

Bramco
Falk Steudtner
1801 Watterson Trail -
Louisville, KY, 40299

 P.O./Ref No.: **BRANDEIS EVANSVILLE IN**

 Unit ID: **2262 / C0986**

 Unit Worksite: **238877**

 Comp. Ref NO.: **6309330**

 Component Type: **TRANSMISSION**

 Component: **TRANSMISSION**

 Unit Manufacturer and Model: **Komatsu D65PX-17**

 Oil Type: **PHILLIPS UNKNOWN SAE 30**

 Component Manufacturer and Model: **Unknown/Unspecified UNKN UNKNOWN**

Component Serial Number:

Maintenance Recommendations for Lab No. 201510131353

 Reported On: **Oct 14 2015**

 From: **Armstrong Coal, Madisonville, KY**

ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS WERE ACCEPTABLE. Data reflects the system was serviced and the oil & filter(s) were changed at the time of sampling. RESAMPLE at next scheduled interval.

SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION

LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	Sample Drawn
1353	11	<1	<1	2	<1	35	<1	<0.1	1	10	4	<1	<1	2	834	1042	2392	<1	8	<1	<1	10/08/15
0678	9	<1	<1	3	1	33	<1	<0.1	1	10	4	2	<1	<1	925	1133	2561	<1	10	<1	<1	09/18/15
0992	12	<1	<1	<1	1	64	<1	<0.1	<1	11	<1	4	<1	<1	864	1142	2703	<1	9	<1	<1	08/25/15
0945	10	<1	<1	<1	1	58	<1	<0.1	1	12	3	3	<1	<1	885	1130	2683	<1	9	<1	<1	07/30/15
0595	15	<1	<1	<1	2	112	<1	<0.1	1	20	<1	5	3	1	892	1155	2964	1	8	<1	<1	07/01/15
1221	11	<1	<1	1	2	88	<1	<0.1	1	19	2	3	<1	1	860	1082	2794	1	8	1	<1	06/05/15

SAMPLE INFORMATION
PHYSICAL TEST RESULTS

LAB NO.	MI/HR Unit	MI/HR Oil	Oil Add	FLTR CHG	Oil CHG	Water	Viscosity 100 °C
1353	6067	1039	0	Yes	C	<0.1	10.8
0678	5592	564	0	Yes	S	<0.1	10.8
0992	5028	933	0	Yes	C	<0.1	10.8
0945	4595	500	0	No	S	<0.1	10.9
0595	4088		0	Yes	C	<0.1	10.9
1221	3615		0	Yes	S	<0.1	10.7

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 P.O./Ref No.: **BRANDEIS EVANSVILLE IN**

 Unit ID: **2262 / C0986**

 Unit Worksite: **238877**

 Comp. Ref NO.: **6309260**

 Component Type: **FINAL DRIVE**

 Component: **LEFT REAR FINAL DRIVE**

 Unit Manufacturer and Model: **Komatsu D65PX-17**

 Oil Type: **PHILLIPS UNKNOWN SAE 30**

 Component Manufacturer and Model: **Unknown/Unspecified UNKN UNKNOWN**

Component Serial Number:

Maintenance Recommendations for Lab No. 201510131354

 Reported On: **Oct 14 2015**

 From: **Armstrong Coal, Madisonville, KY**

ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS WERE ACCEPTABLE. Data reflects the system was serviced and this fluid was drained at the time of sampling. RESAMPLE at the next scheduled interval.

SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION

LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	Sample Drawn
1354	44	1	<1	4	<1	<1	<1	<0.1	1	30	3	1	<1	1	834	1055	2380	<1	8	<1	<1	10/08/15
0680	111	1	<1	7	<1	<1	<1	<0.1	1	38	5	5	<1	<1	875	1114	2540	<1	9	<1	<1	09/18/15
0995	415	3	<1	42	<1	1	<1	<0.1	3	109*	9	6	12	1	874	1144	2595	<1	12	<1	<1	08/25/15
0948	229	2	<1	25	<1	1	<1	<0.1	2	75	120	6	10	1	910	1178	2696	<1	12	<1	<1	07/30/15
0597	171	3	<1	11	<1	1	<1	<0.1	1	58	126	7	6	1	1405	1775	4272	<1	15	<1	<1	07/01/15
1223	89	1	<1	7	1	1	<1	<0.1	1	45	128	3	<1	2	1326	1662	3995	<1	14	<1	<1	06/05/15

SAMPLE INFORMATION
PHYSICAL TEST RESULTS

LAB NO.	MI/HR Unit	MI/HR Oil	Oil Add	FLTR CHG	Oil CHG	Water	Viscosity 100 °C
1354	6067	1972	0	No	C	<0.1	10.9
0680	5592	1497	0	No	S	<0.1	10.7
0995	5028	933	0	No	S	<0.1	10.3
0948	4595	500	0	No	S	<0.1	10.6
0597	4088		0	-	S	<0.1	7.1*
1223	3615		0	-	S	<0.1	7.5*

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 P.O./Ref No.: **BRANDEIS EVANSVILLE IN**

 Unit ID: **2262 / C0986**

 Unit Worksite: **238877**

 Comp. Ref NO.: **6309197**

 Component Type: **DIESEL ENGINE (TURBO CHARGED)**

 Component: **ENGINE**

 Unit Manufacturer and Model: **Komatsu D65PX-17**

 Oil Type: **KOMATSU LOW ASH 15W40**

 Component Manufacturer and Model: **Not Specified -**

Component Serial Number:

Maintenance Recommendations for Lab No. 201510131355

 Reported On: **Oct 14 2015**

 From: **Armstrong Coal, Madisonville, KY**

ANALYSIS INDICATES ABNORMAL LUBRICANT CONDITIONS! VISCOSITY is HIGH. MODERATE levels of OXIDATION and NITRATION present.
 CHANGE the OIL and FILTER(s) if not already performed. RESAMPLE at the next scheduled interval.

SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION

LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	Sample Drawn
1355	32	1	1	5	<1	12	<1	0.1	93	9	17	2	<1	11	1093	1371	2100	<1	407	<1	<1	10/08/15
0676	2	1	1	4	1	47	<1	0.1	104	7	19	10	7	11	1199	1510	2298	<1	448	<1	<1	09/18/15
0987	53	1	<1	<1	<1	77	<1	0.1	106	4	14	84 *	86 *	10	1031	1356	1990	<1	342	<1	<1	08/25/15
0947	86	2	1	8	1	9	<1	<0.1	88	21 *	323 *	722 *	788 *	69	1173	1452	2188	1	392	<1	<1	07/30/15
0848	51	1	1	4	1	2	<1	0.1	118	8	21	210 *	265 *	17	1192	1473	2201	<1	369	1	<1	07/16/15
0788	85 *	1	<1	4	1	4	<1	<0.1	104	9	20	211 *	264 *	20	1166	1465	2210	1	375	<1	<1	06/30/15

SAMPLE INFORMATION
PHYSICAL TEST RESULTS

LAB NO.	MI/HR Unit	MI/HR Oil	Oil Add	FLTR CHG	Oil CHG	Viscosity 100 °C	Visc Grade	Soot	OX	NTR	GLY Test	Water	Fuel	LEM Soot
1355	6067	475	0	Yes	C	16.5 *	50 *	0.7	22 *	15 *	NEG	<0.1	<0.50	
0676	5592	564	0	Yes	C	17.0 *	50 *	1.2 *	23 *	15 *	NEG	<0.1	<0.50	2.89 *
0987	5028	433	0	Yes	C	15.9	40	1.5 *	26	15	NEG	<0.1	<0.50	1.85 *
0947	4595	500	0	Yes	C	19.0 *	50	1.7 *	24	19	POS *	5.0 *	<0.50	3.31 *
0848	4347	290	0	No	S	15.9	40	1.1 *	21	14	NEG	2.0 *	<0.50	1.12 *
0788	4057		0	Yes	C	17.1 *	50	1.3 *	22	14	NEG	<0.1	<0.50	2.09

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 P.O./Ref No.: **BRANDEIS EVANSVILLE IN**

 Unit ID: **2262 / C0986**

 Unit Worksite: **238877**

 Comp. Ref NO.: **6309254**

 Component Type: **FINAL DRIVE**

 Component: **RIGHT REAR FINAL DRIVE**

 Unit Manufacturer and Model: **Komatsu D65PX-17**

 Oil Type: **PHILLIPS UNKNOWN SAE 30**

 Component Manufacturer and Model: **Unknown/Unspecified UNKN UNKNOWN**

Component Serial Number:

Maintenance Recommendations for Lab No. 201510131357

 Reported On: **Oct 14 2015**

 From: **Armstrong Coal, Madisonville, KY**

ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS ARE ACCEPTABLE. RESAMPLE at the next scheduled interval.

SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION

LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	Sample Drawn
1357	41	1	<1	4	<1	<1	<1	<0.1	1	29	4	1	<1	1	840	1051	2362	<1	8	<1	<1	10/08/15
0679	104	1	<1	8	<1	<1	<1	<0.1	1	39	5	3	<1	<1	943	1176	2684	<1	10	<1	<1	09/18/15
0988	319	2	<1	29	<1	1	<1	0.2	2	85	9	7	11	1	882	1159	2629	1	12	<1	<1	08/25/15
0944	267	2	<1	26	<1	1	<1	<0.1	2	77	13	3	11	1	931	1184	2699	<1	11	<1	<1	07/30/15
0598	402	4	<1	50	1	2	<1	<0.1	3	137	126	9	18	1	1401	1782	4286	<1	18	<1	<1	07/01/15
1224	165	2	<1	30	1	1	<1	<0.1	2	87	127	4	7	2	1344	1681	4053	<1	15	1	<1	06/05/15

SAMPLE INFORMATION
PHYSICAL TEST RESULTS

LAB NO.	MI/HR Unit	MI/HR Oil	Oil Add	FLTR CHG	Oil CHG	Water	Viscosity 100 °C
1357	6067	1972	0	No	C	<0.1	11.3
0679	5592	1497	0	No	S	<0.1	18.5*
0988	5028	933	0	No	S	<0.1	10.5
0944	4595	500	0	No	S	<0.1	10.5
0598	4088		0	-	S	<0.1	7.2*
1224	3615		0	-	S	<0.1	7.3*

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 P.O./Ref No.: **BRANDEIS EVANSVILLE IN**

 Unit ID: **2262 / C0986**

 Unit Worksite: **238877**

 Comp. Ref NO.: **6309196**

 Component Type: **HYDRAULIC SYSTEM**

 Component: **HYDRAULIC SYSTEM**

 Unit Manufacturer and Model: **Komatsu D65PX-17**

 Oil Type: **PHILLIPS 66 UNKNOWN ISO 46**

 Component Manufacturer and Model: **Not Specified -**

Component Serial Number:

Maintenance Recommendations for Lab No. 201510131358

 Reported On: **Oct 14 2015**

 From: **Armstrong Coal, Madisonville, KY**

ANALYSIS INDICATES COMPONENT & LUBRICANT CONDITIONS WERE ACCEPTABLE. Data reflects the system was serviced and the oil & filter(s) were changed at the time of sampling. RESAMPLE at next scheduled interval.

SPECTROCHEMICAL ANALYSIS IN PARTS PER MILLION

LAB NO.	Iron	Chromium	Nickel	Aluminum	Lead	Copper	Tin	Silver	Titanium	Silicon	Boron	Sodium	Potassium	Molybdenum	Phosphorus	Zinc	Calcium	Barium	Magnesium	Antimony	Vanadium	Sample Drawn
1358	18	1	<1	14	2	9	<1	<0.1	1	26	<1	4	1	2	425	568	455	<1	76	<1	<1	10/08/15
0677	18	1	<1	15	4	10	<1	<0.1	1	26	2	3	3	<1	476	612	490	<1	87	<1	<1	09/18/15
0994	16	1	<1	12	3	8	<1	<0.1	<1	20	<1	6	3	<1	472	627	498	<1	76	<1	<1	08/25/15
0946	14	1	<1	14	3	7	<1	<0.1	<1	22	<1	5	4	<1	481	629	493	<1	77	<1	<1	07/30/15
0596	27	2	<1	24	9	16	<1	<0.1	1	38	<1	11	10	<1	689	874	1240	<1	207	<1	<1	07/01/15
1222	21	2	<1	20	8	13	<1	<0.1	1	34	<1	10	3	1	666	816	1173	<1	196	<1	<1	06/05/15

SAMPLE INFORMATION
PHYSICAL TEST RESULTS

LAB NO.	MI/HR Unit	MI/HR Oil	Oil Add	FLTR CHG	Oil CHG	Water	Viscosity 100 °C
1358	6067	1972	0	Yes	C	<0.1	6.7
0677	5592	1497	0	No	S	<0.1	7.0
0994	5028	933	0	No	S	<0.1	6.8
0946	4595	500	0	No	S	<0.1	7.0
0596	4088		0	Yes	C	<0.1	6.7
1222	3615		0	Yes	S	<0.1	6.6