' NA 180'	Reg	jained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	40-2645' NA 180' NA Jetwest Geophysical	Reg Estim	jained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	40-2645' NA 180' NA	Reg Estima Neutron:	jained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	40-2645' NA 180' NA Jetwest Geophysical Y	Reg Estima Neutron: Density:	jained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	40-2645' NA 180' NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	40-2645' NA 180' NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N):	10 gpm
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	40-2645' NA 180' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer	jained ? (Y or N): ated Inflow Rates: Y	10 gpm
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	40-2645' NA 180' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 8	Jained ? (Y or N): ated Inflow Rates: Y Y Y yds for 9 5/8" surface	10 gpm
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	40-2645' NA 180' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer	Jained ? (Y or N): ated Inflow Rates: Y Y Y yds for 9 5/8" surface	10 gpm
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	40-2645' NA 180' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 8	Jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	10 gpm
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: NA	40-2645' NA 180' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N	Reg Estima Neutron: Density: Caliper: Caliper: caliper: No. of Bags: 8 Interval: to Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	10 gpm
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	0-40' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA NA	40-2645' NA 180' NA Jetwest Geophysical Y Y Orift, Dep., Sonic): <u>o</u> N 65' inside 9 5/8" casing	Reg Estima Neutron: Density: Caliper: Caliper: No. of Bags: 8 Interval: to Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" surface surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 260	0-40' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (1.5', bottom of 7" ca	40-2645' NA 180' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 65' inside 9 5/8" casing asing at 2603'.	Reg Estima Neutron: Density: Caliper: Caliper: Sement dump bailer No. of Bags: 8 Interval: to Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 260 9-25-15 - push 9 5/8"	0-40' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (1.5', bottom of 7" ca plug to 60', mix 2x8	40-2645' NA 180' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 35' inside 9 5/8" casing asing at 2603'.	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 8 Interval: to Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 260 9-25-15 - push 9 5/8"	0-40' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (1.5', bottom of 7" ca plug to 60', mix 2x8	40-2645' NA 180' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 65' inside 9 5/8" casing asing at 2603'.	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 8 Interval: to Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 260 9-25-15 - push 9 5/8"	0-40' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (1.5', bottom of 7" ca plug to 60', mix 2x8	40-2645' NA 180' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 35' inside 9 5/8" casing asing at 2603'.	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 8 Interval: to Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 260 9-25-15 - push 9 5/8" 9-28-15 use cement t	0-40' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (1.5', bottom of 7" ca plug to 60', mix 2x8 ruck to fill 9 5/8 " ca	40-2645' NA 180' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 8 Interval: to Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 260 9-25-15 - push 9 5/8"	0-40' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (1.5', bottom of 7" ca plug to 60', mix 2x8 ruck to fill 9 5/8 " ca	40-2645' NA 180' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 8 Interval: to Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	

Hole Number	: GVB 18-06	Project ID.:	Elk Creek Mine G	ob Vent Boreholes	
Lease Number		(State or Federal)			
Date Commenced	Martin Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contractor Contra	Date Completed:			
•					
Contractor	: Himes Drilling	Ria Type:	Atlas Copco RD20	1	
Geologist		Date :		Toolpusher:	Matt Himes
Driller			Brandon Yates		
Diffici	Kirk Homedew	. HUCK DITACI.		Helper:	the second se
Coordinates: N	· · · · · · · · · · · · · · · · · · ·	. –	Richard Moores	-	Jimmy Lovato
		E.		- 40.0 D 00.W	
Location: Townsh			SW 1/4, Sec. 32, T	. 12 S., R. 90 W.	
Ground Elevation:		Collar Elevation:	800 H / X		
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	N -	······································	
Depth:	2218.2-2592'	Recovered (Y or N):	N		
Bit Information		· · ·			
Surface Casing	17" Hammer to 25	'; 16" Tricone to 80' (14	" surface casing)		
Main Hole	12 1/4" PDC from				
Core:	Char 17 1 1 100 10 11 1011	00 2001		<u></u>	
Bottom Hole	8 3/4" PDC from 2	201-2626			
		001-2020			
Footage Plugged:	0-2626'	Cored:	NA		
		Foam Water:	Mud:	Com Inicolion.	
Deilligg Madium					
Drilling Medium:			Muu:	Foam Injection:	
Drilling Medium: Depths:		80-2626'		roam mjection:	
Depths:	0-80'	80-2626'	,		
Depths: Lost Cir	0-80' rculation Depths:	80-2626' NA	Rec	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D	0-80' rculation Depths: epth or Intervals:	80-2626' NA NA	Rec		
Depths: Lost Cir Water Invasion D	0-80' rculation Depths:	80-2626' NA	Rec	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-80' rculation Depths: epth or Intervals: Depth or Interval:	80-2626' NA NA	Rec	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	80-2626' NA NA NA Jetwest Geophysical	Reç Estim	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	80-2626' NA NA NA	Reg Estim Neutron:	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	80-2626' NA NA NA Jetwest Geophysical	Reç Estim	jained ? (Y or N):	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	80-2626' NA NA NA Jetwest Geophysical Y	Rec Estim Neutron: Density: Caliper:	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	80-2626' NA NA NA Jetwest Geophysical Y	Rec Estim Neutron: Density: Caliper:	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	80-2626' NA NA NA Jetwest Geophysical Y	Rec Estim Neutron: Density: Caliper:	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	80-2626' NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estim Neutron: Density: Caliper: cement dump bailer	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	80-2626' NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4	jained ? (Y or N): ated Inflow Rates: Y Y	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	80-2626' NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estim Neutron: Density: Caliper: cement dump bailer	jained ? (Y or N): ated Inflow Rates: Y Y	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	80-2626' NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	80-2626' NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	
Depths: Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA	80-2626' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u> N	Reg Estim Neutron: Density: Caliper: Caliper: Caliper: No. of Bags: 4 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 5	80-2626' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u> N 83' inside 9 5/8" casing	Reg Estim Neutron: Density: Caliper: Caliper: Caliper: No. of Bags: 4 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 260	0-80' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps a pt/, bottom of 7" cas	80-2626' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u> N 83' inside 9 5/8" casing ing at 2592'.	Reg Estim Neutron: Density: Caliper: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 260 9-25-15 - push 9 5/8"	0-80' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps a plug to 60', mix 2x8	80-2626' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): c N 83' inside 9 5/8" casing ing at 2592'. 30# sacks concrete and	Reg Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 260 9-25-15 - push 9 5/8"	0-80' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps a plug to 60', mix 2x8	80-2626' NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u> N 83' inside 9 5/8" casing ing at 2592'.	Reg Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 260 9-25-15 - push 9 5/8"	0-80' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps a plug to 60', mix 2x8	80-2626' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): c N 83' inside 9 5/8" casing ing at 2592'. 30# sacks concrete and	Reg Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 260 9-25-15 - push 9 5/8" 9-28-15 use cement t	0-80' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps of plug to 60', mix 2x6 truck to fill 9 5/8 " ca	80-2626' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 83' inside 9 5/8" casing ing at 2592'. 30# sacks concrete and asing up to surface with	Reg Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 260 9-25-15 - push 9 5/8"	0-80' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps of plug to 60', mix 2x6 truck to fill 9 5/8 " ca	80-2626' NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 83' inside 9 5/8" casing ing at 2592'. 30# sacks concrete and asing up to surface with	Reg Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	

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Hole Number	r: GVB 18-07B	Project ID	TH Oracle Mina G	1 Mart Daraholog	
Lease Number			: Elk Creek Mine Go) Surface Owner:		-
Date Commenced		Date Completed:		0010	-
Valo VVIIIkivite	. 017/10g 1	Date completes.	4-00p-12		
Contractor	r: Himes Drilling	Ria Type:	: Atlas Copco RD20	۱	
Geologist		_ Ng Type. Date :		Toolpusher:	Matt Himes
Driller:			Brandon Yates	Helper	
	Kirk Homedew		Richard Moores	-··••	Jimmy Lovato
Coordinates: N.	. 18675.06	E.	38867.03	•	
Location: Townsh	nip, Range & Sectio	on:	SW 1/4, Sec. 32, T	. 12 S., R. 90 W.	
Ground Elevation:	8188'	Collar Elevation:			
Geophysical Log M			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:		-	Size:	9 5/8"	-
	: sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	<u> </u>		
· Depth: Bit Information	: 2137-2482'	Recovered (Y or N):	N		
Bit Information Surface Casing	ACT Tricong to 80'	(14" surface casing)			
Main Hole	12 1/4" PDC from				
Main noie Core:	12 1/4 FUU IIUII	00-2211			
Bottom Hole	8 3/4" PDC from 2	2011-0542			
Douton Liere	001-11-00-0000			- <u> </u>	
Footage Plugged:		Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:		80-2542'			
· + 0!	· · · · · · · · · · · · · · · · · · ·				
	rculation Depths:	NA		gained? (Y or N):	····
	epth or Intervals: _ Depth or Interval: _	1100'; 1200'; 1340' NA	Esum	ated Inflow Rates:	10; 15; 10 gpm
Vas IIIvasivii L	Jepth of Interval.	<u> </u>			
Geophysical Log	ging Contractor:	Jetwest Geophysical			
Logs Run:	Gamma:	Y	Neutron:		
Poño Louis	Temperature:	1	Density:	Y	
	Resistivity:	<u> </u>	Caliper:	<u>`</u>	
Ot'		., Drift, Dep., Sonic): c			
				····	
Hole Cemented	I (<u>Y</u> or N), Type: _	N		yds for 9 5/8" surface	e
			Interval: to	surface	
A Cane Cane Tai	NI A		Dook Cont To	NA	<u></u>
Coal Core Sent To:	<u>NA</u>		Rock Sent To:	NA	
Comments:	7" casing overlaps	74' inside 9 5/8" casing	۲		
	00', bottom of 7" cas		·		<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>
	0,00000000	80# sacks concrete and	d put on top of plug.		
9-21-15 - push 9 5/8"	nlug to 60', mix 2x	oum adona conciete and			
9-21-15 - push 9 5/8"	' plug to 60', mix 2x ruck to fill 9 5/8 " ca	asing up to surface with	1 Yd concrete.		
9-21-15 - push 9 5/8"	' plug to 60', mix 2x 'ruck to fill 9 5/8 " ca	asing up to surface with	1 Yd concrete.		
9-21-15 - push 9 5/8" 9-28-15 use cement t	truck to fill 9 5/8 " ca	asing up to surface with	1 Yd concrete.		
9-21-15 - push 9 5/8"	truck to fill 9 5/8 " ca	asing up to surface with	1 Yd concrete.		

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Hole Number:		Project ID.:	Elk Creek Mine Go	ob Vent Boreholes	
Lease Number:		(State or Federal)	Surface Owner:	USFS	
Date Commenced:	: 5-Sep-12	Date Completed:	13-Sep-12		
- · .					
Contractor:			Atlas Copco RD20		
Geologist:		Date :	30-Sep-12	Toolpusher:	Matt Himes
Driller:		Truck Driver:	Brandon Yates	Helper:	
	Kirk Homedew		Richard Moores	-	Jimmy Lovato
Coordinates: N.		Ε.	39237.81		
Location: Townshi	• •		SW 1/4, Sec. 32, T	. 12 S., R. 90 W.	
Ground Elevation:	8182'	Collar Elevation:		**************************************	
Geophysical Log M			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	·····
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):			
	2152.3-2474.3'	Recovered (Y or N):	N		
Bit Information		······································			
Surface Casing		(14" surface casing)			
	12 1/4" PDC from 8	80-2212'			
Core:					
Bottom Hole	8 3/4" PDC from 2	212-2522'			
	2.0000	Const	• 1 4		_
Footage Plugged:		Cored:	NA		
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
DANTHO	0.001	00 02001	*********		
Depths:	0-80'	80-2522'			
• •		· · · · · · · · · · · · · · · · · · ·	Rec		
Lost Cir	culation Depths:	NA		gained ? (Y or N):	
Lost Cir Water Invasion De	rculation Depths: epth or Intervals:	NA NA		gained ? (Y or N): ated inflow Rates:	
Lost Cir Water Invasion De	culation Depths:	NA			
Lost Cir Water Invasion De Gas Invasion D	rculation Depths: epth or Intervals: Depth or Interval:	NA NA NA			
Lost Cir Water Invasion De Gas Invasion D	rculation Depths: epth or Intervals: Depth or Interval:	NA NA			
Lost Cir Water Invasion De Gas Invasion D Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA NA NA			
Lost Cir Water Invasion De Gas Invasion D	rculation Depths: _ epth or Intervals: _ Depth or Interval: _ iging Contractor: _ Gamma: _	NA NA NA Jetwest Geophysical	Estima	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA NA NA Jetwest Geophysical Y	Estima Neutron: Density:		
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Estima Neutron: Density: Caliper: cement dump bailer	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Estima Neutron: Density: Caliper: cement dump bailer	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to	Ated Inflow Rates: Y yds for 9 5/8" surface	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4	Ated Inflow Rates: Y yds for 9 5/8" surface	· · · · · · · · · · · · · · · · · · ·
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: NA	NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>o</u> N	Neutron: Density: Caliper: eement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" surface	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 59.6' inside 9 5/8" casir	Neutron: Density: Caliper: eement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" surface	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 247	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps { 9', bottom of 7" casi	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 59.6' inside 9 5/8" casir	Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" surface surface NA	******
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 2475 9-21-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps { 9', bottom of 7" casing plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 59.6' inside 9 5/8" casir sing at 2474.3'. 80# sacks concrete and	Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 2475 9-21-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps { 9', bottom of 7" casing plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 59.6' inside 9 5/8" casir	Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 2475 9-21-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps { 9', bottom of 7" casing plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 59.6' inside 9 5/8" casir sing at 2474.3'. 80# sacks concrete and	Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" surface surface NA	******
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 247 9-21-15 - push 9 5/8" 9-28-15 use cement to	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps to 9', bottom of 7" casi plug to 60', mix 2x8 ruck to fill 9 5/8 " ca	NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>o</u> N 59.6' inside 9 5/8" casir ing at 2474.3'. 80# sacks concrete and asing up to surface with	Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 2475 9-21-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps to 9', bottom of 7" casi plug to 60', mix 2x8 ruck to fill 9 5/8 " ca	NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>o</u> N 59.6' inside 9 5/8" casir ing at 2474.3'. 80# sacks concrete and asing up to surface with	Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" surface surface NA	

Hole Number		Project ID.:	Elk Creek Mine Go	ob Vent Boreholes	
Lease Number	: COC-61357	(State or Federal)		USFS	
Date Commenced	: 4-Aug-12	Date Completed:		<u> </u>	
		• •			
Contractor	: Himes Drilling	Rig Type:	Atlas Copco RD20)	
Geologist		Date :		Toolpusher:	Matt Himes
Driller		Truck Driver:		Helper:	Kenny Nobriga
	Kirk Homedew	•	Richard Moores		Jimmy Lovato
Coordinates: N		E.	the second se	-	
Location: Townsh			SE 1/4, Sec. 32, T.	12 S. R. 90 W.	
Ground Elevation:	8057'	Collar Elevation:			
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:		11000 00000	Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):			
Depth:		Recovered (Y or N):	<u>N</u>		
Bit Information	1010.1-2041	Necovered (1 of 14).	IN		
Surface Casing	16" Tricope to 120	' (14" surface casing)			·····
Main Hole	12 1/4" PDC from				
Core:	12 1/4 FDC 1011	120-2000	····	<u></u>	
Bottom Hole	8 3/4" PDC from 2	050 02021	<u></u>		
Bottom Hole	0 3/4 PDC 10/11 2	000-2392			·
Footage Plugged:	0-2392'	Cored:	NA		
Drilling Medium:	<u>Air:</u>	Foam /Water:	Mud:	Foam Injection:	
Depths:	and the second se	120-2392'	INUU.	rvan mjection.	
Dehtiis.					
•				·····	
Lost Cir	rculation Depths:	NA		jained ? (Y or N):	
Lost Cir Water Invasion D	culation Depths:	NA NA		jained ? (Y or N): ated Inflow Rates:	
Water Invasion D	culation Depths:	NA			
Water Invasion De Gas Invasion I	rculation Depths: epth or Intervals: Depth or Interval:	NA NA			
Water Invasion D Gas Invasion I Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA NA NA	Estim		
Water Invasion De Gas Invasion I	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	NA NA NA	Estim		
Water Invasion D Gas Invasion I Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA NA NA	Estim Neutron: Density:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y	Estim Neutron: Density: Caliper:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA	Estim Neutron: Density: Caliper:	ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump bailer	Ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 5	Ated Inflow Rates:	
Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 235 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 2', bottom of 7" cas plug to 60', mix 2x0 ruck to fill 9 5/8 " ca	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 70.9' inside 9 5/8" casin ing at 2347'. 30# sacks concrete and asing up to surface with	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 Interval: to Rock Sent To:	Ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA)

Hole Number	: GVB 19-01B	Project ID -	Elle Crock Mine G	ah Vant Roraholae	
Lease Number			Elk Creek Mine G		
Date Commenced		(State or Federal)		Hotchkiss	
Date Commences		Date Completed:	21-Jun-12		
Contractor	- Limon Drilling			~	
			Atlas Copco RD20		and the filleness
Geologist		Date :		Toolpusher:	Matt Himes
Driller		Truck Driver:		Helper:	Kenny Nobriga
- Handana M	Kirk Homedew	. թ	Richard Moores		Jimmy Lovato
Coordinates: N.		E.			
Location: Townshi			NW 1/4 Sec. 31, T	. 12 S., R. 90 W.	
Ground Elevation:	8239'	Collar Elevation:			
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	NA	Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:	0-2213'	Recovered (Y or N):	N	B 	
Depth:		Recovered (Y or N):	N		
Bit Information		· · ·	<u></u>		
Surface Casing	17" Hammer to 12	0' (14" surface casing)	·····	<u> </u>	
Main Hole	12 1/4" PDC from	120-2213'			
Core:					
Bottom Hole	8 3/4" PDC from 22	213-2510'			
Footage Plugged:	0-2510'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
	* *** ·	I WWEEKS HARMAN	first the set of		
Depths:	0-120'	120-2510'			
Depths:	0-120'	120-2510'			
·	0-120' rculation Depths:	NA			
·	rculation Depths:		Reç	gained ? (Y or N):	10 apm
Lost Cir Water Invasion De	rculation Depths:	NA	Reç	gained ? (Y or N):	10 gpm
Lost Cir Water Invasion De	rculation Depths: _ epth or Intervals:	NA 1690'	Reç	gained ? (Y or N):	10 gpm
Lost Cir Water Invasion De Gas Invasion D	rculation Depths: epth or Intervals: Depth or Interval:	NA 1690' NA	Reç	gained ? (Y or N):	10 gpm
Lost Cir Water Invasion De Gas Invasion D	rculation Depths: _ epth or Intervals:	NA 1690' NA	Reç	gained ? (Y or N):	10 gpm
Lost Cir Water Invasion De Gas Invasion D	rculation Depths: epth or Intervals: Depth or Interval:	NA 1690' NA	Reç	gained ? (Y or N):	10 gpm
Lost Cir Water Invasion De Gas Invasion E Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval:	NA 1690' NA	Reg Estim	gained ? (Y or N):	10 gpm
Lost Cir Water Invasion De Gas Invasion E Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: M Gamma:	NA 1690' NA	Reg Estim Neutron:	gained ? (Y or N):	10 gpm
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: M Gamma: Temperature: Resistivity:	NA 1690' NA NA- see below	Reg Estim Neutron: Density:	gained ? (Y or N):	10 gpm
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: M Gamma: Temperature: Resistivity:	NA 1690' NA	Reg Estim Neutron: Density:	gained ? (Y or N):	10 gpm
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Otl	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 1690' NA NA- see below , Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper:	gained ? (Y or N): nated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Otl	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: M Gamma: Temperature: Resistivity:	NA 1690' NA NA- see below , Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: No. of Bags: 3	gained ? (Y or N): nated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Otl	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA 1690' NA NA- see below , Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper:	gained ? (Y or N): nated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Otl Hole Cemented	rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA 1690' NA NA- see below , Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: No. of Bags: 3	gained ? (Y or N): nated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Otl	rculation Depths: epth or Intervals: Depth or Interval: gging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA 1690' NA NA- see below , Drift, Dep., Sonic): _	Reg Estim Neutron: Density: Caliper: No. of Bags: 3 Interval: ic	gained ? (Y or N): nated Inflow Rates: syds for 9 5/8" surface	
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA	NA 1690' NA NA- see below , Drift, Dep., Sonic): N	Reg Estim Neutron: Density: Caliper: No. of Bags: <u>3</u> Interval: <u>ic</u> Rock Sent To:	gained ? (Y or N): nated Inflow Rates: syds for 9 5/8" surface	
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (NA 1690' NA NA- see below , Drift, Dep., Sonic): N 68.5' inside 9 5/8" casir	Reg Estim Neutron: Density: Caliper: Caliper: No. of Bags: 3 Interval: ic Rock Sent To:	gained ? (Y or N): nated Inflow Rates: yds for 9 5/8" surface o surface	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments: No logging- twin of ho	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (De #ECM 05-34. Us	NA 1690' NA NA- see below , Drift, Dep., Sonic): N 68.5' inside 9 5/8" casir sed E seam for marker	Reg Estim Neutron: Density: Caliper: Caliper: No. of Bags: 3 Interval: ic Rock Sent To:	gained ? (Y or N): nated Inflow Rates: yds for 9 5/8" surface o surface	
Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>No logging- twin of ho</u> 7' lower than ECM, ac	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (ble #ECM 05-34. Us djusted down accord	NA 1690' NA NA- see below , Drift, Dep., Sonic): N 68.5' inside 9 5/8" casir sed E seam for marker to dingly.	Reg Estim Neutron: Density: Caliper: No. of Bags: 3 Interval: ic Rock Sent To: ng. for TD; GVB hole c	gained ? (Y or N): nated Inflow Rates: yds for 9 5/8" surface surface NA :ame in	
Lost Cir Water Invasion Do Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>No logging- twin of ho</u> <u>7' lower than ECM, ac</u> 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (Die #ECM 05-34. Us djusted down accord plug to 60', mix 2x8	NA 1690' NA NA- see below , Drift, Dep., Sonic): N 68.5' inside 9 5/8" casir sed E seam for marker dingly. 30# sacks concrete and	Reg Estim	gained ? (Y or N): nated Inflow Rates: yds for 9 5/8" surface surface NA :ame in	
Lost Cir Water Invasion Do Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>No logging- twin of ho</u> <u>7' lower than ECM, ac</u> 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (Die #ECM 05-34. Us djusted down accord plug to 60', mix 2x8	NA 1690' NA NA- see below , Drift, Dep., Sonic): N 68.5' inside 9 5/8" casir sed E seam for marker to dingly.	Reg Estim	gained ? (Y or N): nated Inflow Rates: yds for 9 5/8" surface surface NA :ame in	
Lost Cir Water Invasion Do Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> <u>No logging- twin of ho</u> <u>7' lower than ECM, ac</u> 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (De #ECM 05-34. Us djusted down accord plug to 60', mix 2x8 ruck to fill 9 5/8 " ca	NA 1690' NA NA- see below NA- see below N N Solution N Solution So	Reg Estim	gained ? (Y or N): nated Inflow Rates: yds for 9 5/8" surface surface NA :ame in	
		And the second second with a second	and the second stand discussion of a space part to stand a second standard and the	the second s	and the set of the set
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Hole Number					
Lease Number			Elk Creek Mine Go		
Date Commenced		(State or Federal)	_	Hotchkiss	
vale Commenced	: 14-May-12	Date Completed:	22-May-12		
Contractor	u Llimon Dulling	D	All 0 0000		
Contractor			Atlas Copco RD20	.	• • • • •
Geologist		Date :		Toolpusher:	Matt Himes
Driller		- Iruck Driver:	Brandon Yates	Helper:	Kenny Nobriga
Coordinates: N	Kirk Homedew		Richard Moores	_	Jimmy Lovato
		E.			
Location: Townsh Ground Elevation:			NW 1/4 Sec. 31, T.	12 S., R. 90 W.	
	8223'	Collar Elevation:			
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	2517'	Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C	_	Size:	7"	
Depth:		Recovered (Y or N):	<u>N</u>		
Depth:	2141.1-2485'	Recovered (Y or N):	N		
Bit Information	(m) 11				
Surface Casing	17" Hammer to 40	' (14" surface casing)			
Main Hole	12 1/4" PDC from	40-2181'			
Core:					
Bottom Hole	8 3/4" PDC from 2	181-2523'			
Footage Plugged:	0-2523'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-40'	40-2523'			
			_		
	culation Depths:	<u>NA</u>		ained? (Y or N):	
Water Invasion De		95'	Estima	ted Inflow Rates:	10 gpm
Gas invasion L	Depth or Interval:	NA			
Coophysical Lag	aina Contractor	Intwart Coontwaled			
Geophysical Log	ging Contractor:	Jetwest Geophysical			·····
Lono Duni	Gamma:	Y	Mariánan		
Logs Run:		<u> </u>	Neutron:		
	Temperature: Resistivity:	v	Density:	Y	
041	· · · · ·	, Drift, Dep., Sonic): c	Caliper:	Ŷ	i
U.		, onit, oep., sonit.).	ement dump baller		
Hole Comented	(VorN) Type:	М	No of Rome: 2 v		
Hole Cemented	(<u>Y</u> or N), Type: _	N	No. of Bags: 3 y		
Hole Cemented	(<u>Y</u> or N), Type: _	<u>N</u>	No. of Bags: <u>3 y</u> Interval: to s		
		<u>N</u>	Interval: to s	surface	······································
Hole Cemented		<u>N</u>		surface	
Coal Core Sent To:	NA		Interval: to s	surface	·····
Coal Core Sent To:	NA 7" casing overlaps :	39.9' inside 9 5/8" casin	Interval: to s	surface	
Coal Core Sent To: Comments: Tagged gravel at 248	NA 7" casing overlaps 7, bottom of 7" cas	39.9' inside 9 5/8" casin ing at 2485'.	Interval: <u>to :</u> Rock Sent To: 	surface	
Coal Core Sent To: Comments: Tagged gravel at 248 9-25-15 - push 9 5/8"	NA 7" casing overlaps 3 7', bottom of 7" cas plug to 60', mix 2x8	39.9' inside 9 5/8" casin ing at 2485'. 30# sacks concrete and	Interval: to : Rock Sent To: Ig. put on top of plug.	surface	
Coal Core Sent To: Comments: Tagged gravel at 248 9-25-15 - push 9 5/8"	NA 7" casing overlaps 3 7', bottom of 7" cas plug to 60', mix 2x8	39.9' inside 9 5/8" casin ing at 2485'.	Interval: to : Rock Sent To: Ig. put on top of plug.	surface	
Coal Core Sent To: Comments: Tagged gravel at 248 9-25-15 - push 9 5/8"	NA 7" casing overlaps 3 7', bottom of 7" cas plug to 60', mix 2x8	39.9' inside 9 5/8" casin ing at 2485'. 30# sacks concrete and	Interval: to : Rock Sent To: Ig. put on top of plug.	surface	
Coal Core Sent To: Comments: Tagged gravel at 248 9-25-15 - push 9 5/8" 9-28-15 use cement t	NA 7" casing overlaps 3 7', bottom of 7" cas plug to 60', mix 2x8 ruck to fill 9 5/8 " ca	39.9' inside 9 5/8" casin ing at 2485'. 30# sacks concrete and sing up to surface with	Interval: to : Rock Sent To: Ig. put on top of plug.	surface	
Coal Core Sent To: Comments: Tagged gravel at 248 9-25-15 - push 9 5/8"	NA 7" casing overlaps 3 7', bottom of 7" cas plug to 60', mix 2x8 ruck to fill 9 5/8 " ca	39.9' inside 9 5/8" casin ing at 2485'. 30# sacks concrete and sing up to surface with	Interval: to : Rock Sent To: Ig. put on top of plug.	surface	

Hole Number	: GVB 19-01D	Project ID .	TP: Oreal Mine G	1 Mart Darahalan	
Lease Number			Elk Creek Mine Go		
			Surface Owner:	Hotchkiss	
Date Commenced	: 23-May-12	Date Completed:	27-May-12		
Cantrophor	Litter - Balling	736 J 197			
Contractor	· · · · · · · · · · · · · · · · · · ·		Atlas Copco RD20		
Geologist		Date :		Toolpusher:	Matt Himes
Driller		Truck Driver:	Brandon Yates	Helper:	
	Kirk Homedew	·	Richard Moores	-	Jimmy Lovato
Coordinates: N		Ε.			
Location: Townsh			NW 1/4 Sec. 31, T.	. 12 S., R. 90 W.	
Ground Elevation:		Collar Elevation:		·····	
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	2561'	Fluid Level:	NA
Casing Type:		-	Size:	9 5/8"	
Casing Type:	sol/slot steel T&C		Size:	7"	
Depth:	0-2123'	Recovered (Y or N):	N -	·····	
Depth:		Recovered (Y or N):	N		
Bit Information		······································			
Surface Casing	17" Hammer to 60	' (14" surface casing)			·····
Main Hole	12 1/4" PDC from (······
Core:					
Bottom Hole	8 3/4" PDC from 2"	123-2573'			·····
			·····	······································	
Footage Plugged:	0-2573'	Cored:	NA		
		Foam /Water:	Mud:	Eagm Inicotions	
Drilling Medium:	Air:	FUAILI / WALCI.	muq.	Poarn miection,	
Drilling weatum: Depths:		60-2573'	14100.	Foam Injection:	
				Foam injection:	
Depths:					
Depths:	0-60' rculation Depths:	60-2573'	Reg	ained ? (Y or N):	10/10 apm
Depths: Lost Cir Water Invasion De	0-60' rculation Depths:	60-2573' NA	Reg	ained? (Y or N):	10/10 gpm
Depths: Lost Cir Water Invasion De	0-60' rculation Depths: _ epth or Intervals: _	60-2573' NA 1120/1250'	Reg	ained? (Y or N):	10/10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-60' rculation Depths: epth or Intervals: Depth or Interval:	60-2573' NA 1120/1250'	Reg	ained? (Y or N):	10/10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	0-60' rculation Depths: epth or Intervals: Depth or Interval:	60-2573' NA 1120/1250' NA	Reg	ained? (Y or N):	10/10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-60' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma:	60-2573' NA 1120/1250' NA	Reg Estima Neutron:	ained ? (Y or N): ated Inflow Rates:	10/10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	0-60' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature:	60-2573' NA 1120/1250' NA	Reg Estima	ained? (Y or N):	10/10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-60' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	60-2573' NA 1120/1250' NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	10/10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-60' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	60-2573' NA 1120/1250' NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates: Y	10/10 gpm
Depths: Lost Cir Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth	0-60' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	60-2573' NA 1120/1250' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth	0-60' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	60-2573' NA 1120/1250' NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 3 (ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" surface	
Depths: Lost Cir Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth	0-60' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	60-2573' NA 1120/1250' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" surface	
Depths: Lost Cir Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth	0-60' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	60-2573' NA 1120/1250' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: <u>3</u> Interval: to	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oth	0-60' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type:	60-2573' NA 1120/1250' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 3 (ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented	0-60' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type:	60-2573' NA 1120/1250' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: <u>3</u> Interval: to	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	0-60' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 4	60-2573' NA 1120/1250' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 43.1' inside 9 5/8" casin	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 3 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	0-60' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 4	60-2573' NA 1120/1250' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 43.1' inside 9 5/8" casin	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 3 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 252	0-60' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 4 8', bottom of 7" casi	60-2573' NA 1120/1250' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 43.1' inside 9 5/8" casin ing at 2524'.	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 3 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 252	0-60' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 4 8', bottom of 7" casi	60-2573' NA 1120/1250' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 43.1' inside 9 5/8" casin	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 3 Interval: to Rock Sent To:	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 252 Ran extra 100' of 7" c	0-60' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.) (Y or N), Type: NA 7" casing overlaps 4 8', bottom of 7" casi	60-2573' NA 1120/1250' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 43.1' inside 9 5/8" casin ing at 2524'.	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 3 Interval: to Rock Sent To: ng.	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 252 Ran extra 100' of 7" c 9-25-15 - push 9 5/8"	0-60' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.) (Y or N), Type: NA 7" casing overlaps 4 8', bottom of 7" casi easing (blanks) due f plug to 60', mix 2x8	60-2573' NA 1120/1250' NA Jetwest Geophysical Y , Drift, Dep., Sonic): c N 43.1' inside 9 5/8" casin ing at 2524'. to difficult, slow drilling 0# sacks concrete and	Reg Estima Neutron: Density: Caliper: caliper: No. of Bags: 3 Interval: to Rock Sent To: ng.	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 252 Ran extra 100' of 7" c 9-25-15 - push 9 5/8"	0-60' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.) (Y or N), Type: NA 7" casing overlaps 4 8', bottom of 7" casi casing (blanks) due f plug to 60', mix 2x8 ruck to fill 9 5/8 " casi	60-2573' NA 1120/1250' NA Jetwest Geophysical Y , Drift, Dep., Sonic): c N 43.1' inside 9 5/8" casin ing at 2524'. to difficult, slow drilling 0# sacks concrete and sing up to surface with	Reg Estima Neutron: Density: Caliper: caliper: No. of Bags: 3 Interval: to Rock Sent To: ng.	ained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" surface surface NA	

			an a		and completely reaction of the state of the st
Hole Number	r: GVB 19-02	Project ID	Clin One of Mine Co	1 Mart Develop	
Lease Number			Elk Creek Mine Go		
Date Commenced		Date Completed:	Surface Owner:	Hotchkiss	
Pale vynnnonvou	- 21 - Way-12	. Date completed.	5-Jun-12		
Contractor	: Himes Drilling		Atlas Canas PD20		
Geologist		_ Kig i ype: Date :	Atlas Copco RD20 6-Jul-12	Tadmishari	Mail Llinco
Driller		Truck Driver:		Toolpusher:	Matt Himes
Dino	Kirk Homedew	ITUCK DITVEL.		Helper:	Kenny Nobriga
Coordinates: N		E.	Richard Moores	-	Jimmy Lovato
Location: Townsh		lan han	35149.54 NW 1/4 Sec. 31, T.		
Ground Elevation:	8302'	Collar Elevation:	NWV 1/4 060.01, 1.	12 S., R. 90 W.	
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	2626'	Fluid Level:	NA
Casing Type:		Lione nehm	2020" Size:	9 5/8"	
	sol/slot steel T&C		Size:	<u>9 5/8"</u> 7"	
Depth:		Recovered (Y or N):	N Size:	1	
Depth:		Recovered (Y or N):	N		
Bit Information		Nevovelen (1 of 17).			
Surface Casing	17" Hammer to 80	' (14" surface casing)			
Main Hole	12 1/4" PDC from 8	<u>80-2291'</u>			
Core:		00-2201			
Bottom Hole	8 3/4" PDC from 22	291-2642'			
			- <u></u>		
Footage Plugged:	0-2642'	Cored:	NA		
	· · ····				
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection;	
Drilling Medium: Depths:		Foam /Water: 80-2642'	Mud:	Foam Injection:	
Depths:	0-80'	80-2642'	Mud:	Foam Injection:	
Depths: Lost Cir	0-80' rculation Depths:	80-2642' NA	Rega	ained? (Y or N):	
Depths: Lost Cir Water Invasion De	0-80' rculation Depths: _ epth or Intervals: _	80-2642' NA 1430'	Rega		10 gpm
Depths: Lost Cir Water Invasion De	0-80' rculation Depths:	80-2642' NA	Rega	ained? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-80' rculation Depths: epth or Intervals: Depth or Interval:	80-2642' NA 1430' NA	Rega	ained? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-80' rculation Depths: epth or Intervals: Depth or Interval:	80-2642' NA 1430'	Rega	ained? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion Do Gas Invasion I Geophysical Log	0-80' rculation Depths: _ epth or Intervals: _ Depth or Interval: _ iging Contractor: _	80-2642' NA 1430' NA	Rega Estima	ained? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion D	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma:	80-2642' NA 1430' NA	Rega Estima Neutron:	ained ? (Y or N): ted Inflow Rates:	10 gpm
Depths: Lost Cir Water Invasion Do Gas Invasion I Geophysical Log	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature:	80-2642' NA 1430' NA	Rega Estima Neutron: Density:	ained? (Y or N):	<u>10 gpm</u>
Depths: Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run:	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	80-2642' NA 1430' NA Jetwest Geophysical Y	Rega Estima Neutron: Density: Caliper:	ained ? (Y or N): ted Inflow Rates:	10 gpm
Depths: Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run:	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	80-2642' NA 1430' NA	Rega Estima Neutron: Density: Caliper:	ained ? (Y or N): ted Inflow Rates:	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	80-2642' NA 1430' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): o	Rega Estima Neutron: Density: Caliper: eement dump bailer	ained ? (Y or N): ted Inflow Rates: Y	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity:	80-2642' NA 1430' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): o	Rega Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 4 y	ained ? (Y or N):	<u>10 gpm</u>
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	80-2642' NA 1430' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): o	Rega Estima Neutron: Density: Caliper: eement dump bailer	ained ? (Y or N):	<u>10 gpm</u>
Depths: Lost Cir Water Invasion De Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (<u>Y</u> or N), Type:	80-2642' NA 1430' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): o	Rega Estima Neutron: Density: Caliper: caliper: no. of Bags: <u>4 y</u> Interval: to s	ained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Oth	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (<u>Y</u> or N), Type:	80-2642' NA 1430' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): o	Rega Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: 4 y	ained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	0-80' rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA	80-2642' NA 1430' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>o</u> N	Rega Estima Neutron: Density: Caliper: Caliper: caliper: No. of Bags: <u>4 y</u> Interval: to s Rock Sent To:	ained ? (Y or N):	10 <u>gpm</u>
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	0-80' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA NA 7" casing overlaps 4	80-2642' NA 1430' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>o</u> N 42' inside 9 5/8" casing	Rega Estima Neutron: Density: Caliper: Caliper: caliper: No. of Bags: <u>4 y</u> Interval: to s Rock Sent To:	ained ? (Y or N):	<u>10 gpm</u>
Depths: Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 258	0-80' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 4 4.5', bottom of 7" ca	80-2642' NA 1430' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 42' inside 9 5/8" casing asing at 2580'.	Rega Estima Neutron: Density: Caliper: caliper: Mo. of Bags: 4 y Interval: to s Rock Sent To:	ained ? (Y or N):	<u>10 gpm</u>
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 258 9-25-15 - push 9 5/8"	O-80' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA 7" casing overlaps 4 4.5', bottom of 7" ca plug to 60', mix 2x8	80-2642' NA 1430' NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>o</u> N 42' inside 9 5/8" casing	Rega Estima Neutron: Density: Caliper: caliper: No. of Bags: 4 y Interval: to s Rock Sent To:	ained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 258 9-25-15 - push 9 5/8"	O-80' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA 7" casing overlaps 4 4.5', bottom of 7" ca plug to 60', mix 2x8	NA 1430' NA Jetwest Geophysical Y Y Drift, Dep., Sonic): <u>c</u> N 12' inside 9 5/8" casing asing at 2580'. 10# sacks concrete and	Rega Estima Neutron: Density: Caliper: caliper: No. of Bags: 4 y Interval: to s Rock Sent To:	ained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 258 9-25-15 - push 9 5/8"	O-80' rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA 7" casing overlaps 4 4.5', bottom of 7" ca plug to 60', mix 2x8	NA 1430' NA Jetwest Geophysical Y Y Drift, Dep., Sonic): <u>c</u> N 12' inside 9 5/8" casing asing at 2580'. 10# sacks concrete and	Rega Estima Neutron: Density: Caliper: caliper: No. of Bags: 4 y Interval: to s Rock Sent To:	ained ? (Y or N):	10 gpm
Depths: Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 258 9-25-15 - push 9 5/8"	O-80' rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec., (Y or N), Type: NA 7" casing overlaps 4 4.5', bottom of 7" ca plug to 60', mix 2x8 ruck to fill 9 5/8 " ca	80-2642' NA 1430' NA Jetwest Geophysical Y , Drift, Dep., Sonic): o N 42' inside 9 5/8" casing asing at 2580'. 0# sacks concrete and sing up to surface with	Rega Estima Neutron: Density: Caliper: caliper: No. of Bags: 4 y Interval: to s Rock Sent To:	ained ? (Y or N):	10 gpm

Hole Number	r: GVB 19-02B	Droiget (D)	The Owner of Mine Co	- Vort Deroholoo	
Lease Number			Elk Creek Mine Go		
		(State or rederal)	Surface Owner:	Hotchkiss	
Date Commenced	: 5-Jun-12	Date Completed:	11-Jun-12		
Controctor	- I line a Duilling	Pt. P			
	: Himes Drilling		Atlas Copco RD20		
Geologist		Date :		Toolpusher:	Matt Himes
Driller		Truck Driver:	Brandon Yates	Helper:	Kenny Nobriga
	Kirk Homedew	- -	Richard Moores	-	Jimmy Lovato
Coordinates: N		E.	35436.14	-	
Location: Townsh		on:	NW 1/4 Sec. 31, T.	12 S., R. 90 W.	
Ground Elevation:	8333'	Collar Elevation:	<u></u>		
Geophysical Log N	Aeasured From:		Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	11/1
	sol/slot steel T&C		Size:	7"	
Depth:					
		Recovered (Y or N):	<u> </u>		
Depth: Bit Information	2273.4-2635'	Recovered (Y or N):	<u>N</u>		
	471 (Laurenta 00				
Surface Casing		' (14" surface casing)			
Main Hole	12 1/4" PDC from	80-2331.5'			
Core:		· · · · · · · · · · · · · · · · · · ·			
Bottom Hole	8 3/4" PDC from 2	331.5-2642'	·		
.			······		• AR/ • • • • • • • • • • • • • • • • • • •
Footage Plugged:		Cored:	NA		
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
Depths:		80-2642'			
•	<u></u>				
Lost Cir	rculation Depths:	NA	Rea	ained? (Y or N):	
			Estima	ated Inflow Rates:	5 gpm
Water Invasion De	epth or Intervals:	500	THE VALUE AN		o gpin
Water Invasion De Gas Invasion F		500' NA			
	epth or Intervals: Depth or Interval: _	NA		_	
Gas Invasion E	Depth or Interval:	NA			
Gas Invasion E	Depth or Interval:				
Gas Invasion E Geophysical Log	Depth or Interval: _ iging Contractor: <u>、</u>	NA Jetwest Geophysical			
Gas Invasion E	Depth or Interval:] Iging Contractor: <u>、</u> Gamma: _	NA	Neutron:		
Gas Invasion E Geophysical Log	Depth or Interval:] Iging Contractor: <u>.</u> Gamma: _ Temperature: _	NA Jetwest Geophysical	Neutron: Density:	Y	
Gas Invasion E Geophysical Log Logs Run:	Depth or Interval: ging Contractor: <u>.</u> Gamma: _ Temperature: _ Resistivity: -	NA Jetwest Geophysical Y Y	Neutron: Density: Caliper:	Ý	
Gas Invasion E Geophysical Log Logs Run:	Depth or Interval: ging Contractor: <u>.</u> Gamma: _ Temperature: _ Resistivity: -	NA Jetwest Geophysical	Neutron: Density: Caliper:	Ý	
Gas Invasion E Geophysical Log Logs Run: Ott	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Neutron: Density: Caliper: cement dump bailer	Ý	
Gas Invasion E Geophysical Log Logs Run: Ott	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA Jetwest Geophysical Y Y	Neutron: Density: Caliper: ement dump bailer No. of Bags: 7 y	yds for 9 5/8" surface	
Gas Invasion E Geophysical Log Logs Run: Ott	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Neutron: Density: Caliper: cement dump bailer	yds for 9 5/8" surface	
Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: _	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Neutron: Density: Caliper: cement dump bailer No. of Bags: 7 Interval: to	yds for 9 5/8" surface surface	
Gas Invasion E Geophysical Log Logs Run: Otl	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: _	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Neutron: Density: Caliper: ement dump bailer No. of Bags: 7 y	yds for 9 5/8" surface surface	
Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To:	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: NA	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Neutron: Density: Caliper: cement dump bailer No. of Bags: 7 Interval: to Rock Sent To:	yds for 9 5/8" surface surface	
Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments:	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 58.1' inside 9 5/8" casir	Neutron: Density: Caliper: cement dump bailer No. of Bags: 7 Interval: to Rock Sent To:	yds for 9 5/8" surface surface NA	
Gas Invasion E Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 263	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (4', bottom of 7" casi	NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 58.1' inside 9 5/8" casir ing at 2635'.	Neutron: Density: Caliper: ement dump bailer No. of Bags: 7 y Interval: to Rock Sent To:	yds for 9 5/8" surface surface NA	
Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 263 9-25-15 - push 9 5/8"	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (4', bottom of 7" cas plug to 60', mix 2x8	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>o</u> N 58.1' inside 9 5/8" casir ing at 2635'. 30# sacks concrete and	Neutron: Density: Caliper: eement dump bailer No. of Bags: 7 y Interval: to Rock Sent To:	yds for 9 5/8" surface surface NA	
Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 263 9-25-15 - push 9 5/8"	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (4', bottom of 7" cas plug to 60', mix 2x8	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>o</u> N 58.1' inside 9 5/8" casir ing at 2635'. 30# sacks concrete and	Neutron: Density: Caliper: eement dump bailer No. of Bags: 7 y Interval: to Rock Sent To:	yds for 9 5/8" surface surface NA	
Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 263 9-25-15 - push 9 5/8"	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (4', bottom of 7" cas plug to 60', mix 2x8	NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 58.1' inside 9 5/8" casir ing at 2635'.	Neutron: Density: Caliper: eement dump bailer No. of Bags: 7 y Interval: to Rock Sent To:	yds for 9 5/8" surface surface NA	
Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 263 9-25-15 - push 9 5/8"	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (4', bottom of 7" cas plug to 60', mix 2x8	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>o</u> N 58.1' inside 9 5/8" casir ing at 2635'. 30# sacks concrete and	Neutron: Density: Caliper: cement dump bailer No. of Bags: 7 Interval: to Rock Sent To: ng.	ý yds for 9 5/8" surface surface NA	
Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 263 9-25-15 - push 9 5/8" 9-28-15 use cement t	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (4', bottom of 7" cas plug to 60', mix 2x6 ruck to fill 9 5/8 " ca	NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 58.1' inside 9 5/8" casir ing at 2635'. 30# sacks concrete and sing up to surface with	Neutron: Density: Caliper: cement dump bailer No. of Bags: 7 Interval: to Rock Sent To: ng.	ý yds for 9 5/8" surface surface NA	
Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 263 9-25-15 - push 9 5/8"	Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (4', bottom of 7" cas plug to 60', mix 2x6 ruck to fill 9 5/8 " ca	NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 58.1' inside 9 5/8" casir ing at 2635'. 30# sacks concrete and sing up to surface with	Neutron: Density: Caliper: cement dump bailer No. of Bags: 7 Interval: to Rock Sent To: ng.	ý yds for 9 5/8" surface surface NA	

Hole Number:	GVB 19-03B	Project ID -	Elk Creek Mine Go	h Vent Roraholes	
Lease Number:		(State or Federal)			
Date Commenced:	manifestation and a second sec	Date Completed:		TIOLOIIKISS	
bate commenced.	22-0011-12	. Date completeu.	20-Juli-12		
Contractor:	Himes Drilling		Atlas Copco RD20	1	
Geologist:		Date :		Toolpusher:	Matt Himes
Driller:		Truck Driver:		Helper:	and the second
Dinci	Kirk Homedew	TIUCK DITACI.	Richard Moores	Lieihei.	Jimmy Lovato
Coordinates: N.		Ē.		-	
Location: Townshi			NW 1/4 Sec. 31, T	12 C D 00 W	
Ground Elevation:	8415'	Collar Elevation:	1474 1/4 060. 01, 1	12 0., IX. 30 W.	
Geophysical Log M			Elevation		
Total Depth:		Probe Depth:	2758'	Fluid Level:	NA
Casing Type:		Probe Deptil.	Size:	9 5/8"	NA
				7"	
	sol/slot steel T&C 0-2453'	Deservered (V or N).	Size:	1	
Depth:		Recovered (Y or N):	<u>N</u>		
Depth:	2424.4-2780'	Recovered (Y or N):	<u>IN</u>		
Bit Information	4711 1 1				
Surface Casing		0' (14" surface casing)			
Main Hole	12 1/4" PDC from	120-2403	·····		······
Core:		450 07001		· · · · · · · · · · · · · · · · · · ·	
Bottom Hole	8 3/4" PDC from 2	453-2780			
Factoria Diversali	0.0700/	Corrects	NIA		
Footage Plugged:	0-2780'	Cored:	NA Mud:	Page Interflows	
Drilling Medium:	Air:	Foam /Water:	wua:	Foam Injection:	
	0.4001	400.07001			
Depths:	0-120'	120-2780'			
•			Dec		
Lost Cir	culation Depths:	NA		jained ? (Y or N):	
Lost Cir Water Invasion De	culation Depths:	NA NA		jained ? (Y or N): ated Inflow Rates:	
Lost Cir Water Invasion De	culation Depths:	NA			
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval:	NA NA NA			9-9-9-1-5-5-9
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval:	NA NA			
Lost Cir Water Invasion De Gas Invasion I Geophysical Log	culation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA NA NA Jetwest Geophysical	Estim		
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	NA NA NA	Estim	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion I Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA NA NA Jetwest Geophysical	Estim Neutron: Density:		
Lost Cir Water Invasion De Gas Invasion I Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y	Estim Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion I Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical	Estim Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Otl	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump bailer	Ated Inflow Rates:	······
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Otl	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 11	Ated Inflow Rates:	<u>`@</u>
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Otl	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump bailer	Ated Inflow Rates:	28
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Otl Hole Cemented	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 1 Interval: to	Ated Inflow Rates: Y 3 yds for 9 5/8" surface) 0
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Otl	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 11	Ated Inflow Rates:	×e
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>o</u> N	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 1 interval: to Rock Sent To:	Ated Inflow Rates: Y 3 yds for 9 5/8" surface	×e
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA NA	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 28.6' inside 9 5/8" casi	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 1 interval: to Rock Sent To:	Ated Inflow Rates: Y 3 yds for 9 5/8" surface	Xe
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 273	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (<u>Y</u> or N), Type: <u>NA</u> 7" casing overlaps 3', bottom of 7" cas	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 28.6' inside 9 5/8" casi	Neutron: Density: Caliper: cement dump bailer No. of Bags: 1: Interval: to Rock Sent To:	Ated Inflow Rates: Y 3 yds for 9 5/8" surface Surface NA	Хе
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 273 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps 3', bottom of 7" cas plug to 60', mix 2x0	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 28.6' inside 9 5/8" casi ing at 2737'. 30# sacks concrete and	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 1 Interval: to Rock Sent To: ng.	Ated Inflow Rates: Y 3 yds for 9 5/8" surface Surface NA	Xe
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 273 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps 3', bottom of 7" cas plug to 60', mix 2x0	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 28.6' inside 9 5/8" casi	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 1 Interval: to Rock Sent To: ng.	Ated Inflow Rates: Y 3 yds for 9 5/8" surface Surface NA	Xe
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 273 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps 3', bottom of 7" cas plug to 60', mix 2x0	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 28.6' inside 9 5/8" casi ing at 2737'. 30# sacks concrete and	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 1 Interval: to Rock Sent To: ng.	Ated Inflow Rates: Y 3 yds for 9 5/8" surface Surface NA	20 20
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 273 9-25-15 - push 9 5/8" 9-28-15 use cement t	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps 3', bottom of 7" cas plug to 60', mix 2xi ruck to fill 9 5/8 " ca	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 28.6' inside 9 5/8" casi ing at 2737'. 30# sacks concrete and asing up to surface with	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 1 Interval: to Rock Sent To: ng.	Ated Inflow Rates: Y 3 yds for 9 5/8" surface Surface NA	Xe
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 273 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps 3', bottom of 7" cas plug to 60', mix 2xi ruck to fill 9 5/8 " ca	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>o</u> N 28.6' inside 9 5/8" casi ing at 2737'. 30# sacks concrete and asing up to surface with	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 1 Interval: to Rock Sent To: ng.	Ated Inflow Rates: Y 3 yds for 9 5/8" surface Surface NA	Xe

Hole Number:	GVB 19-04	Project ID -	Elk Creek Mine Go	h Vont Paraholas	
Lease Number:					
Date Commenced:			Surface Owner:	FIOLCHKI55	
Date Commences.	0-Jui-12	Date Completed:	11-Jul-12		
Contractor	Himes Drilling		Atlas Canas DD20		
			Atlas Copco RD20		Mattilimoo
	Doug Allen		12-Sep-12	Toolpusher:	Matt Himes
Driller:		I ruck Driver:	Brandon Yates	Helper:	
A Burndana M	Kirk Homedew		Richard Moores	-	Jimmy Lovato
Coordinates: N.			36281.63		
Location: Townshi			NE 1/4, Sec. 31, T.	12 S., R. 90 W.	
Ground Elevation:	8469'	Collar Elevation:			
Geophysical Log M			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
	steel T&C		Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:	0-2512'	Recovered (Y or N):	N		
Depth:	2444.1-2793'	Recovered (Y or N):	N		
Bit Information					
Surface Casing		' (14" surface casing)			
Main Hole	12 1/4" PDC from	40-2512'			
Core:					<u></u>
Bottom Hole	8 3/4" PDC from 2	512-2836'			·····
	······		· · · · · · · · · · · · · · · · · · ·		
Footage Plugged:	0-2836'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-40'	40-2836'			
Depths:	0-40'	40-2836'			
• •		40-2836' NA	Reg	ained ? (Y or N):	
• •	culation Depths:			ained ? (Y or N):	
Lost Cir Water Invasion De	culation Depths:	NA			
Lost Cir Water Invasion De	culation Depths:	NA NA			
Lost Cir Water Invasion De Gas Invasion D	culation Depths: pth or Intervals: pepth or Interval:	NA NA NA			
Lost Cir Water Invasion De Gas Invasion D	culation Depths: pth or Intervals: pepth or Interval:	NA NA			
Lost Cir Water Invasion De Gas Invasion D Geophysical Log	culation Depths: pth or Intervals: pepth or Interval:	NA NA NA			
Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma:	NA NA NA Jetwest Geophysical	Estima Neutron:		
Lost Cir Water Invasion De Gas Invasion D Geophysical Log	culation Depths: opth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature:	NA NA NA Jetwest Geophysical	Estima Neutron: Density:	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: epth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: epth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otł	culation Depths: pepth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Estima Neutron: Density: Caliper: cement dump bailer	Ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otł	culation Depths: epth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 8	Y Y Y Y yds for 9 5/8" surface)
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otł	culation Depths: pepth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Estima Neutron: Density: Caliper: cement dump bailer	Y Y Y Y yds for 9 5/8" surface	}
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented	culation Depths: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 8 interval: to	Y Y Y yds for 9 5/8" surface surface	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otł	culation Depths: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): c	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 8	Y Y Y yds for 9 5/8" surface surface	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	culation Depths: ppth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 8 interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	culation Depths: ppth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA NA	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 8 interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 279	culation Depths: ppth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA NA 7" casing overlaps (5', bottom of 7" cas	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 67.9' inside 9 5/8" casil ing at 2793'.	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 8 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 2790 9-25-15 - push 9 5/8"	culation Depths: ppth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps bottom of 7" cas plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 67.9' inside 9 5/8" casil ing at 2793'. 30# sacks concrete and	Estima Neutron: Density: Caliper: Caliper: No. of Bags: 8 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 2790 9-25-15 - push 9 5/8"	culation Depths: ppth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps bottom of 7" cas plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 67.9' inside 9 5/8" casil ing at 2793'.	Estima Neutron: Density: Caliper: Caliper: No. of Bags: 8 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 2790 9-25-15 - push 9 5/8"	culation Depths: ppth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps bottom of 7" cas plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 67.9' inside 9 5/8" casil ing at 2793'. 30# sacks concrete and	Estima Neutron: Density: Caliper: Caliper: No. of Bags: 8 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 279 9-25-15 - push 9 5/8" 9-28-15 use cement tr	culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (NA 7" casing overlaps (S', bottom of 7" cas plug to 60', mix 2x8 uck to fill 9 5/8 " ca	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 67.9' inside 9 5/8" casin ing at 2793'. 30# sacks concrete and ising up to surface with	Estima Neutron: Density: Caliper: Caliper: No. of Bags: 8 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion De Gas Invasion D Geophysical Loge Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 2790 9-25-15 - push 9 5/8"	culation Depths: pepth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps (NA 7" casing overlaps (S', bottom of 7" cas plug to 60', mix 2x8 uck to fill 9 5/8 " ca	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 67.9' inside 9 5/8" casin ing at 2793'. 30# sacks concrete and ising up to surface with	Estima Neutron: Density: Caliper: Caliper: No. of Bags: 8 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	

Hole Number			Elk Creek Mine Go		
Lease Number		(State or Federal		Hotchkiss	
Date Commenced	: 6-Jul-12	Date Completed	11-Jul-12		
Contractor	Limos Drilling				
			Atlas Copco RD20		
Geologist. Driller:		Date :		Toolpusher:	Matt Himes
Driner	Kirk Homedew	Truck Driver:		Helper:	
Coordinates: N	20982.96	E.	Richard Moores 36742.73		Jimmy Lovato
Location: Townsh			NE 1/4, Sec. 31, T.	12 C D 00 W	
Ground Elevation:	8484'	Collar Elevation:	NE 1/4, Sec. 31, 1.	12 3., R. 90 W.	
Geophysical Log N		ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	N		
-	2470.9-2808.4'	Recovered (Y or N):	N		
Bit Information		(* • • • • • • • • • • • • • • • • • • •			
Surface Casing	17" Hammer to 30	'; 16" Tricone to 100' (*	4" surface casing)	·····	
Main Hole	12 1/4" PDC from	100-2542'			
Core:					
Bottom Hole	8 3/4" PDC from 2	542-2861'	Mananananan		
Footage Plugged:	0-2861'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
-			191000	i van mjeeuen.	
Depths:	0-100'	100-2861'		r oan nijeotion.	
Depths:	0-100'	100-2861'		······	
Depths: Lost Cir	0-100' culation Depths:	100-2861' NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De	0-100' culation Depths: _ epth or Intervals: _	100-2861' NA NA	Reg	······	
Depths: Lost Cir Water Invasion De	0-100' culation Depths:	100-2861' NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D	0-100' culation Depths: epth or Intervals: Depth or Interval:	100-2861' NA NA NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D	0-100' culation Depths: epth or Intervals: Depth or Interval:	100-2861' NA NA	Reg	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	0-100' culation Depths: _ epth or Intervals: _ Depth or Interval: _ ging Contractor: _	100-2861' NA NA NA letwest Geophysical	Reg Estima	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D	0-100' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	100-2861' NA NA NA	Reg Estima Neutron:	ained ? (Y or N):	***
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	0-100' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	100-2861' NA NA NA letwest Geophysical	Reg Estima Neutron: Density:	ained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-100' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	100-2861' NA NA NA letwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	0-100' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	100-2861' NA NA NA letwest Geophysical	Reg Estima Neutron: Density: Caliper:	ained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otł	0-100' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	100-2861' NA NA NA letwest Geophysical Y Y Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: eement dump bailer	ained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otł	0-100' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	100-2861' NA NA NA letwest Geophysical Y Y Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: eement dump bailer	ained ? (Y or N): ted Inflow Rates: Y Y /ds for 9 5/8" surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otł	0-100' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	100-2861' NA NA NA letwest Geophysical Y Y Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: <u>5 y</u> Interval: to	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otł	0-100' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type:	100-2861' NA NA NA letwest Geophysical Y Y Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: ement dump bailer No. of Bags: <u>5 y</u> Interval: to	ained ? (Y or N): ted Inflow Rates: Y Y /ds for 9 5/8" surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	0-100' culation Depths: pepth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA	100-2861' NA NA NA letwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: Caliper: caliper: No. of Bags: <u>5 y</u> Interval: to Rock Sent To:	ained ? (Y or N):	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 7	0-100' culation Depths: peth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 7	100-2861' NA NA NA letwest Geophysical Y Y Drift, Dep., Sonic): <u>c</u> N	Reg Estima Neutron: Density: Caliper: Caliper: caliper: No. of Bags: <u>5 y</u> Interval: to Rock Sent To:	ained ? (Y or N): ted Inflow Rates: Y Y /ds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 282	0-100' culation Depths: peth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 7 1', bottom of 7" casi	100-2861' NA NA NA NA Netwest Geophysical Y Y Orift, Dep., Sonic): <u>c</u> N '1.1' inside 9 5/8" casir ng at 2808.4'.	Reg Estima Neutron: Density: Caliper: caliper: caliper: No. of Bags: 5 y Interval: to Rock Sent To:	ained ? (Y or N): ted Inflow Rates: Y Y /ds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 7 Tagged gravel at 2827 9-25-15 - push 9 5/8"	0-100' culation Depths: peth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 7 1', bottom of 7" casi plug to 60', mix 2x8	100-2861' NA NA NA NA NA N N N N N N N N N N N N N	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 y interval: to Rock Sent To: g.	ained ? (Y or N): ted Inflow Rates: Y Y /ds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 7 Tagged gravel at 2827 9-25-15 - push 9 5/8"	0-100' culation Depths: peth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 7 1', bottom of 7" casi plug to 60', mix 2x8	100-2861' NA NA NA NA Netwest Geophysical Y Y Orift, Dep., Sonic): <u>c</u> N '1.1' inside 9 5/8" casir ng at 2808.4'.	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 y interval: to Rock Sent To: g.	ained ? (Y or N): ted Inflow Rates: Y Y /ds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: 7 Tagged gravel at 2827 9-25-15 - push 9 5/8"	0-100' culation Depths: peth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 7 1', bottom of 7" casi plug to 60', mix 2x8	100-2861' NA NA NA NA NA N N N N N N N N N N N N N	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 y interval: to Rock Sent To: g.	ained ? (Y or N): ted Inflow Rates: Y Y /ds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments: 7 Tagged gravel at 2827</u> 9-25-15 - push 9 5/8"	0-100' culation Depths: pth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.) (Y or N), Type: NA 7" casing overlaps 7 1', bottom of 7" casi plug to 60', mix 2x8 "uck to fill 9 5/8 " ca	100-2861' NA NA NA NA NA Vetwest Geophysical Y P P P P P P P P	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 y interval: to Rock Sent To: g.	ained ? (Y or N): ted Inflow Rates: Y Y /ds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 2827 9-25-15 - push 9 5/8"	0-100' culation Depths: pth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.) (Y or N), Type: NA 7" casing overlaps 7 1', bottom of 7" casi plug to 60', mix 2x8 "uck to fill 9 5/8 " ca	100-2861' NA NA NA NA NA Vetwest Geophysical Y P P P P P P P P	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 y interval: to Rock Sent To: g.	ained ? (Y or N): ted Inflow Rates: Y Y /ds for 9 5/8" surface surface	

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Hole Number	: GVB 19-05	Project ID :	Elk Creek Mine Go	h Vent Boreholes	
Lease Number			Surface Owner:		
Date Commenced		Date Completed:		100013100	
Contractor	Himes Drilling	Ria Type:	Atlas Copco RD20	i i i i i i i i i i i i i i i i i i i	
Geologist		Date :		Toolpusher:	Matt Himes
Driller	Manager and the second se		Brandon Yates	Helper:	
	Kirk Homedew	•	Richard Moores		Jimmy Lovato
Coordinates: N.	20668.63	E,	the second s	-	
Location: Townsh	ip, Range & Section	on:	NE 1/4, Sec. 31, T	12 S., R. 90 W.	
Ground Elevation:	8463'	Collar Elevation:	<u>````````````````````````````````</u>		
Geophysical Log N	leasured From:	ground	Elevation		
Total Depth:	2834'	Probe Depth:	2822.5	Fluid Level:	NA
Casing Type:			Size:	9 5/8" -	
Casing Type:	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	N		
Depth:	2425.1-2792'	Recovered (Y or N):	N		
Bit Information					
Surface Casing		' (14" surface casing)			
Main Hole	12 1/4" PDC from	80-2495'			
Core:					
Bottom Hole	8 3/4" PDC from 2	495-2834'			
Footage Plugged:	0-2834'	Cored:	NA		
Drilling Medium:	Air:	Foam Water:	Mud:	Foam Injection:	
Depths:	0-80'	80-2834'			
Depths:	0-80'	80-2834'		······	
Lost Cir	culation Depths:	NA	Reg	ained ? (Y or N):	
Lost Cir Water Invasion De	culation Depths:	NA NA	Reg Estima	ained ? (Y or N): ated Inflow Rates:	
Lost Cir Water Invasion De	culation Depths:	NA	Reg Estima	ained ? (Y or N): ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion I	culation Depths: epth or Intervals: Depth or Interval:	NA NA	Reg Estima	ained ? (Y or N): ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion I Geophysical Log	culation Depths: epth or Intervals: Depth or Interval:	NA NA NA	Reg Estima Neutron:	ained?(Y or N): ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion I	culation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA NA NA	Estim	ained ? (Y or N): ated Inflow Rates:	
Lost Cir Water Invasion Do Gas Invasion I Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Cir Water Invasion Do Gas Invasion I Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Cir Water Invasion Do Gas Invasion I Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion I Geophysical Log Logs Run: Otl	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA NA NA Jetwest Geophysical Y Y	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4	Ated Inflow Rates:	
Lost Cir Water Invasion De Gas Invasion I Geophysical Log Logs Run: Otl	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estim Neutron: Density: Caliper: cement dump bailer	Ated Inflow Rates:	
Lost Cir Water Invasion Do Gas Invasion I Geophysical Log Logs Run: Oti Hole Cemented	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to	Y Y Y yds for 9 5/8" surface surface	
Lost Cir Water Invasion De Gas Invasion I Geophysical Log Logs Run: Otl	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type:	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u>	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to	Ated Inflow Rates:	
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): o N 69.9' inside 9 5/8" casin	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface	
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 279	culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 1', bottom of 7" cas	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 69.9' inside 9 5/8" casin ing at 2792'.	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oti Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 279 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 1', bottom of 7" cas plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 69.9' inside 9 5/8" casin ing at 2792'. 30# sacks concrete and	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oti Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 279 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 1', bottom of 7" cas plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>c</u> N 69.9' inside 9 5/8" casin ing at 2792'.	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oti Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 279 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 1', bottom of 7" cas plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 69.9' inside 9 5/8" casin ing at 2792'. 30# sacks concrete and	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To: ng.	Y Y Y yds for 9 5/8" surface surface NA	
Lost Cir Water Invasion D Gas Invasion D Geophysical Log Logs Run: Oti Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 279 9-25-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 1', bottom of 7" cas plug to 60', mix 2xt ruck to fill 9 5/8 " ca	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>o</u> N 69.9' inside 9 5/8" casin ing at 2792'. 30# sacks concrete and asing up to surface with	Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To: ng.	Y Y Y yds for 9 5/8" surface surface NA	

	<u> Alexandra da anticipa de la constanta da a</u>	an fan de service and the service of			
Hole Number:	: GVB 19-06	Project (D	: Elk Creek Mine Go	-h Vant Paraholas	
Lease Number:			Surface Owner:		1
Date Commenced:		Date Completed:			
Valo Vonnivriova.	. 10-00p	- Date completed.	20-00p-14		
Contractor:	: Himes Drilling	Ria Type	: Atlas Copco RD20	š	
Geologist:	and the second s	Nig Type. Date :		, Toolpusher:	Matt Himes
Driller:			Brandon Yates	Helper:	
Dimer.	Kirk Homedew	HUGK DITYGE	Richard Moores	I leihei.	Jimmy Lovato
Coordinates: N.		. c		-	JIIIIIIY LUVAU
Location: Townshi Ground Elevation:			NW 1/4, Sec. 32, T	. 12 S., R. 90 W.	
		Collar Elevation:	Elevation		
Geophysical Log M			_	Eluid Laval	NIA
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	<u> </u>	
Depth:		Recovered (Y or N):	<u>N</u>		
Depth:	2341.2-2644'	Recovered (Y or N):	N		
Bit Information Surface Casing	40" Tricopo to 70'	(1/11 autors anaing)			***
	16" Tricone to 70"	(14" surface casing)			
Main Hole	12 1/4" PDG IIUIII	/0-2392			<u></u>
Core: Bottom Hole	0.0//# DDC from C	2000 0000			
Bottom Hole	8 3/4" PDC from 2	392-2092			<u></u>
Footage Plugged:	0-2692'	Cored:	NA		
Drilling Medium:		Foam /Water:		Foam Injection:	
Drilling meanum: Depths:		70-2692'	141UU.	FUam mjestivn.	
Lopuio.		10-2002		······	
Lost Cir	rculation Depths:	NA	Rec	gained?(Y or N):	
Water Invasion De		NA		ated Inflow Rates:	
	Depth or Interval:	NA			
	-				
Geophysical Log	uging Contractor:	Jetwest Geophysical			
	-			, <u></u>	
Logs Run:	Gamma:	Υ	Neutron:		
-	Temperature:		Density:	Y	
	Resistivity:	Υ	Caliper:	Y	
Ot		., Drift, Dep., Sonic):			
	·				
Hole Cemented	(<u>Y</u> or N), Type: _	N		yds for 9 5/8" surface)
	• • • •		Interval: to	surface	
_			· · ·		
Coal Core Sent To:	NA		Rock Sent To:	NA	
Comments:	7" casing overlaps	50.8' inside 9 5/8" casir	ng		
Tagged gravel at 264	4', bottom of / cas	ing at 2644	too of alum		
9-25-15 - push 9 5/8"	plug to 60', mix 2xc	80# sacks concrete and	J put on top or plug.	····	······
9-28-2015 use cemer	nt truck to till 9 5/8	" casing up to surface w	vith 1 Ya concrete.		····
					·····
Himes Drilling Colora	do water well licens	e #1285			

		A REAL PROPERTY AND A REAL			
Hole Number:	GVB 19-07	Project ID.:	Elk Creek Mine Go	-h Vont Roreholes	
Lease Number:			Surface Owner:		
Date Commenced:		Date Completed:			
MM60			<u> </u>		
Contractor:	Himes Drilling	Ria Type:	Atlas Copco RD20	i	
Geologist:	V	Date :		Toolpusher:	Matt Himes
Driller:		-	Brandon Yates	Helper:	
	Kirk Homedew		Richard Moores		Jimmy Lovato
Coordinates: N.	20304.20	E.	38659.63	-	
Location: Townshi	ip, Range & Sectio		NW 1/4, Sec. 32, T	. 12 S., R. 90 W.	
Ground Elevation:	8264'	Collar Elevation:		·	
Geophysical Log M			Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8"	
	sol/slot steel T&C		Size:	7"	
Depth:	0-2332'	Recovered (Y or N):			
Depth: Bit Information	2269.9-2616'	Recovered (Y or N):	N		
the second se	46" Tricone to 40'	(14" surface casing)	·····		
	12 1/4" PDC from 4			·	<u></u>
Core:	12 1/7 1 00 10	40-2002			
**.*.	8 3/4" PDC from 23	332-2666'	•••••		
	00,11,22				
Footage Plugged:	0-2666'	Cored:	NA		
				False half attend	
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Drilling Medium: Depths:	Air: 0-40'	40-2666'		Foam injection:	
Depths:	0-40'	40-2666'		······································	
Depths:	0-40' culation Depths:	40-2666' NA	Reg	jained ? (Y or N);	
Depths: Lost Circ Water Invasion De	0-40' culation Depths: _ epth or Intervals:	40-2666' NA 1600'	Reg	······································	5 gpm
Depths: Lost Circ Water Invasion De	0-40' culation Depths:	40-2666' NA	Reg	jained ? (Y or N);	5 gpm
Depths: Lost Circ Water Invasion De Gas Invasion D	0-40' culation Depths: ppth or Intervals: Depth or Interval:	40-2666' NA 1600' NA	Reg	jained ? (Y or N);	5 gpm
Depths: Lost Circ Water Invasion De Gas Invasion D	0-40' culation Depths: ppth or Intervals: Depth or Interval:	40-2666' NA 1600'	Reg	jained ? (Y or N);	5 gpm
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo	0-40' culation Depths: _ epth or Intervals: _ Depth or Interval: _ ging Contractor: _	40-2666' NA 1600' NA	Reg Estima	jained ? (Y or N);	5 gpm
Depths: Lost Circ Water Invasion De Gas Invasion D	0-40' culation Depths: _ epth or Intervals: _ Depth or Interval: _ ging Contractor: _ Gamma:	40-2666' NA 1600' NA	Reg Estima Neutron:_	jained ? (Y or N);	5 gpm
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	0-40' culation Depths: pepth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity:	40-2666' NA 1600' NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N): ated Inflow Rates: Y	5 gpm
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logg Logs Run:	0-40' culation Depths: pepth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity:	40-2666' NA 1600' NA Jetwest Geophysical Y	Reg Estima Neutron: Density: Caliper:	jained ? (Y or N): ated Inflow Rates: Y	5 gpm
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	40-2666' NA 1600' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer	jained ? (Y or N): ated Inflow Rates: Y	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	40-2666' NA 1600' NA Jetwest Geophysical Y Y	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 (jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	40-2666' NA 1600' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented (O-40' culation Depths: pepth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec., (Y or N), Type:	40-2666' NA 1600' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 Interval: to	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth	O-40' culation Depths: pepth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec., (Y or N), Type:	40-2666' NA 1600' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>c</u>	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 Interval: to	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth Hole Cemented (Coal Core Sent To:	0-40' culation Depths: epth or Intervals: Depth or Interval: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec., (Y or N), Type: NA	40-2666' NA 1600' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>o</u> N	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 Interval: to Rock Sent To:	Jained ? (Y or N): ated Inflow Rates: Y yds for 9 5/8" surface surface NA	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7	0-40' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec., (Y or N), Type: NA	40-2666' NA 1600' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>o</u> N 62.1' inside 9 5/8" casir	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7 Tagged gravel at 2622	0-40' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: J Gamma: Temperature: Resistivity: ner (SP, Foc. Elec., (Y or N), Type: NA NA 7" casing overlaps 6 4', bottom of 7" casi	40-2666' NA 1600' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>o</u> N 62.1' inside 9 5/8" casir ing at 2616'.	Reg Estima Neutron: Density: Caliper: Caliper: Caliper: No. of Bags: 5 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	· · · · · · · · · · · · · · · · · · ·
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7 Tagged gravel at 2624 9-25-15 - push 9 5/8"	O-40' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.) (Y or N), Type: NA 7" casing overlaps 6 4', bottom of 7" casi plug to 60', mix 2x8	40-2666' NA 1600' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 62.1' inside 9 5/8" casir ing at 2616'. 30# sacks concrete and	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	· · · · · · · · · · · · · · · · · · ·
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7 Tagged gravel at 2624 9-25-15 - push 9 5/8"	O-40' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.) (Y or N), Type: NA 7" casing overlaps 6 4', bottom of 7" casi plug to 60', mix 2x8	40-2666' NA 1600' NA Jetwest Geophysical Y ., Drift, Dep., Sonic): <u>o</u> N 62.1' inside 9 5/8" casir ing at 2616'.	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7 Tagged gravel at 2624 9-25-15 - push 9 5/8"	O-40' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.) (Y or N), Type: NA 7" casing overlaps 6 4', bottom of 7" casi plug to 60', mix 2x8	40-2666' NA 1600' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 62.1' inside 9 5/8" casir ing at 2616'. 30# sacks concrete and	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	· · · · · · · · · · · · · · · · · · ·
Depths: Lost Circ Water Invasion De Gas Invasion D Geophysical Logo Logs Run: Oth Hole Cemented (Coal Core Sent To: Comments: 7 Tagged gravel at 2624 9-25-15 - push 9 5/8"	O-40' culation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.) (Y or N), Type: NA 7" casing overlaps 6 4', bottom of 7" casi plug to 60', mix 2x8 t truck to fill 9 5/8 "	40-2666' NA 1600' NA Jetwest Geophysical Y , Drift, Dep., Sonic): <u>c</u> N 62.1' inside 9 5/8" casir ing at 2616'. 30# sacks concrete and casing up to surface w	Reg Estima Neutron: Density: Caliper: cement dump bailer No. of Bags: 5 Interval: to Rock Sent To:	jained ? (Y or N): ated Inflow Rates: Y Y yds for 9 5/8" surface surface NA	· · · · · · · · · · · · · · · · · · ·

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Hole Number:	GVB 19-08	Project ID.:	Elk Creek Mine Go	h Vent Roreholes	
Lease Number:		(State or Federal)		USFS	
Date Commenced:		Date Completed:			
	· <u> </u>				
Contractor:	Himes Drilling	Ria Type:	Atlas Copco RD20	1	
Geologist:	V	Date :		Toolpusher:	Matt Himes
Driller:			Brandon Yates	Helper:	
	Kirk Homedew		Richard Moores		Jimmy Lovato
Coordinates: N.		E.	And the second se	-	
Location: Townshi		on:	NW 1/4, Sec. 32, 7	12 S., R. 90 W.	
Ground Elevation:	8131'	Collar Elevation:			
Geophysical Log M	leasured From:	ground	Elevation		
Total Depth:	2541'	Probe Depth:	. 2526'	Fluid Level:	NA
Casing Type:	steel T&C	•	Size:	9 5/8" -	
Casing Type:	sol/slot steel T&C		Size:	7"	
Depth:	0-2302'	Recovered (Y or N):	N		
Depth:	2256.5-2494.5'	Recovered (Y or N):			
Bit Information		. ,	<u>*************************************</u>		
Surface Casing		(14" surface casing)			
Main Hole	12 1/4" PDC from	80-2302'	······································		
Core:					
Bottom Hole	8 3/4" PDC from 2	302-2541'			
Footage Plugged:	0-2541'	Cored:	<u>NA</u>		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-80'	80-2541'			
Depths:					
Depths: Lost Cir	culation Depths:	NA		jained ? (Y or N): _	
Depths: Lost Cir Water Invasion De	culation Depths:	NA NA		jained ? (Y or N): ated Inflow Rates:	
Depths: Lost Cir Water Invasion De	culation Depths:	NA			
Depths: Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval:	NA NA NA			
Depths: Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval:	NA NA			
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	culation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA NA NA Jetwest Geophysical	Estim		
Depths: Lost Cir Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma:	NA NA NA	Estim		
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature:	NA NA NA Jetwest Geophysical	Estim Neutron: Density:		
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y	Estim Neutron: Density: Caliper:	ated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run:	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical	Estim Neutron: Density: Caliper:	ated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otl	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estim Neutron: Density: Caliper: cement dump bailer	ated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otl	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4	Ated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otl	culation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec.	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estim Neutron: Density: Caliper: cement dump bailer	Ated Inflow Rates:	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otl Hole Cemented	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to	Y Y Y yds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Otl	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type:	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4	Y Y Y yds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	rculation Depths: epth or Intervals Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): <u>v</u>	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Ated Inflow Rates: Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	rculation Depths: epth or Intervals: Depth or Intervals ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: NA 7" casing overlaps	NA NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): N 45.5' inside 9 5/8" casi	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 249	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (<u>Y</u> or N), Type: <u>NA</u> 7" casing overlaps 8', bottom of 7" cas	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): _ N 45.5' inside 9 5/8" casi ing at 2494.5'.	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 249 9-21-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 8', bottom of 7" cas plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): _ N 45.5' inside 9 5/8" casi ing at 2494.5'. 30# sacks concrete and	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 249 9-21-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 8', bottom of 7" cas plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): _ N 45.5' inside 9 5/8" casi ing at 2494.5'.	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Ott Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 249 9-21-15 - push 9 5/8"	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec. (Y or N), Type: NA 7" casing overlaps 8', bottom of 7" cas plug to 60', mix 2x8	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): _ N 45.5' inside 9 5/8" casi ing at 2494.5'. 30# sacks concrete and	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: Tagged gravel at 249 9-21-15 - push 9 5/8" 9-28-2015 use cemer	rculation Depths: epth or Intervals Depth or Intervals ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps 8', bottom of 7" cas plug to 60', mix 2x8 it truck to fill 9 5/8 "	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 45.5' inside 9 5/8" casi ing at 2494.5'. 30# sacks concrete and casing up to surface v	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	
Depths: Lost Cir Water Invasion De Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: <u>Comments:</u> Tagged gravel at 249 9-21-15 - push 9 5/8"	rculation Depths: epth or Intervals Depth or Intervals ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: NA 7" casing overlaps 8', bottom of 7" cas plug to 60', mix 2x8 it truck to fill 9 5/8 "	NA NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): N 45.5' inside 9 5/8" casi ing at 2494.5'. 30# sacks concrete and casing up to surface v	Estim Neutron: Density: Caliper: cement dump bailer No. of Bags: 4 Interval: to Rock Sent To:	Y Y Y yds for 9 5/8" surface surface NA	

Hole Number Lease Number Date Commenced	: COC-61357	Project ID.: (State or Federal) Date Completed:		ob Vent Boreholes USFS	
Contractor: Geologist: Driller: Coordinates: N.	Doug Allen Mike Hibbard Kirk Homedew	Date :	Brandon Yates Richard Moores) Toolpusher: _ Helper: _ -	Matt Himes Kenny Nobriga Jimmy Lovato
Location: Townshi			NE 1/4, Sec. 32, T.	12 S., R. 90 W.	
Ground Elevation:	8012.1'	Collar Elevation:			
Geophysical Log M		ground	Elevation		
Total Depth:		Probe Depth:	NA	Fluid Level:	NA
Casing Type:	steel T&C	•	Size:	9 5/8"	
Casing Type:	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	N		
Depth:	1966.5-2485'	Recovered (Y or N):			
Bit Information					
Surface Casing		(14" surface casing)			
Main Hole	12 1/4" PDC from	80-2123'			***************************************
Core:					
Bottom Hole	8 3/4" PDC from 2	123-2595'			
Footage Plugged:	0-2595'	Cored:	NA		
Drilling Medium:	Air:	Foam Water:	Mud:	Foam Injection:	
Depths:	0-80'	80-2595'	INIUU.	roam mjection.	
Doptino.	0-00	00-2000			
Lost Cir	culation Depths:	NA	Rec	jained? (Y or N):	
Water Invasion De		1820'		ated Inflow Rates:	10 gpm
	Depth or Interval:	NA			<u>10 9pm</u>
	-				
Geophysical Log	ging Contractor: [Directional hole- no log	ging		
Logs Run:	Gamma:		Neutron:		
Loga Run.	Temperature:		Density:		
	Resistivity:		Caliper:		
Oth		, Drift, Dep., Sonic):	ounpoir		
		N	No. of Bags: 12 Interval: to	2 yds for 9 5/8" surfac surface	e
Coal Core Sent To:	NA		Rock Sent To:	NA	
Bottom of 9 5/8" casir 9-25-15 - push 9 5/8"	ng located 735' at az plug to 60', mix 2x8 at truck to fill 9 5/8 "	80# sacks concrete and casing up to surface w	put on top of plug.		

HIMES DRILLING COMPANY, INC.

Telephone 970/242-8893

2390 Highway 6 and 50, Grand Junction CO 81505

FAX 970/242-8895

OXBOW MINING

CBM WELL P&A July 2017

	CASING	DEPTH OF	VOLUME OF	VOLUME OF
	SIZE	PLUG	CONCRETE	CONCRETE
HOLE NO.	<u>(IN.)</u>	<u>(FT)</u>	(SACKS)*	<u>(CU, FT,)</u>
CBM-1	9-5/8	60	43	25.8
CBM-2	9-5/8	60	43	25.8
CBM-3	9-5/8	60	45	27.0
CBM-4	9-5/8	60	43	25.8
CBM-5	7	60	26	15.6
CBM-6	9-5/8	60	48	28.8
CBM-7	9-5 /8	60	43	25.8
CBM-8	9-5/8	60	43	25.8
CBM-9	9-5/8	60	43	25.8
CBM-10	9-5/8	60	43	25.8
CBM-11	9-5/8	60	46	27.6
CBM-12	9-5/8	60	43	25.8
CBM-13	9-5/8	60	45	27.0
CBM-14	9-5/8	60	43	25.8

*80lb. sacks

Himes Drilling water well license #1285 Gobvent Boreholes associated with Sanborn Creek Mine

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-1 Lease COC-53510 Surface Owner - BLM Date Completed 1/24/2001 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 411416, E: 1455883 Location: SW1/4, NE1/4, S2, T13S, R90W Depth/ Inclination: 2,490' @ 18° Collar Elev. 7,860' Intervals where water was encountered during drilling: N/A Borehole Diameter: 15"/ 8.75" Hole Casing: 9 5/8" casing +1' to 2,228.75', 6" blank casing 2,183.45' to 2,204.68' 6" slotted casing 2,204.68' to 2,485'

Portland Type II/ Bentonite mix to cement casing 0' to 2,210'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-2 Lease COC-53510 Surface Owner - BLM Date Completed 3/17/2001 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 411416, E: 1455845 Location: SW1/4, NE1/4, S2, T13S, R90W Depth/ Inclination: 2,410' @ 8° Collar Elev. 7,860' Intervals where water was encountered during drilling: N/A Borehole Diameter: 15"/ 8.75" 9 5/8" casing +3' to 2,144'. Hole Casing: 6" blank casing 2,110' to 2,150' 6" slotted casing 2,150' to 2,410'

Portland Type II/ Bentonite mix to cement casing 0' to 2,210'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-3 Lease COC-53510 Surface Owner – BLM Date Completed 6/12/2001 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 411416, E: 1455833 Location: SW1/4, NE1/4, S2, T13S, R90W Depth/ Inclination: 2,380' @ 7° Collar Elev. 7,860' Intervals where water was encountered during drilling: N/A Borehole Diameter: 15"/ 8.75" 9 5/8" casing +1.2' to 2,214', Hole Casing: 6" slotted casing 2,180' to 2,380' Portland Type II/ Bentonite mix to cement casing 0' to 2,300'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-4 Lease COC-53510 Surface Owner - BLM Date Completed 6/27/2001 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 409915, E: 1455832 Location: SW1/4, SE1/4, S2, T13S, R90W Depth/ Inclination: 2,028' @ 12° Collar Elev. 7,553' Intervals where water was encountered during drilling: N/A Borehole Diameter: 15"/ 8.75" 9 5/8" casing 0' to 1,219', Hole Casing: 7 5/8" blank casing 1,164' to 1,928' 7 5/8" slotted casing 1,928' to 2,028'

Portland Type II/ Bentonite mix to cement casing 0' to 1,218'

Hole Plugged and Abandoned by Himes Drilling -- Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-5 Lease COC-53510 Surface Owner - BLM Date Completed 7/15/2001 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 409915, E: 1455782 Location: SW1/4, SE1/4, S2, T13S, R90W Depth/ Inclination: 1,980' @ 3° Collar Elev. 7,553' Intervals where water was encountered during drilling: N/A Borehole Diameter: 15"/ 6 1/8" Hole Casing: 7" casing 0' to 1,800.67', 5" blank casing 1,688' to 1,741' 5" slotted casing 1,741' to 1,980' Portland Type II/ Bentonite mix to cement casing 0' to 1,800'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-6 Lease COC-53510 Surface Owner - BLM Date Completed 6/17/2001 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 411416, E: 1455844 Location: SW1/4, NE1/4, S2, T13S, R90W Depth/ Inclination: 2,460' @ 10° Collar Elev. 7,860' Intervals where water was encountered during drilling: N/A Borehole Diameter: 15"/ 8.75" Hole Casing: 9 5/8" casing 0' to 1,297'. 7" blank casing 1,224' to 2,398' 7" slotted casing 2,398' to 2,460' Portland Type II/ Bentonite mix to cement casing 0' to 1,297'

r ormand rype in benchnice mix to cement casing 0 to 1,297

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-7 Lease COC-53510 Surface Owner – BLM Date Completed 8/11/2001 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 411416, E: 1455805 Location: SW1/4, NE1/4, S2, T13S, R90W Depth/ Inclination: 2,505' @ 16° Collar Elev. 7,860' Intervals where water was encountered during drilling: N/A Borehole Diameter: 15"/ 8,75" Hole Casing: 9 5/8" casing 0' to 1,312', 7 5/8" blank casing 1,241' to 2,310' 7 5/8" slotted casing 2,310' to 2,505'

Portland Type II/ Bentonite mix to cement casing 0' to 1,310'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-8 Lease COC-53510 Surface Owner - BLM Date Completed 1/15/2002 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 410271, E: 1454073 Location: NW1/4, SW1/4, S2, T13S, R90W Depth/ Inclination: 2,593' @ 14° Collar Elev. 7,977' Intervals where water was encountered during drilling: N/A Borehole Diameter: 12.25"/8.75" 9 5/8" casing 0' to 926', Hole Casing: 7" blank and slotted casing 732' to 2,593' Portland Type II/ Bentonite mix to cement casing 0' to 926'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-9 Lease COC-53510 Surface Owner - BLM Date Completed 2/10/2002 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 409033, E: 1453970 Location: SW1/4, SW1/4, S2, T13S, R90W Depth/ Inclination: 2,540' @ 12° Collar Elev. 8,000' Intervals where water was encountered during drilling: N/A Borehole Diameter: 12.25"/ 8.75" Hole Casing: 9 5/8" casing 0' to 2,330'. 7 5/8" blank casing 2123' to 2,300' 7 5/8" slotted casing 2,300' to 2,540'

Portland Type II/ Bentonite mix to cement casing 0' to 2,330'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-10 Lease COC-53510 Surface Owner - BLM Date Completed 2/24/2002 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 409003, E: 1453959 Location: SW1/4, SW1/4, S2, T13S, R90W Depth/ Inclination: 2,575' @ 24° Collar Elev. 8,000' Intervals where water was encountered during drilling: N/A Borehole Diameter: 12.25"/ 8.75" 9 5/8" casing 0' to 2,375', Hole Casing: 7" blank casing 2,273' to 2,335' 7" slotted casing 2,335' to 2,575'

Portland Type II/ Bentonite mix to cement casing 0' to 2,375'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) **Oxbow Mining, LLC** Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-11 Lease COC-53510 Surface Owner - BLM Date Completed 1/11/2002 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 410264, E: 1454015 Location: NW1/4, SW1/4, S2, T13S, R90W Depth/ Inclination: 2,465' @ 5° Collar Elev. 7,977' Intervals where water was encountered during drilling: N/A Borehole Diameter: 12.25"/ 8.75" Hole Casing: 9 5/8" casing 0' to 2,250', 7" slotted casing 2.057' to 2.465' Portland Type II/ Bentonite mix to cement casing 0' to 2,250'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-12 Lease COC-53510 Surface Owner - BLM Date Completed 5/08/2002 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 409079, E: 1454007 Location: SW1/4, SW1/4, S2, T13S, R90W Depth/ Inclination: 2,375' @ 1° Collar Elev. 8,000' Intervals where water was encountered during drilling: N/A Borehole Diameter: 12.25"/ 8.75" Hole Casing: 9 5/8" casing 0' to 2,125', 7" blank casing 2,024' to 2,311' 7" slotted casing 2,311' to 2,375'

Portland Type II/ Bentonite mix to cement casing 0' to 2,125'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-13 Lease COC-53510 Surface Owner – BLM Date Completed 5/31/2002 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 410259, E: 1453965 Location: NW1/4, SW1/4, S2, T13S, R90W Depth/ Inclination: 2,525' @ 13.5° Collar Elev. 7,977' Intervals where water was encountered during drilling: N/A Borehole Diameter: 12.25"/ 8.75" Hole Casing: 9 5/8" casing 0' to 2,230', 7" slotted casing 2,141' to 2,525' Portland Type II/ Bentonite mix to cement casing 0' to 2,230'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Gob Vent Borehole Abandonment Report (4.07.3(3)) Oxbow Mining, LLC Elk Creek/ Sanborn Creek Mines Sanborn Creek Coal Bed Methane Holes: CBM-14 Lease COC-53510 Surface Owner - BLM Date Completed 5/23/2002 Drilling Contractor: Lang Exploratory Drilling Coordinates: N: 409020, E: 1453910 Location: SW1/4, SW1/4, S2, T13S, R90W Depth/ Inclination: 2,448' @ 11° Collar Elev. 8,000' Intervals where water was encountered during drilling: N/A Borehole Diameter: 12.25"/ 8.75" 9 5/8" casing 0' to 2,207', Hole Casing: 7" blank casing 2,095' to 2,157' 7" slotted casing 2,157' to 2,448'

Portland Type II/ Bentonite mix to cement casing 0' to 2,206'

Hole Plugged and Abandoned by Himes Drilling – Water well license #1456, in July 2018.

Elk Creek Mine

Hole Number: Lease Number: Date Commenced:	COC-61357		: Elk Creek Mine Ex) Surface Owner: 9-Sep-10		
Contractor: Geologist: Driller: Coordinates: N.	Doug Allen Jim Weatherton Sam Homedew 20380.48	Date : Truck Driver: E.	Kirk Homedew Will Juusola 32776.57	Toolpusher: _ Helper: _ 	Matt Himes Will K. Trey H.
Location: Townshi		on:	NW 1/4, Sec. 36, T	Г. 12 S., R. 9 <u>1 W</u> .	
Ground Elevation:	8037'	Collar Elevation:			
Geophysical Log M		ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	7"	
Casing Type:	present and the second s		Size:	4 1/2"	
Depth:		Recovered (Y or N):			
Depth:	0-2189.5'	Recovered (Y or N):	N		
Bit Information					
v .	9 7/8" Tricone to 6				
	6 1/4" Tricone from				·····
	3.937" from 2189.5	5-2274'			
Bottom Hole					
···-	·				
Footage Plugged:	2189.5'	Cored:	84.5'		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-600'	600-2190'			
		• • •	-		
	culation Depths:	NA		pained ? (Y or N):	<u> </u>
Water Invasion De		NA	Estima	ated Inflow Rates:	
Gas Invasion D	epth or Interval:	NA	1		
Geophysical Log	ging Contractor: <u>·</u>	Jetwest Geophysical			
Logs Run:	Gamma:	Y	Neutron:		
	Temperature:	·	Density:	Y	
	Resistivity:	Y	Caliper:	Ý	
Oth		., Drift, Dep., Sonic):		, <u>, , , , , , , , , , , , , , , , </u>	
		γ	No. of Bags: 30	00 gal plug gel; 9 yds om 2274' to surface	cement
Coal Core Sent To:	SGS		Rock Sent To:	Agapito	
Comments: (Cored from 2189.5-	i-2274' with air. Galen H	-lomedew-Driller; Βε	eau O./ Jake C helpe	ITS.
					·
Himes Drilling Colorad	do water well licen:	se #1285			

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	<u></u>	Oxbow Mir	ning LLC	<u> (1997) - Angel - Ange</u>	
	,	Elk Cree	-		
Hole Number	: ECM 10-69	Proiect ID.:	: Elk Creek Mine E	xploration	
Lease Number	and the second sec	(State or Federal)	Surface Owner:		
Date Commenced	: 16-Jun-10	Date Completed:	31-Jul-10		
Contractor	: Himes Drilling	Rig Type:	Atlas Copco RD20		
Geologist		Date :		Toolpusher:	Matt Himes
Driller	Jim Weatherton Sam Homedew	- Truck Driver:	Kirk Homedew Tommy Dennis	Helper: _	Sean Vivian Will Juusola
Coordinates: N		- E.		-	Will Udd50ld
Location: Townsh	• • •		NW 1/4, Sec. 36, 7	r. 12 s., r. 91 w.	
Ground Elevation:		Collar Elevation:	Elevation		
Geophysical Log N Total Depth:		ground Probe Depth:		Fluid Level:	NA
Casing Type:	steel		Size:	7"	
Casing Type:			Size:	4 1/2"	
Depth: Depth:		Recovered (Y or N): Recovered (Y or N):			
Bit Information	02100				
Surface Casing	97/8" Tricone to 2				
Main Hole Core:	6 1/4" Tricone from 3.937" from 2130-				
Bottom Hole	5.937 HOIT 2130-	2020		· · · · · · · · · · · · · · · · · · ·	
Footage Plugged:	<u>2130'</u>	Cored: _ Foam /Water:	195' Mud:	Foam Injection:	
Drilling Medium: Depths:		280-2130'		Foam mjection.	
•					
	culation Depths:	NA		ained ? (Y or N): _	0
Water Invasion De	epth or Intervals: Depth or Interval:	280' NA	Estima	ated Inflow Rates:	3 gpm
	-				
Geophysical Log	ging Contractor:	Jetwest Geophysical		<u> </u>	
Logs Run:	Gamma:	Y	Neutron:		
	Temperature:	· · · · · · · · · · · · · · · · · · ·	Density:	Y	
01	Resistivity:	, Drift, Dep., Sonic):	Caliper:	Y	
U	1er (SP, FUC. Elec.	., Dint, Dep., Somej	<u></u>		
Hole Cemented	(<u>Y</u> or N), Type: _	Y		00 gal plug gel; 12 yd	s cement
				om 2325' to surface	
Coal Core Sent To:	NA		Rock Sent To:	NA	
A euuuuu	Carad from 0120 0	225' with air Calon Ur	medew-Driller: Pee	u O / lako C holoor	
Comments:	Corea Irom 2130-2	325' with air. Galen Ho	medew-Dillier, Dea	tu 0.7 Jake 0 neiper	s
·····	· · · · · · · · · · · · · · · · · · ·	v.			
Himes Drilling Colora	do water well licen:	se #1285			

Hole Number Lease Number Date Commenced	: COC-61357		Elk Creek Mine E Surface Owner: 12-Aug-10		
Coordinates: N	Doug Allen Jim Weatherton Sam Homedew 21245.40	Date : Truck Driver: E.	Kirk Homedew Tommy Dennis	// CR-7 Toolpusher: _ Helper: _ _	Matt Himes Sean Vivian Will Juusola
Location: Townsh			NW 1/4, Sec. 36, T	. 12 S., R. 91 W.	
Ground Elevation:		Collar Elevation:			
Geophysical Log N		ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	7"	
Casing Type:			Size:	4 1/2"	
Depth:		Recovered (Y or N):	<u>N</u>		
Depth:	22-2313'	Recovered (Y or N):	N		
Bit Information	0 7/0" Tricopo to 0	0		u u	
Surface Casing Main Hole	9 7/8" Tricone to 2				
Core:	6 1/4" Tricone from 3.937" from 2300-2				
Bottom Hole	3.937 110111 2300-7	<u></u>		1	
Doctoin noie					
Footage Plugged: Drilling Medium:	2300' Air:	Cored: Foam /Water:	111' Mud:	Foam Injection:	
Depths:	0-331'	331-2313'	· · · · · · · · · · · · · · · · · · ·		
Water Invasion De	culation Depths: _ epth or Intervals: _ epth or Interval: _	NA 1225' NA		ained? (Y or N): ted Inflow Rates:	40 gpm
Geophysical Log	ging Contractor: <u>J</u>	etwest Geophysical			
Logs Run: Oth	Gamma: _ 	Y Y Drift, Dep., Sonic):	Neutron: Density: Caliper:	Y Y	
Hole Cemented	(<u>Y</u> or N), Type: _	Y	No. of Bags: <u>30</u> Interval: fro	0 gal plug gel; 12 yds m 2411' to surface	cement
Coal Core Sent To:	NA		Rock Sent To:	NA	
Comments:	Cored from 2311-24	11' with air. Galen Ho	medew-Driller; Beau	u O./ Jake C helpers	·
	······································	· · · · · · · · · · · · · · · · · · ·			
		·····	·····	, <u></u> , <u></u>	
Himes Drilling Colorad	to water well licens	e #1285			

Hole Number		Project ID	TH. On all Mine D	. ا ها	
Lease Number			Elk Creek Mine E		
			Surface Owner:	Hotchkiss	
Date Commenced	l: 31-Aug-10	Date Completed:	11-Sep-10		
Contractor	: Himes Drilling	Big Type	Atlas Copco RD20	V CR_7	
Geologist		_ nig rype. Date :		Toolpusher:	Matt Himes
•	: Jim Weatherton	Truck Driver:		· · –	Will K.
	Sam Homedew			Helper:	
Coordinates: N		- Е.	Will Juusola 33065.34	_	Trey H
Location: Townsh			NW 1/4, Sec. 36, 1		
Ground Elevation:		Collar Elevation:	INVV 1/4, 300. 30, 1	. 12 0., n. 91 W.	
Geophysical Log N		ground	Elevation		
Total Depth:			2409'	Eluid Loval:	NIA
Casing Type:		Probe Depth:		Fluid Level:	NA
			Size:	7"	
Casing Type:		Department (V or Ni)	Size:	4 1/2"	
Depth:		Recovered (Y or N):			
Depth:	0-2340'	Recovered (Y or N):	N		
Bit Information				···· <u>··· ···</u>	
Surface Casing	97/8" Tricone to 1				
Main Hole	6 1/4" Tricone from				
Core:	3.937" from 2340-	2409'			
Bottom Hole					
Footage Plugged:	2340'	Cored:	69'		
Drilling Medium:		Foam /Water:	Mud:	Ecom Injustion	
			innr:	Foam Injection:	
Depths:	0-230	230-2340'			
Lost Cir	culation Denths	2:30'	Ben	ained ? (V or N);	v
	culation Depths:	230'		ained ? (Y or N):	Υ
Water Invasion De	epth or Intervals:]	NA		ained?(Y or N): ated Inflow Rates:	Y
Water Invasion De					Y
Water Invasion De Gas Invasion D	epth or Intervals: Depth or Interval:	NA			Y
Water Invasion De Gas Invasion I Geophysical Log	epth or Intervals: Depth or Interval: ging Contractor:	NA NA Jetwest Geophysical	Estima		Y
Water Invasion De Gas Invasion D	epth or Intervals: Depth or Interval: ging Contractor: _ Gamma: _	NA NA	Estima Neutron:		Y
Water Invasion De Gas Invasion I Geophysical Log	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: _	NA NA Jetwest Geophysical Y	Estima Neutron: Density:		Y
Water Invasion De Gas Invasion E Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical Y Y	Estima Neutron:		Υ
Water Invasion De Gas Invasion E Geophysical Log Logs Run:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA Jetwest Geophysical Y	Estima Neutron: Density:		Υ
Water Invasion De Gas Invasion I Geophysical Log Logs Run: Oth	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estima Neutron: Density: Caliper:	ated Inflow Rates:	
Water Invasion De Gas Invasion I Geophysical Log Logs Run: Oth	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical Y Y	Estima Neutron: Density: Caliper: No. of Bags: 30	Y Y Y Y Y Y 00 gal plug gel; 25 yds	
Water Invasion De Gas Invasion I Geophysical Log Logs Run: Oth	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec.	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estima Neutron: Density: Caliper: No. of Bags: 30	ated Inflow Rates:	
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type: _	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Neutron: Density: Caliper: No. of Bags: <u>30</u> Interval: fro	Y Y Y 00 gal plug gel; 25 yds om 2409' to surface	cement
Water Invasion De Gas Invasion I Geophysical Log Logs Run: Oth	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type: _	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Neutron: Density: Caliper: No. of Bags: <u>30</u> Interval: fro	Y Y Y Y Y Y 00 gal plug gel; 25 yds	cement
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type: SGS	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Estima Neutron: Density: Caliper: No. of Bags: <u>30</u> Interval: <u>fro</u> Rock Sent To:	Y Y Y O gal plug gel; 25 yds om 2409' to surface Agapito	cement
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type: SGS	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): Y	Estima Neutron: Density: Caliper: No. of Bags: <u>30</u> Interval: <u>fro</u> Rock Sent To:	Y Y Y O gal plug gel; 25 yds om 2409' to surface Agapito	cement
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type: SGS	NA NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): Y	Estima Neutron: Density: Caliper: No. of Bags: <u>30</u> Interval: <u>fro</u> Rock Sent To:	Y Y Y O gal plug gel; 25 yds om 2409' to surface Agapito	cement
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2340-24	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 409' with air. Galen Ho	Estima Neutron: Density: Caliper: No. of Bags: <u>30</u> Interval: <u>fro</u> Rock Sent To:	Y Y Y O gal plug gel; 25 yds om 2409' to surface Agapito	cement
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (<u>Y</u> or N), Type: SGS	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 409' with air. Galen Ho	Estima Neutron: Density: Caliper: No. of Bags: <u>30</u> Interval: <u>fro</u> Rock Sent To:	Y Y Y O gal plug gel; 25 yds om 2409' to surface Agapito	cement
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2340-24	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 409' with air. Galen Ho	Estima Neutron: Density: Caliper: No. of Bags: <u>30</u> Interval: <u>fro</u> Rock Sent To:	Y Y Y O gal plug gel; 25 yds om 2409' to surface Agapito	cement
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: ner (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2340-24	NA NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 409' with air. Galen Ho	Estima Neutron: Density: Caliper: No. of Bags: <u>30</u> Interval: <u>fro</u> Rock Sent To:	Y Y Y O gal plug gel; 25 yds om 2409' to surface Agapito	cement

	and the second	Oxbow Mir	ning LLC	na ana ao amin'	
		Elk Cree	-		
		······································			
Hole Number: Lease Number: Date Commenced:	COC-61357		Elk Creek Mine Ex Surface Owner: 16-Aug-10		
Geologist:	Himes Drilling Doug Allen Jim Weatherton Sam Homedew	Rig Type: Date : Truck Driver:		// CR-7 Toolpusher: _ Helper: _	Matt Himes Sean Vivian Will Juusola
Coordinates: N. Location: Townshi Ground Elevation:	21950.56 p, Range & Sectio 8199'	E. on: Collar Elevation:	33168.58 NW 1/4, Sec. 36, 1	. 12 S., R. 91 W.	
Geophysical Log M Total Depth: Casing Type:		ground Probe Depth:	Elevation 2547' Size:	Fluid Level:	NA
Casing Type: Depth: Depth:	steel T&C 0-56'	Recovered (Y or N): Recovered (Y or N):	Size: N	4 1/2"	
Bit Information Surface Casing Main Hole	9 7/8" Tricone to 56 6 1/4" Tricone from 3.937" from 2313-2	5' 1 56-2313'			
- Footage Plugged: Drilling Medium: Depths:	2313' Air: 0-270'	Cored: Foam /Water: 270-2313'	234' Mud:	Foam Injection:	
Water Invasion De Gas Invasion De	epth or Interval:	NA 270' NA		ained?(Y or N): ated Inflow Rates:	2 gpm
Logs Run:	Gamma: Temperature: Resistivity:	etwest Geophysical Y Y Drift, Dep., Sonic):	Neutron: _ Density: _ Caliper: _		
		Υ	No. of Bags: 60 Interval: fro	00 gal plug gel; 15 yd om 2551' to surface	s cement
Coal Core Sent To:	NA		Rock Sent To:	NA	
Comments: <u>C</u>	Cored from 2313-25	551' with air. Galen Ho	medew-Driller; Bea	u O./ Jake C helpers	5
			·····	· · · · · · · · · · · · · · · · · · ·	
Himes Drilling Colorad	o water well licens	e #1285			

Hole Number					
	": ECM 10-73		: Elk Creek Mine E		
Lease Number			Surface Owner:	Hotchkiss	
Date Commenced	l: 9-Sep-10	Date Completed	: <u>15-Sep-10</u>	,	
Contractor					
			Atlas Copco RD20		
Geologist	: Doug Allen : Jim Weatherton	Date :		Toolpusher:	Matt Himes
Driller	Sam Homedew	Truck Driver:		Helper:	Will K.
Coordinates: N			Will Juusola	_	Trey H.
Location: Townsh		E.	33679.06		
Ground Elevation:		Collar Elevation:	NW 1/4, Sec. 31, 1	1. 12 S., R. 90 W.	
Geophysical Log N		-	Elevation		
Total Depth:		ground	Elevation		
Casing Type:		Probe Depth:	2595'	Fluid Level:	NA
Casing Type: Casing Type:			Size:	7"	
Depth:		Decovered (V or N).	Size:	4 1/2"	
Depth:		Recovered (Y or N):	<u>N</u>		
Bit Information	0-2490	Recovered (Y or N):	N		
Surface Casing	9 7/8" Tricone to 8	101			,
Main Hole	6 1/4" Tricone from				
Core:					·······
Bottom Hole	3.937" from 2490-	2000			
Footage Plugged:	2490'	Cored:	110'		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:	0-177'	177-2490'			
	culation Depths:	NA	Reg	ained? (Y or N):	
Water Invasion De	and a state of the second	177'	Estima	ited Inflow Rates:	2 apm
					z ypm
	epth or Intervals: Depth or Interval:	NA			2 gpm
Gas Invasion D	epth or Interval:	NA			2 gpm
Gas Invasion D	epth or Interval:				
Gas Invasion D Geophysical Log	epth or Interval:	NA	Neutron:		
Gas Invasion D	epth or Interval: ging Contractor: _ Gamma: _	NA Jetwest Geophysical	Neutron: Densitv:		<u> </u>
Gas Invasion D	epth or Interval: ging Contractor: Gamma: Temperature:	NA Jetwest Geophysical	Density:	Υ Υ	2 gpm
Gas Invasion D Geophysical Log Logs Run:	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA Jetwest Geophysical			<u>2 gpm</u>
Gas Invasion E Geophysical Log Logs Run: Oth	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Density: Caliper:	Y Y Y	
Gas Invasion E Geophysical Log Logs Run: Oth	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Density: Caliper: No. of Bags: 30	Y Y 0 gal plug gel; 10 yds	
Gas Invasion E Geophysical Log Logs Run: Oth	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec.	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Density: Caliper: No. of Bags: 30	Y Y Y	
Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Density: Caliper: No. of Bags: <u>30</u> Interval: fro	Y Y 0 gal plug gel; 10 yds m 2600' to surface	
Gas Invasion E Geophysical Log Logs Run: Oth	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Density: Caliper: No. of Bags: 30	Y Y 0 gal plug gel; 10 yds m 2600' to surface	
Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ler (SP, Foc. Elec. (Y or N), Type: SGS	NA Jetwest Geophysical Y Y Drift, Dep., Sonic): Y	Density: Caliper: No. of Bags: <u>30</u> Interval: fro Rock Sent To:	Y Y 0 gal plug gel; 10 yds m 2600' to surface Agapito	cement
Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ler (SP, Foc. Elec. (Y or N), Type: SGS	NA Jetwest Geophysical Y Y , Drift, Dep., Sonic): _	Density: Caliper: No. of Bags: <u>30</u> Interval: fro Rock Sent To:	Y Y 0 gal plug gel; 10 yds m 2600' to surface Agapito	cement
Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ler (SP, Foc. Elec. (Y or N), Type: SGS	NA Jetwest Geophysical Y Y Drift, Dep., Sonic): Y	Density: Caliper: No. of Bags: <u>30</u> Interval: fro Rock Sent To:	Y Y 0 gal plug gel; 10 yds m 2600' to surface Agapito	cement
Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ler (SP, Foc. Elec. (Y or N), Type: SGS	NA Jetwest Geophysical Y Y Drift, Dep., Sonic): Y	Density: Caliper: No. of Bags: <u>30</u> Interval: fro Rock Sent To:	Y Y 0 gal plug gel; 10 yds m 2600' to surface Agapito	cement
Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: ler (SP, Foc. Elec. (Y or N), Type: SGS	NA Jetwest Geophysical Y Y Drift, Dep., Sonic): Y	Density: Caliper: No. of Bags: <u>30</u> Interval: fro Rock Sent To:	Y Y 0 gal plug gel; 10 yds m 2600' to surface Agapito	cement
Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments: (epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2490-20	NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 600' with air. Galen Hor	Density: Caliper: No. of Bags: <u>30</u> Interval: fro Rock Sent To:	Y Y 0 gal plug gel; 10 yds m 2600' to surface Agapito	cement
Gas Invasion D Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	epth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2490-20	NA Jetwest Geophysical Y , Drift, Dep., Sonic): Y 600' with air. Galen Hor	Density: Caliper: No. of Bags: <u>30</u> Interval: fro Rock Sent To:	Y Y 0 gal plug gel; 10 yds m 2600' to surface Agapito	cement

				na a shina na ana kana na saya kanan yanga kanangan kananan sa saya kanana kanana kanana kanana kanana kanana k	l designed and a state of the second seco
Hole Number	• ⊑CM 10_74	Project ID	Elk Creek Mine Ex	volaration	
Lease Number			Surface Owner:		
Date Commenced		_ (State or Federal) Date Completed:			
bate Commenced	. 24-Jun-10		13-Sep-10		
Contractor	: Himes Drilling		Atlas Copco RD20		
Geologist		_ nig Type. Date :		Toolpusher:	Matt Himes
-	: Jim Weatherton	Truck Driver:		Helper:	Sean Vivian
Dimer	Sam Homedew	- Truck Driver:		Leiher.	Will Juusola
Coordinates: N		- E.	Tommy Dennis 34708.84	-	Will Juusola
Location: Townsh			NW 1/4 Sec. 31, T	12 8 D 00 W	
Ground Elevation:	8242'	Collar Elevation:	110V 1/4 Sec. 31, 1	. 12 3., n. 90 W.	
Geophysical Log N			Elevation		
Total Depth:		ground		Fluid Level:	NA
•	and the second s	Probe Depth:	2640' Size:		NA
Casing Type:				4 1/2"	
Casing Type:		Deceveral (V or N).	Size:	4 1/2	
Depth:	A STATE OF THE OWNER	Recovered (Y or N):	<u> </u>		
Depth: Bit Information	0-2553'	Recovered (Y or N):	N		
	0 7/01 Trianna ta (0			
Surface Casing	97/8" Tricone to 5				
Main Hole	6 1/4" Tricone from				
Core:	3.937" from 2553-	2054			
Bottom Hole					· · · · · · · · ·
Fo otogo Divergeda	0550	Carad	1011		
Footage Plugged:	2553'	Cored:	101'	Form Iniontions	
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
Depths:	0-690'	690-2553'			
Lost Cir	culation Depths:	NA	Rog	ained? (Y or N):	
Water Invasion De		690'		ated Inflow Rates:	5 anm
	Depth or Intervals.	030			5 gpm
Geophysical Log	aina Contractor:	Jetwest Geophysical			
deophysical Log	ging contractor.	betweet deophysical			<u> </u>
Logs Run:	Gamma:	Y	Neutron:		
Eugo Huin.	Temperature:	· · · · · · · · · · · · · · · · · · ·	Density:	Ŷ	
	Resistivity:	Υ	Caliper:		
Oth	· · · · ·	, Drift, Dep., Sonic):		·	
01			· · · · · · · · · · · · · · · · · · ·		
Hole Cemented	(<u>Y</u> or N), Type:	Y	No. of Bags: 30	00 gal plug gel; 10 yd:	scement
	(<u> </u>		Interval: fro	om 2654' to surface	
			<u></u>		
Coal Core Sent To:	SGS		Rock Sent To:	Agapito	
Comments:	Cored from 2553-2	654' with air. Galen Ho	medew-Driller; Bea	u O./ Jake C helper	S.
-					
·					
Himes Drilling Colora	do water well licens	se #1285			

				a aliana di kacamatan	
II. I. Nouslass	- 50140 75				
Hole Number	Printeductor		Elk Creek Mine		
Lease Number		(State or Federal)		Hotchkiss	
Date Commenced	:2-Jul-10	Date Completed:	<u>1-Sep-10</u>	-	
O subus show					
Contractor			Atlas Copco RD2		
Geologist		Date :		Toolpusher:	Matt Himes
Uriller	Jim Weatherton	- I ruck Driver:	Kirk Homedew	Helper:	Sean Vivian
	Sam Homedew		Will Juusola		Cameron S.
Coordinates: N		Ε.			
Location: Townsh			NE 1/4, Sec. 31,	T. 12 S., R. 90 W.	
Ground Elevation:	8340'	Collar Elevation:		-	
Geophysical Log N			Elevation		
Total Depth:		Probe Depth:	2785'	Fluid Level:	NA
Casing Type:			Size:		
Casing Type:			Size:	4 1/2"	
Depth:	The second se	Recovered (Y or N):	<u>N</u>	•	
Depth:	0-2478'	Recovered (Y or N):	N		
Bit Information	07/01 7.1	-01			
Surface Casing	9 7/8" Tricone to 5				
Main Hole	6 1/4" Tricone from				
Core:	3.937" from 2478-	2793			
Bottom Hole					
Footago Diviggodu	2478'	Cored:	315'		
Footage Plugged: Drilling Medium:	<u></u> Air:	Foam /Water:		Foam Injection:	
Draining Medium. Depths:		380-2478'	IVIUU.	Foarminjection.	
Deptitis.	0-300	300-2470			
Lost Cir	culation Depths:	2494-2793'	Re	gained ? (Y or N):	sporadic
Water Invasion De		380'; 2420'		nated Inflow Rates:	
	Depth or Interval:	2580'; 2660'	201.11	-	L gpin, o gpin
		2000,2000			
Geophysical Log	aina Contractor:	Jetwest Geophysical			
	<u></u>	,			
Logs Run:	Gamma:	Y	Neutron:		
J J	Temperature:	<u> </u>	Density:	Y	
	Resistivity:	Y	Caliper:	Y	
Oth	er (SP, Foc. Elec.	, Drift, Dep., Sonic):	-		
		_			
Hole Cemented	(<u>Y</u> or N), Type: _	Y	No. of Bags: <u>s</u>	900 gal plug gel; 21 yc	ls cement
	_		Interval:	rom 2793' to surface	
			_		
Coal Core Sent To:	SGS		Rock Sent To:	Agapito	
_	o 17 0170 0		na dana Distance D		
Comments:	Cored from 24/8-2	793' with air. Galen Ho	medew-Driller; Be	au O./ Jake C helpei	<u>′S.</u>
1 lata anna a tha an at a b	in the way to be all in	to noor hole condition	~~~ <u>~</u>		
Hole precollared abov	ve target depth due	to poor hole condition	D		
	<u></u>				
Himes Drilling Colora	do water well licen	se #1285			
Times Duning Colora	uo water weit ittella				· · · · · · · · · · · · · · · · · · ·

Hole Number			Elk Creek Mine E		
Lease Number			Surface Owner:	Hotchkiss	
Date Commenced	: <u>7-Jul-10</u>	Date Completed:	25-Aug-10		
Contractor	Uimoo Drilling		Atlan Canas DD00		
Geologist		Date :	Atlas Copco RD20 22-Nov-10		Matt Llimon
-	Jim Weatherton	-	Kirk Homedew	Toolpusher: Helper:	Matt Himes Sean Vivian
Dillion	Sam Homedew		Will Juusola	Lieihei.	Cameron S.
Coordinates: N		- E.	37216.82	-	Cameron C.
Location: Townsh			NE 1/4, Sec. 31, T	12 S. R. 90 W.	
Ground Elevation:	8368'	Collar Elevation:		. 12 0.911.00 11.	
Geophysical Log N	leasured From:	ground	Elevation		
Total Depth:		Probe Depth:	2852'	Fluid Level:	NA
Casing Type:		•	Size:	7"	
Casing Type:	steel T&C	•	Size:	4 1/2"	
Depth:	0-60'	Recovered (Y or N):	N		
Depth:	0-2733'	Recovered (Y or N):	N		
Bit Information					
Surface Casing	9 7/8" Tricone to 6				
Main Hole	6 1/4" Tricone from				
Core:	3.937" from 2733-	2856.5'			
Bottom Hole					
	0700	Opmode			
Footage Plugged:	2733' Air:	Cored:	123.5'	Form Interstern	
Drilling Medium:		Foam /Water: 751-2733'	Mud:	Foam Injection:	
Depths:	0-751	/51-2/35			
Lost Cir			Rea	ained ? (Y or N).	
	culation Depths:	NA NA		ained?(Y or N): ited Infiow Rates:	
Water Invasion De	culation Depths:	NA		ained?(Y or N): ted Inflow Rates:	
Water Invasion De	culation Depths:	NA NA			
Water Invasion De Gas Invasion D	culation Depths: ppth or Intervals: Pepth or Interval:	NA NA			
Water Invasion De Gas Invasion D Geophysical Log	culation Depths: epth or Intervals: Depth or Interval: ging Contractor:	NA NA 2845' Jetwest Geophysical	Estima		
Water Invasion De Gas Invasion D	culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma:	NA NA 2845'	Estima	ited Inflow Rates:	
Water Invasion De Gas Invasion D Geophysical Log	culation Depths: epth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature:	NA NA 2845' Jetwest Geophysical Y	Estima Neutron: Density:	ited Inflow Rates:	
Water Invasion De Gas Invasion E Geophysical Log Logs Run:	culation Depths: epth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA 2845' Jetwest Geophysical Y	Estima	ited Inflow Rates:	
Water Invasion De Gas Invasion E Geophysical Log Logs Run:	culation Depths: epth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA 2845' Jetwest Geophysical Y	Estima Neutron: Density:	ited Inflow Rates:	
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: eer (SP, Foc. Elec.	NA NA 2845' Jetwest Geophysical Y Y , Drift, Dep., Sonic):	Estima Neutron: Density: Caliper:	rted Inflow Rates:	cement
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth	culation Depths: epth or Intervals: epth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA 2845' Jetwest Geophysical Y Y , Drift, Dep., Sonic):	Estima Neutron: Density: Caliper: No. of Bags: 60	Y Y Y 0 gal plug gel; 13 yds	cement
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented	culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: eer (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA NA 2845' Jetwest Geophysical Y , Drift, Dep., Sonic): Y	Neutron: Density: Caliper: No. of Bags: 60	Y Y Y O gal plug gel; 13 yds m 2733' to surface	cement
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented	culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: eer (SP, Foc. Elec. (<u>Y</u> or N), Type:	NA NA 2845' Jetwest Geophysical Y Y , Drift, Dep., Sonic):	Estima Neutron: Density: Caliper: No. of Bags: 60	Y Y Y O gal plug gel; 13 yds m 2733' to surface	cement
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (<u>Y</u> or N), Type: SGS	NA NA 2845' Jetwest Geophysical Y , Drift, Dep., Sonic): Y	Estima Neutron: Density: Caliper: No. of Bags: 60 Interval: fro Rock Sent To:	Y Y Y O gal plug gel; 13 yds m 2733' to surface Agapito	
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (<u>Y</u> or N), Type: SGS	NA NA 2845' Jetwest Geophysical Y , Drift, Dep., Sonic): Y	Estima Neutron: Density: Caliper: No. of Bags: 60 Interval: fro Rock Sent To:	Y Y Y O gal plug gel; 13 yds m 2733' to surface Agapito	
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (<u>Y</u> or N), Type: SGS Cored from 2733-2	NA NA 2845' Jetwest Geophysical Y , Drift, Dep., Sonic): Y 856.5' with air. Galen H	Estima Neutron: Density: Caliper: No. of Bags: 60 Interval: fro Rock Sent To:	Y Y Y O gal plug gel; 13 yds m 2733' to surface Agapito	
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To:	culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (<u>Y</u> or N), Type: SGS Cored from 2733-2	NA NA 2845' Jetwest Geophysical Y , Drift, Dep., Sonic): Y 856.5' with air. Galen H	Estima Neutron: Density: Caliper: No. of Bags: 60 Interval: fro Rock Sent To:	Y Y Y O gal plug gel; 13 yds m 2733' to surface Agapito	
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	culation Depths: epth or Intervals: pepth or Interval: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (<u>Y</u> or N), Type: SGS Cored from 2733-2	NA NA 2845' Jetwest Geophysical Y , Drift, Dep., Sonic): Y 856.5' with air. Galen H	Estima Neutron: Density: Caliper: No. of Bags: 60 Interval: fro Rock Sent To:	Y Y Y O gal plug gel; 13 yds m 2733' to surface Agapito	
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	culation Depths: epth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2733-2	NA NA 2845' Jetwest Geophysical Y , Drift, Dep., Sonic): Y 856.5' with air. Galen H e in D2 floor.	Estima Neutron: Density: Caliper: No. of Bags: 60 Interval: fro Rock Sent To:	Y Y Y O gal plug gel; 13 yds m 2733' to surface Agapito	
Water Invasion De Gas Invasion E Geophysical Log Logs Run: Oth Hole Cemented Coal Core Sent To: Comments:	culation Depths: epth or Intervals: pepth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: er (SP, Foc. Elec. (Y or N), Type: SGS Cored from 2733-2	NA NA 2845' Jetwest Geophysical Y , Drift, Dep., Sonic): Y 856.5' with air. Galen H e in D2 floor.	Estima Neutron: Density: Caliper: No. of Bags: 60 Interval: fro Rock Sent To:	Y Y Y O gal plug gel; 13 yds m 2733' to surface Agapito	

			1-21
Form No.	STATE OF COLORADO, OFFICI		For Office Use Only
GWS-09 6/2006	821 Centennial Bldg., 1313 Sherma (303) 866-3581 Fax (303) 866-358		OCT 0 4 2007
Use to re print in bl	WELL ABANDONN port plugging and sealing of permitted v ack or blue ink. Instructions and pluggi	MENT REPORT vells, monitoring and other holes. Type or ng standards are on reverse side of form.	WATER RESOURCES State Enginser Colo.
Well Pe MH File	mit Number of the well being plu Number MH Hole II	gged_ <u>197377/TC-1</u> or D#/Name	
	Company responsible for plugging a		
	Wildcat Drilling	Flump, Inc	
	dress PO BOX 12		
City, St., 2	ip Cedaredge, W	81413	
Phone (70, 856-6583	_	
Well (Ho	e) Owner:		
		erals, Inc Phone (970	
Mailing Ac	dress, City, St., Zip <u>Somerse</u>	t, W 81434	
ACTUAL	VELL LOCATION: County GUNN	ison	
Property A	ddress, City, St, Zip		
] N. or 文 S., Range <u>중역</u> _ E. or文 W.,	
Distance 1	om Section Lines 2300 FL From X	∫ N. or □ S., <u>1100</u> Ft. From □ E. or X	W. Line.
		Lot, Block, Filin	
		nat. You must check GPS unit for required sett	
	Northing		
(we) repo	rt the existing well (hole) was plugged an	d sealed on the date of	for the following reason(s):
		der Well Permit Number	
X The we	I was not in use and was plugged and se	aled.	
□ Other (lease explain)		
The well w	as plugged with the following materials pl	aced at the indicated intervals:	
	Ind Type of Material	Method of Placement	interval
10	allons Neat Cement	Vositive Displacement	
11300		water	from feet to feet
	······································	<u>Casing Kemoveal</u>	from $\underline{O'}$ feet to $\underline{-4'}$ feet
		Casing Removed Casing Perforated	
Report <u>mu</u> we) have	t be signed by person who performed the ead the statements made herein, know the	e well plugging work or by the well owner if this the contents thereof, and that they are true to m	person is unknown or not reachable. y (our) knowledge.
Signature (Please print the Signer's Name & Title	Date
Bil	R. D. Kroom	Billy D. Kissner	
Pro	sident.	President	8/29/07
t is the re		the well/hole properly plugged and sealed	The Well Construction Contracto
	ible for notifying the owner of this req		

and a dimension of the



COLORADO

Division of Water Resources

Department of Indunia Resource

WELL PERMIT NUMBER 264042-

RECEIPT NUMBER 0538929

ORIGINAL PERMIT APPLICANT(S)

SPRUCE GROUP LLC

APPROVED WELL LOCATION

Water Division: 4 Water District: 40 **Designated Basin:** N/A Management District: N/A County: **GUNNISON** Parcel Name: N/A Physical Address: 8844 STATE HIGHWAY 133 SOMERSET, CO 81434

SW 1/4 NW 1/4 Section 7 Township 13.0 S Range 89.0 W Sixth P.M.

4312512.0

UTM COORDINATES (Meters, Zone: 13, NAD83)

Easting: 293263.3 Northing:

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT CONDITIONS OF APPROVAL

- 1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
- 2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
- 3) Approved pursuant to CRS 37-92-602(3)(b)(II)(A) as the only well on a residential site of 30.54 acre(s) described as that portion of the SW 1/4 of the NW 1/4, Sec. 7, Twp. 13 S, Rng. 89 W, Sixth P.M., Gunnison County, more particularly described on the attached exhibit A.
- Approved for the change and/or expansion of use of the well constructed under permit number 197378. The issuance of this 4) permit hereby cancels permit number 197378.
- 5) The use of ground water from this well is limited to ordinary household purposes inside one single family dwelling. The ground water shall not be used for irrigation or other purposes.
- The pumping rate of this well shall not exceed 15 GPM. 6)
- 7) The return flow from the use of this well must be through an individual waste water disposal system of the non-evaporative type where the water is returned to the same stream system in which the well is located.
- This well shall be constructed not more than 200 feet from the location specified on this permit. 8)

NOTE: This parcel is exempt from the Gunnison County Subdivision Rules. The subdivision exemption was issued by the Board of County Commissioners of Gunnison County on June 16, 2005 in Resolution number 2005-30.

Expiration Date: 6/28/2007

Issued By

PERMIT HISTORY

04-15-2019 CHANGE IN OWNER NAME/MAILING ADDRESS. CHANGED TO KATHERINE COLLINS.

07-23-2007 CHANGE IN OWNER NAME/MAILING ADDRESS

Hole Number:			Elk Creek Mine Go		
Lease Number:		(State or Federal)		Hotchkiss	
Date Commenced:	15-Jul-09	Date Completed:	26-Jul-09		
_					
Contractor:			Atlas Copco RD20		
Geologist:		Date :	13-Nov-09	Toolpusher:	Matt Himes
Driller:	Jim Weatherton	Truck Driver:	Shaun L.	Helper: _	Dave T.
	Sam Homedew		Tommy Dennis		Bill W.
Coordinates: N.		E.	33525.98		
Location: Townshi	ip, Range & Sectio	n:	SW 1/4, Sec. 31, T	. 12 S., R. 90 W.	
Ground Elevation:	8138'	Collar Elevation:			
Geophysical Log M	leasured From:	ground	Elevation		
Total Depth:	2250'	Probe Depth:	2248'	Fluid Level:	NA
Casing Type:	steel T&C		Size:	9 5/8"	
Casing Type:	sol/slot steel T&C		Size:	7"	
Depth:		Recovered (Y or N):	N		
Depth:	1999-2169'	Recovered (Y or N):	N		
Bit Information	•••••••••••••••••••••••••••••••••••••••				
Surface Casing	16" Tricone to 20'	(14" surface casing)			
Main Hole	12 1/4" PDC from	20-2080'			
Core:					
Bottom Hole	8 3/4" Tricone fron	n 2080-2250'			
		···· · ···· ··· ··· ··· ··· ··· ··· ··			
Footage Plugged:	0-2250'	Cored:	NA		
Drilling Medium:		Foam /Water:	Mud:	Foam Injection:	
Depths:		1130-2250'			
•					
Lost Ci	rculation Depths:	NA		gained ? (Y or N): _	
Water Invasion D	epth or Intervals:	NA	Estim	ated Inflow Rates:	
Gas Invasion	Depth or Interval:	NA			
Geophysical Log	gging Contractor:	Jetwest Geophysical			
Logs Run:	Gamma:	Y	Neutron:		
Logo Rum	Temperature:	······	Density:	Y	
	Resistivity.	Y	Caliper:	Y	
01	ther (SP Foc Flee	., Drift, Dep., Sonic):	cement dump baile	r: deviation: video	
		i, Dini, Dopi, Como).		,,	
Hole Cemented	(YorN), Type:	N	No. of Bags:		
			Interval:		
Coal Core Sent To:	NA		Rock Sent To:	NA	
Comments:	*9 5/8" casing aba	andoned to surface with	h 28 yds cement slu	rry June, 2013	
Gravel backfill tagge	d with dump bailer	@ 2152', (2) bailers du	imped for t.o. plug e	levation	
at 2143', but 7" casi	ng tagged cement (@ 2167' (3' above sea	m). Videolog run b	ut unable	
to con bottom duo to	silt in hole. Ria sp	ears into 7" and pulls 2	20,000 lbs. over strir	ng/casing	·····
		and a second second plane -		<u> </u>	· · · · · · · · · · · · · · · · · · ·
weight and determin	es casing is pinned	in place, Deviation 40	' SW of surface.		
weight and determin	es casing is pinned	in place. Deviation 40	' SW of surface.	eat cement slurry.	
weight and determin	es casing is pinned 9' inside 9 5/8" casi	in place. Deviation 40 ng, 9 5/8" annulus cen	' SW of surface.	eat cement slurry.	

Hole Number:	GVB 17-08B	Project ID -	Elk Creek Mine Gol	Vent Boreboles	
Lease Number:			Surface Owner:		
Date Commenced:		Date Completed:		0010	
		Date Completed.			
Contractor:	Himes Drilling	Rig Type:	Atlas Copco RD20		
Geologist:		Date :		Toolpusher:	Matt Himes
Driller:	······	Truck Driver:		Helper:	Nick D.
Brinon	Kirk Homedew	THUCK DITVEL	Will Juusola	neipen	Jimmy L.
Coordinates: N.		E.		_	
Location: Township		L.,	SW 1/4, Sec. 32, T.	125 R 90 W	
Ground Elevation:	8138'	Collar Elevation:	000 174, 000, 02, 1.	12 0., 14. 00 11.	
Geophysical Log Me		ground	Elevation		
Total Depth:	-	Probe Depth:		Fluid Level:	NA
Casing Type:		riobe Deptil.	Size:	9 5/8"	
	sol/slot steel T&C		Size	7"	
Depth:		Recovered (Y or N):	-		
Depth:	the second s	Recovered (Y or N):			
Bit Information	2010 2001				
Surface Casing	17" Hammer to 40' (14" surface casing)			
Main Hole	12 1/4 PDC from 40-				·······
Core:		2101			
Bottom Hole	8 3/4" PDC from 210	11-2401			
Dottom Holo	00/1100 10/12/0			· · · · · · · · · · · · · · · · · · ·	
Footage Plugged:	0-2401'	Cored:	NA		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
Depths:		40-2401'			
•					
Lost C	irculation Depths:	NA		egained ? (Y or N):	
Water Invasion I	Depth or Intervals:	700'	Est	mated Inflow Rates:	40 gpm
Gas Invasion	Depth or Interval:	NA			
Geophysical Lo	gging Contractor:	lirectional hole- no loggi	ng	<u></u>	
Lava Duni	Commen		Noutron		
Logs Run:	Gamma:		Neutron:		
	Temperature:		Density:		
	Resistivity:	c., Drift, Dep., Sonic):	Caliper: _		
	Other (SP, Foc. Ele	c., Drift, Dep., Some):			
Holo Comente	d (<u>Y</u> or N), Type:	N	No. of Bage	7 yds for 9 5/8" annulus	
	u (<u>i</u> or w), rype		Interval: 1		<u></u>
			interval.	0 Surlace	<u></u>
Coal Core Sent To:	NA		Rock Sent To:	NA	
Guar core bent ro.				101	
Comments:	7" casing overlaps 58	3' inside 9 5/8" casing			
		casing. Landed at 2394	1		
		of 9 5/8" casing located		.31 degrees.	
		ng to bottom. Cemente			······································
		racked second hole dire			
		cubic yards portland cer		2.	
Himes Drilling Colorad			the charry duty, 201		
- minor brinning Obiol du		· ~ ~ V			

Hole Number	CVR-06-02	Project ID :	Elk Creek Mine Exp	loration	
Lease Number	·····		Surface Owner:	BLM	
Date Commenced		Date Completed:	-		
Date commenced		Date completed.	5-5411-00		
Contractor	: Stewart Bros.	Rig Type:	Gardner-Denver 250	00 Ria #46	
Geologist		Date :		Toolpusher:	Frank Pichardo
Driller			Ray Contreras	Helper:	Paco Pizzano
Briner	Donn Massey	THUCK DITTOL	Javier Gallegos		Mike Lewis
Coordinates: N		E.		-	
Location: Township			NW 1/4, Sec. 1, T. 1	3 S., R. 91 W.	
Ground Elevation:	7815'	Collar Elevation:			
Geophysical Log Me		Ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	9 5/8" -	
	slotted steel, T&C		Size:	7"	
Depth		Recovered (Y or N):	N- cemented		
Depth		Recovered (Y or N):			
Bit Information					
Surface Casing	17" auger from 0-10	' (14" culvert)			
Main Hole	12 1/4" Tri-cone fror				
Core:					
Bottom Hole	8 3/4" Tri-cone from	1420- 1602'			
Footage Plugged:	1602'	Cored:	0		
Drilling Medium:	Air:	Foam 202/Water:	Mud:	Foam Injection:	
Depths	0-60'	60'- 1602'			
L and C	Suculation Dantha	λłΛ	D	agained 2 (V or N):	
	Circulation Depths:	NA		egained?(Y or N): _ mated inflow Pates:	
Water Invasion	Depth or Intervals:	NA		egained?(Y or N): _ mated inflow Rates: _	
Water Invasion		NA			
Water Invasion Gas Invasion	Depth or Intervals: Depth or Interval:				
Water Invasion Gas Invasion	Depth or Intervals:				
Water Invasion Gas Invasion	Depth or Intervals: Depth or Interval: Degging Contractor:		Esti	mated inflow Rates: _	
Water Invasion Gas Invasion Geophysical Lo	Depth or Intervals: Depth or Interval: Degging Contractor:	Jetwest Geophysical X	Esti Neutron: _ Density: _	mated inflow Rates:	
Water Invasion Gas Invasion Geophysical Lo	Depth or Intervals: Depth or Interval: Degging Contractor: Gamma: Temperature: Resistivity:	Jetwest Geophysical X X	Esti Neutron: _ Density: _ Caliper: _	mated inflow Rates:	
Water Invasion Gas Invasion Geophysical Lo	Depth or Intervals: Depth or Interval: Degging Contractor: Gamma: Temperature: Resistivity:	Jetwest Geophysical X	Esti Neutron: _ Density: _ Caliper: _	mated inflow Rates:	
Water Invasion Gas Invasion Geophysical Lo Logs Run:	Depth or Intervals: Depth or Interval: Ogging Contractor: Gamma: Temperature: Resistivity: Other (SP, Foc. Elec	Jetwest Geophysical X X	Esti Neutron: Density: Caliper: Deviation: 46' at 190	mated inflow Rates:	
Water Invasion Gas Invasion Geophysical Lo Logs Run:	Depth or Intervals: Depth or Interval: Degging Contractor: Gamma: Temperature: Resistivity:	Jetwest Geophysical X X	Esti Neutron: _ Density: _ Caliper: _ Deviation: 46' at 190 No. of Bags: _	mated inflow Rates:	
Water Invasion Gas Invasion Geophysical Lo Logs Run:	Depth or Intervals: Depth or Interval: Ogging Contractor: Gamma: Temperature: Resistivity: Other (SP, Foc. Elec	Jetwest Geophysical X X	Esti Neutron: Density: Caliper: Deviation: 46' at 190	mated inflow Rates:	
Water Invasion Gas Invasion Geophysical Lo Logs Run: Hole Cemente	Depth or Intervals: Depth or Interval: Ogging Contractor: Gamma: Temperature: Resistivity: Other (SP, Foc. Ele od (<u>Y</u> or N), Type:	Jetwest Geophysical X X	Esti Neutron: _ Density: _ Caliper: _ Deviation: 46' at 190 No. of Bags: _ Interval: _	x X X) degrees	
Water Invasion Gas Invasion Geophysical Lo Logs Run:	Depth or Intervals: Depth or Interval: Ogging Contractor: Gamma: Temperature: Resistivity: Other (SP, Foc. Elec	Jetwest Geophysical X X	Esti Neutron: _ Density: _ Caliper: _ Deviation: 46' at 190 No. of Bags: _	x X X) degrees	
Water Invasion Gas Invasion Geophysical Lo Logs Run: Hole Cemente Coal Core Sent To:	Depth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: Other (SP, Foc. Elected (Y or N), Type: NA	Jetwest Geophysical X X c., Drift, Dep., Sonic):	Esti Neutron: _ Density: _ Caliper: _ Deviation: 46' at 190 No. of Bags: _ Interval: _ Rock Sent To: _	x X X) degrees	
Water Invasion Gas Invasion Geophysical Lo Logs Run: Hole Cemente Coal Core Sent To: Comments:	Depth or Intervals: Depth or Interval: Ogging Contractor: Gamma: Temperature: Resistivity: Other (SP, Foc. Elected (Y or N), Type: NA From/ To of 7" casin	Jetwest Geophysical X X c., Drift, Dep., Sonic): g determined by Jetwes	Esti Neutron: _ Density: _ Caliper: _ Deviation: 46' at 190 No. of Bags: _ Interval: _ Rock Sent To: _	X X X X O degrees	
Water Invasion Gas Invasion Geophysical Lo Logs Run: Hole Cemente Coal Core Sent To: Comments: (5) runs with 40' dump	Depth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: Other (SP, Foc. Ele d (<u>Y</u> or N), Type: NA From/ To of 7" casin	Jetwest Geophysical X X c., Drift, Dep., Sonic): g determined by Jetwes emented bottom of hole	Estin Neutron: _ Density: _ Caliper: _ Deviation: 46' at 190 No. of Bags: _ Interval: _ Rock Sent To: _ st Geophysical. from 1585' to 1565'-	X X X X O degrees	
Water Invasion Gas Invasion Geophysical Lo Logs Run: Hole Cemente Coal Core Sent To: Comments: (5) runs with 40' dump	Depth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: Other (SP, Foc. Ele d (<u>Y</u> or N), Type: NA From/ To of 7" casin	Jetwest Geophysical X X c., Drift, Dep., Sonic): g determined by Jetwes	Estin Neutron: _ Density: _ Caliper: _ Deviation: 46' at 190 No. of Bags: _ Interval: _ Rock Sent To: _ st Geophysical. from 1585' to 1565'-	X X X X O degrees	
Water Invasion Gas Invasion Geophysical Lo Logs Run: Hole Cemente Coal Core Sent To: Comments: (5) runs with 40' dump D seam roof. (Bailer v	Depth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: Other (SP, Foc. Elect d (<u>Y</u> or N), Type: <u>NA</u> From/ To of 7" casin baler should have ca folume fills approx. 1	Jetwest Geophysical X X c., Drift, Dep., Sonic): g determined by Jetwes emented bottom of hole foot of 8 3/4" hole per 10	Estin Neutron: _ Density: _ Caliper: _ Deviation: 46' at 190 No. of Bags: _ Interval: _ Rock Sent To: _ st Geophysical. from 1585' to 1565'- D feet of baler.)	X X X X O degrees	
Water Invasion Gas Invasion Geophysical Lo Logs Run: Hole Cemente Coal Core Sent To: Comments: (5) runs with 40' dump D seam roof. (Bailer v	Depth or Intervals: Depth or Intervals: Gamma: Temperature: Resistivity: Other (SP, Foc. Elect d (<u>Y</u> or N), Type: <u>NA</u> From/ To of 7" casin baler should have ca folume fills approx. 1	Jetwest Geophysical X X c., Drift, Dep., Sonic): g determined by Jetwes emented bottom of hole	Estin Neutron: _ Density: _ Caliper: _ Deviation: 46' at 190 No. of Bags: _ Interval: _ Rock Sent To: _ st Geophysical. from 1585' to 1565'- D feet of baler.)	X X X X O degrees	
Water Invasion Gas Invasion Geophysical Lo Logs Run: Hole Cemente Coal Core Sent To: Comments: (5) runs with 40' dump D seam roof. (Bailer v 9 5/8" casing cemente	Depth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: Other (SP, Foc. Election of (Y or N), Type: NA From/ To of 7" casin baler should have or rolume fills approx. 1	Jetwest Geophysical X X c., Drift, Dep., Sonic): g determined by Jetwes emented bottom of hole foot of 8 3/4" hole per 1 8 yards portland slurry	Estin Neutron: _ Density: _ Caliper: _ Deviation: 46' at 190 No. of Bags: _ Interval: _ Rock Sent To: _ st Geophysical. from 1585' to 1565'- D feet of baler.)	X X X X O degrees	
Water Invasion Gas Invasion Geophysical Lo Logs Run: Hole Cemente Coal Core Sent To: Comments: (5) runs with 40' dump D seam roof. (Bailer v 9 5/8" casing cemente 7" casing overlaps 66	Depth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: Other (SP, Foc. Election of (Y or N), Type: NA From/ To of 7" casin baler should have or folume fills approx. 1 ad from surface with 1	Jetwest Geophysical X X c., Drift, Dep., Sonic): g determined by Jetwes emented bottom of hole foot of 8 3/4" hole per 1 8 yards portland slurry (6' slotted, 60' solid)	Estin Neutron: Density: Caliper: Deviation: 46' at 190 No. of Bags: Interval: Rock Sent To: st Geophysical. from 1585' to 1565'- D feet of baler.) redi-mix.	X X X D degrees NA 14' above	
Water Invasion Gas Invasion Geophysical Lo Logs Run: Hole Cemente Coal Core Sent To: Comments: (5) runs with 40' dump D seam roof. (Bailer v 9 5/8" casing cemente 7" casing overlaps 66	Depth or Intervals: Depth or Interval: Gamma: Temperature: Resistivity: Other (SP, Foc. Elected of (Y or N), Type: NA From/ To of 7" casin baler should have ca olume fills approx. 1 d from surface with 1	Jetwest Geophysical X X c., Drift, Dep., Sonic): g determined by Jetwes emented bottom of hole foot of 8 3/4" hole per 11 8 yards portland slurry (6' slotted, 60' solid) supersacks plug gel, 3	Estin Neutron: Density: Caliper: Deviation: 46' at 190 No. of Bags: Interval: Rock Sent To: st Geophysical. from 1585' to 1565'- D feet of baler.) redi-mix.	X X X D degrees NA 14' above	

Hole Number	: GVB 12-02	Project ID.	: Elk Creek Mine G	ob Vent Boreholes	
Lease Number			Surface Owner:		
Date Commenced		Date Completed			
		•		•	
	: Himes Drilling, Inc		Portadrill TKT-300		
Geologist		Date :		Toolpusher:	
Driller	: Kevin Himes	Truck Driver:	Aaron B.	Helper:	Mike Himes
Coordinates: N	. 20250.74	E.	29646.61	-	
	ip, Range & Section		N.1/2 Sec. 36, T.1	28 P.01W	
Ground Elevation:		Collar Elevation:		20., 11.9177.	
Geophysical Log N	the second se	Ground	Elevation		
Total Depth:		Probe Depth:	-	Fluid Level:	NA
Casing Type:			Size:	6 5/8"	
Casing Type:			Size:		
Depth:		Recovered (Y or N):			
Depth:	F	Recovered (Y or N):			
Bit Information					
Surface Casing	8 3/4" Tricone to 20'	·····	·····		
Main Hole	5 7/8" PDC to 1350'			<u> </u>	
Core: Bottom Hole	4 7/8" bit, 3" core to	1430			
	·				
Footage Plugged:	1350'	Cored:	80'		
Drilling Medium:		Foam/Water:	Mud:	Foam Injection:	
Depths:		620-1430'			
	culation Depths:	<u>_</u>		gained? (YorN):	
Water Invasion De			Estim	ated Inflow Rates:	
Gas invasion L	Depth or Interval:				
Geophysical Log	ging Contractor: Je	t West Geophysical.			
0000011301001 209	ging contractori <u>to</u>				
Logs Run:	Gamma:	X	Neutron:		
U	Temperature:		Density:	X	
	Resistivity:	Х	Caliper:	Х	
Otl	her (SP, Foc. Elec., I	Drift, Dep., Sonic):			
	/ N / N / N	V			_
Hole Cemented	(<u>Y</u> or N), Type:	Y	No. of Bags: 4	0 bags plug gel; 3 bags 430-15'; 15-0'	scement
			interval: 14	430-10; 15-0	
Coal Core Sent To:	SGS		Rock Sent To:	Agapito	
	Drilled pilot hole at go	b vent site to verify c	oal thickness- D2 to	oo thin to mine.	
Hole abandoned and	sealed to surface.	····			
					· · · ·
·······					
· · · · · · · · · · · · · · · · · · ·					
Himes Drilling Colorad	to water well license #	#1285			
Thinks Driving Colorde				• • • • • • • • • • • • • • • • • • •	

Hole Number	: GVB 12-03	Project ID	: Elk Creek Mine G	oh Vent Boreholes	
Lease Number			Surface Owner:		
Date Commenced	AT	Date Completed			
Contractor	: Himes Drilling, Inc	Rig Type:	Portadrill TKT-300)	
Geologist		Date :		Toolpusher:	
Driller	: Kevin Himes	- Truck Driver:	Aaron B.	Helper:	Mike Himes
		-	* *****	· -	
Coordinates: N		Ε.	31140.16	-	
Location: Townsh		on:	N.1/2 Sec. 36, T.1	2S., R.91W.	
Ground Elevation:	7384'	Collar Elevation:			
Geophysical Log M		Ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:			Size:	6 5/8"	
Casing Type:			Size:		
Depth:		Recovered (Y or N):			
Depth:		Recovered (Y or N):			
Bit Information	0 0//// 7)				
Surface Casing	8 3/4" Tricone to 1	9.5'			
Main Hole	5 7/8" PDC to 149				
Core:	4 7/8" bit, 3" core i	to 1530'			
Bottom Hole				• • • • • • • • • • • • • • • • • • •	
Footage Plugged:	1390'	Cored:	40'		
Drilling Medium:	Air:	Foam/Water:	40 Mud:	Foom Injections	
Depths:	0-200'	200-1530'	WIUG.	Foam Injection:	
Deptitis.	0-200	200-1000			
Lost Cir	culation Depths:		Rec	ained? (Y or N):	
Water Invasion De				ated Inflow Rates:	
	Depth or Interval:		Louin		
Geophysical Log	ging Contractor:	Jet West Geophysical,	LLC		
	-	<u>/</u> /		,	
Logs Run:	Gamma:	Х	Neutron:		
	Temperature:		Density:	X	
	Resistivity:	Х	Caliper:	X	
Oth	her (SP, Foc. Elec.	., Drift, Dep., Sonic):			
		_			
Hole Cemented	(<u>Y</u> or N), Type:_	Υ	No. of Bags: 4	1 bags plug gel; 2 cem	ent
			Interval: 1	530-10'; 10-0'	
Coal Core Sent To:			Rock Sent To:		······
0	Drillad nilat hala at	ach vant aita ta varifu a	and thinknoon DQ to	a thin to using	
Hole abandoned and		gob vent site to verify c	oar Inickness- DZ II	o thin to mine.	
		· · · · · · · · · · · · · · · · · · ·			
		· · · · · · · · · · · · · · · · · · ·			
				· · · · · · · · · · · · · · · · · · ·	
, , , , <u>,</u> _,, , ,				·	
<u>.</u>					
Himes Drilling Colorad	lo water well license	e #1285			
		<u></u>			

	GVB 18-01 A		Elk Creek Mine E		
Lease Number:		(State or Federal)		Hotchkiss	
Date Commenced:	11-Jul-09	Date Completed:	23-Aug-09		
Contractor:	Himes Drilling	Dia Tupo	Atlas Canco BD2		
Geologist:		Date :	Atlas Copco RD2		Matt Himes
-	Contraction of the local division of the loc		13-Nov-09	Toolpusher:	
Driner.	Jim Weatherton Matt Himes	Truck Driver:	Shaun L.	Helper:	Dave T. Bill W.
Coordinates: N.		E.	Tommy Dennis 33407.95	· –	DIII VV.
Location: Townshi				T. 12 S., R. 90 W.	
Ground Elevation:	7944'	Collar Elevation:	1111 174, 060.01,	1, 12 0., 11, 30 44.	
Geophysical Log M		ground	Elevation		
Total Depth:		Probe Depth:		Fluid Level:	NA
Casing Type:		Fione Debiu.	Size:		
Casing Type: Casing Type:			Size:	4 1/2"	
Depth:		Recovered (Y or N):		T 1/2	
Depth:		Recovered (Y or N):			
Bit Information	0-2000	Recovered (TOLIN):	IN		
Surface Casing	9 7/8" Tricone to 2	<u>ا</u>		••••••	
Main Hole	6 1/4" Tricone from				
	3.937" from 2060-				· · · · · ·
Core:	3.937 10111 2000-	2440			
Bottom Hole	•				
Footage Plugged:	2060'	Cored:	2060-2443'		
Drilling Medium:	Air:	Foam /Water:	Mud:	Foam Injection:	
			in a a	1 outri injeotioni	
Donthe	0_530'	530_7060°			
Depths:	0-539'	539-2060'			
			Re	equined ? (Y or N):	
Lost Cir	culation Depths:	NA		egained ? (Y or N): nated Inflow Rates:	
Lost Cir Water Invasion D	culation Depths:	NA NA		egained?(Y or N): nated Inflow Rates:	
Lost Cir Water Invasion D	culation Depths:	NA			
Lost Cir Water Invasion D Gas Invasion I	rculation Depths: epth or Intervals: Depth or Interval:	NA NA NA			
Lost Cir Water Invasion D Gas Invasion I	rculation Depths: epth or Intervals: Depth or Interval:	NA NA			
Lost Cir Water Invasion D Gas Invasion I	rculation Depths: epth or Intervals: Depth or Interval:	NA NA NA			
Lost Cir Water Invasion D Gas Invasion I Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval: iging Contractor:	NA NA NA Jetwest Geophysical	Estir		
Lost Cir Water Invasion D Gas Invasion I Geophysical Log	rculation Depths: epth or Intervals: Depth or Interval: iging Contractor: Gamma:	NA NA NA Jetwest Geophysical	Estir Neutron:		
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y	Estir Neutron: Density: Caliper:		
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity:	NA NA NA Jetwest Geophysical Y Y	Estir Neutron: Density: Caliper:		
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	NA NA NA Jetwest Geophysical Y Y	Estir Neutron: Density: Caliper: No. of Bags:	Anated Inflow Rates:	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic):	Estir Neutron: Density: Caliper: No. of Bags:	nated Inflow Rates:	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec	NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic):	Estir Neutron: Density: Caliper: No. of Bags: Interval:	Anated Inflow Rates:	
Lost Cir Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (<u>Y</u> or N), Type:	NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic):	Estir Neutron: Density: Caliper: No. of Bags: Interval:	Anated Inflow Rates:	
Lost Cin Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To:	rculation Depths: epth or Intervals: Depth or Interval: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: SGS	NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y	Estin Neutron: Density: Caliper: No. of Bags: Interval: Rock Sent To:	Anated Inflow Rates:	
Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: SGS Galen Homedew-C	NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y Core driller; Beau O./ W	Estir Neutron: Density: Caliper: No. of Bags: Interval: Rock Sent To:	Anated Inflow Rates:	
Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: SGS Galen Homedew-C	NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y	Estir Neutron: Density: Caliper: No. of Bags: Interval: Rock Sent To:	Anated Inflow Rates:	
Lost Cit Water Invasion D Gas Invasion I Geophysical Log Logs Run: Ot Hole Cemented Coal Core Sent To: Comments:	rculation Depths: epth or Intervals: Depth or Intervals: ging Contractor: Gamma: Temperature: Resistivity: her (SP, Foc. Elec (Y or N), Type: SGS Galen Homedew-C	NA NA NA Jetwest Geophysical Y ., Drift, Dep., Sonic): Y Core driller; Beau O./ W	Estir Neutron: Density: Caliper: No. of Bags: Interval: Rock Sent To:	Anated Inflow Rates:	
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