

OIL ANALYSIS REPORT





Area KEMP QUARRIES / BCS - GRAVETTE [68022] WL110 Component Hydraulic System

PETRO CANADA HYDREX AW 68 (--- GAL)

Sample NumberClient InfoPCA0108768PCA0085716PCA006240Sample DateClient Info13 Feb 202410 May 202329 Aug 2022Machine AgehrsClient Info283142777027222Oil AgehrsClient Info5442777027222Oil ChangedClient InfoOil AddedChangedN/ASample StatusImatherNORMALNORMALNORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2WaterWC Method >0.1NEGNEGNEG	REX AW 68 (G	iAL)	Jec2016 Oct20	018 Mar2019 Nov2019	May2020 May2021 Oct2021 Aug	2022 Feb202	
Sample Date Client Info 13 Feb 2024 10 May 2023 29 Aug 2023 Machine Age hrs Client Info 28314 27770 27222 Oil Age hrs Client Info 544 27770 27222 Oil Changed Client Info 544 27770 27222 Oil Anged Client Info 544 27770 27222 Oil Anged Client Info 544 27770 27222 Oil Anged Client Info Stat NORMAL NORMAL	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 28314 27770 27222 Oil Age hrs Client Info 544 27770 27222 Oil Changed Client Info Oil Added Changed N/A Sample Status Image Client Info Oil Added Changed N/A Sample Status Imail/base current History1 History2 Water WC Method >0.1 NEG NEG NEG Wear METALS method imil/base current History1 History2 Iron ppm ASTM 05165m >10 0 0 0 Tranum ppm ASTM 05165m 10 0 0 0 Silver ppm ASTM 05165m >10 0 0 0 1 Lead ppm ASTM 05165m >10 0 0 0 0 Antimomy ppm ASTM 05165m 0 0 0 0 0 <	Sample Number		Client Info		PCA0108768	PCA0085716	PCA0062400
Machine Age hrs Client Info 28314 27770 27222 Oil Ago hrs Client Info 544 27770 27222 Oil Agned Client Info Oil Adaded NAA NORMAL NORMAL NORMAL Sample Status Imethod Imit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG Wear WC Method >0.1 NEG NEG NEG Iron ppm ASTM D5185m >10 <1	Sample Date		Client Info		13 Feb 2024	10 May 2023	29 Aug 2022
Oil Changed Sample Status Cilient Info Oil Added NORMAL Changed NORMAL N/A CONTAMINATION method imit/base current history1 history2 Water WC Method >.0.1 NEG NEG NEG WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5185m >20 2 4 4 Chromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >10 0 0 0 Aluminum ppm ASTM D5185m >10 0 0 0 Aluminum ppm ASTM D5185m >10 0 0 0 Auminum ppm ASTM D5185m >10 0 0 0 Autiminum ppm ASTM D5185m >10 0 0 0 Autimum ppm ASTM D5185m >10 0 0 0 Autimum ppm ASTM D5185m 0 0 0 0 Autimum ppm ASTM D5185m 0 0 2 2 Noredoinum ppm ASTM D5185m	Machine Age	hrs	Client Info		28314		-
Oil Changed Sample Status Cilient Info Oil Added NORMAL Changed NORMAL N/A CONTAMINATION method imit/base current history1 history2 Water WC Method >.0.1 NEG NEG NEG WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5185m >20 2 4 4 Chromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >10 0 0 0 Aluminum ppm ASTM D5185m >10 0 0 0 Aluminum ppm ASTM D5185m >10 0 0 0 Auminum ppm ASTM D5185m >10 0 0 0 Autiminum ppm ASTM D5185m >10 0 0 0 Autimum ppm ASTM D5185m >10 0 0 0 Autimum ppm ASTM D5185m 0 0 0 0 Autimum ppm ASTM D5185m 0 0 2 2 Noredoinum ppm ASTM D5185m	Oil Age	hrs	Client Info		544	27770	27222
Sample Status NORMAL NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG Wear METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 2 4 4 Chromium ppm ASTM D5185m >10 c1 2 1 Nickel ppm ASTM D5185m >10 0 0 0 Silver ppm ASTM D5185m >10 0 0 0 Auminum ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >10 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 11 <td< td=""><td>0</td><td></td><td></td><td></td><th></th><td>Changed</td><td>N/A</td></td<>	0					Changed	N/A
Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >20 2 4 4 Chromium ppm ASTM 05185m >10 0 0 0 Nickel ppm ASTM 05185m >10 0 0 0 0 Silver ppm ASTM 05185m >10 0	-				NORMAL		NORMAL
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 2 4 4 Ohromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >10 0 0 0 Silver ppm ASTM D5185m >10 <1	CONTAMINATI	ON	method	limit/base	current	history1	history2
Iron ppm ASTM D5185m >20 2 4 4 Chromium ppm ASTM D5185m >10 <1 2 1 Nickel ppm ASTM D5185m >10 0 0 0 0 Silver ppm ASTM D5185m >10 <1 0 1 Lead ppm ASTM D5185m >10 <1 0 1 Lead ppm ASTM D5185m >10 <1 0 1 Lead ppm ASTM D5185m >10 0 0 0 1 Lead ppm ASTM D5185m >10 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 11 0 ADD1TVES method limit/base current history1 history2 Barium ppm ASTM D5185m	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium ppm ASTM D5185m >10 <1 2 1 Nickel ppm ASTM D5185m >10 0 0 0 Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m >10 <1	WEAR METALS	S .	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >10 0 0 0 Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m >10 <1	Iron	ppm	ASTM D5185m	>20	2	4	4
Nickel ppm ASTM D5185m >10 0 0 0 Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m >10 -1 0 1 Aluminum ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >75 2 3 3 Tin ppm ASTM D5185m >75 2 3 3 Antimony ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Boron ppm ASTM D5185m 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Chromium		ASTM D5185m	>10	<1	2	1
Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m >10 <1	Nickel		ASTM D5185m	>10	0	0	0
Silver ppm ASTM D5185m 0 <1 Aluminum ppm ASTM D5185m >10 <1	Titanium		ASTM D5185m			0	0
Aluminum ppm ASTM D5185m >10 <1 0 1 Lead ppm ASTM D5185m >10 0 0 0 0 Copper ppm ASTM D5185m >75 2 3 3 Tin ppm ASTM D5185m >10 0 0 <1					0		<1
Lead ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >75 2 3 3 Tin ppm ASTM D5185m >10 0 0 <1				>10	-		
Copper ppm ASTM D5185m >75 2 3 3 Tin ppm ASTM D5185m >10 0 0 <1							
Tin ppm ASTM D5185m >10 0 0 <1 Antimony ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 11 0 Molybdenum ppm ASTM D5185m 0 0 2 2 Marganese ppm ASTM D5185m 0 11 36 29 Calcium ppm ASTM D5185m 0 11 36 29 Calcium ppm ASTM D5185m 30 326 346 346 Zinc ppm ASTM D5185m >20 <1							
AntimonyppmASTM D5185mVanadiumppmASTM D5185m000CadmiumppmASTM D5185m000BoronppmASTM D5185m0002BariumppmASTM D5185m00011MolybdenumppmASTM D5185m0022ManganeseppmASTM D5185m0022CalciumppmASTM D5185m0113629CalciumppmASTM D5185m0113629CalciumppmASTM D5185m5085120123PhosphorusppmASTM D5185m330326346346ZincppmASTM D5185m760859938909CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20<1							
VanadiumppmASTM D5185m000CadmiumppmASTM D5185m0000ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m0002BariumppmASTM D5185m0002MolybdenumppmASTM D5185m0022MagneseppmASTM D5185m0113629CalciumppmASTM D5185m0113629CalciumppmASTM D5185m5085120123PhosphorusppmASTM D5185m330326346346ZincppmASTM D5185m760859938909CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20<1				210	-		
CadmiumppmASTM D5185m000ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m0002BariumppmASTM D5185m00110MolybdenumppmASTM D5185m0022MaganeseppmASTM D5185m0<1	•						
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m0002BariumppmASTM D5185m00110MolybdenumppmASTM D5185m0022ManganeseppmASTM D5185m0<1					-		
BoronppmASTM D5185m00002BariumppmASTM D5185m00110MolybdenumppmASTM D5185m0022ManganeseppmASTM D5185m0<1<1<1MagnesiumppmASTM D5185m0113629CalciumppmASTM D5185m5085120123PhosphorusppmASTM D5185m330326346346ZincppmASTM D5185m760859938909CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20<132SodiumppmASTM D5185m>20<132VisualNONENONENONENONENONEVisualNONENONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONEAstrin D5185mSodiumNONENONENONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONESodium<		ppm		limit/baco			
BariumppmASTM D5185m001110MolybdenumppmASTM D5185m0022ManganeseppmASTM D5185m0-11<1		nnm					
MolybdenumppmASTM D5185m0022ManganeseppmASTM D5185m0<1							
ManganeseppmASTM D5185m0<1<1<1<1MagnesiumppmASTM D5185m0113629CalciumppmASTM D5185m5085120123PhosphorusppmASTM D5185m330326346346ZincppmASTM D5185m430461448424SulfurppmASTM D5185m760859938909CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20<1							
MagnesiumppmASTM D5185m0113629CalciumppmASTM D5185m5085120123PhosphorusppmASTM D5185m330326346346ZincppmASTM D5185m430461448424SulfurppmASTM D5185m760859938909CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20<1					-		
CalciumppmASTM D5185m5085120123PhosphorusppmASTM D5185m330326346346ZincppmASTM D5185m430461448424SulfurppmASTM D5185m760859938909CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20<1	-						
PhosphorusppmASTM D5185m330326346346ZincppmASTM D5185m430461448424SulfurppmASTM D5185m760859938909CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20<1	0						
ZincppmASTM D5185m430461448424SulfurppmASTM D5185m760859938909CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20<1							
SulfurppmASTM D5185m760859938909CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20<1							
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20<1	-						
SiliconppmASTM D5185m>20<132SodiumppmASTM D5185m0<1					859		
SodiumppmASTM D5185m0<10PotassiumppmASTM D5185m>20000VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML		ΓS			current		
PotassiumppmASTM D5185m>20000VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML				>20			
VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONEPrecipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML		ppm					
White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML		ppm	ASTM D5185m	>20	0	0	0
Yellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML	VISUAL		method				history2
Precipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML							
Siltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML			*Visual	NONE			
Debrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML	•	scalar	*Visual		-		NONE
Sand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Odor scalar *Visual NORML NORML NORML NORML	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water scalar *Visual >0.1 NEG NEG NEG	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG

NEG

NEG

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Top Up Amount: 2 GAL Pm2)

Wear

All component wear rates are normal.

Contamination

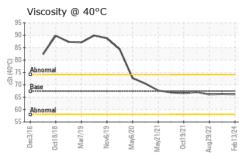
There is no indication of any contamination in the fluid.

Fluid Condition

The condition of the fluid is acceptable for the time in service.



OIL ANALYSIS REPORT



	Visc @ 40°C	cSt	ASTM D		7.4	66.1			6.3		66		~
	SAMPLE IMAG	ES	metho	bd	limit/base	curre	nt		histor	y1	ł	nistory	/2
21 22 24	Color				no ima		le	no image			no image		
May21/21 May21/21 Oct19/21 Aug29/22 Feb13/24	Bottom					no imag	ie	n	o imag	е	nc	image	0
	GRAPHS												
	Iron (ppm)				30	Lead (pp	om)						
	30				25								
	a 20 - Abnormal				20 톱 15								
	10-				10	Abnormal							
		20	21	22	× 0	18	61/	61/	20	/21	/21	22	VC.
	Dec3/16 Oct18/18 Mar7/19	May6/20	May21/21 0ct19/21	Aug29/22	Feb13/24	Dec3/16 - 0ct18/18	Mar7/19	Nov6/19	May6/20	May21/21	0ct19/21	Aug29/22	Eah13/24
	Aluminum (ppm)				30		ım (p	pm)					
	25 - Severe				25								
	특 15				<u>a</u> 15	Abarmat							
					10								
	Dec3/16	May6/20	May21/21	Aug29/22	Feb13/24	Dec3/16	Mar7/19	Nov6/19	May6/20	May21/21	0ct19/21	Aug29/22	Eeh13/24
	ම පි වී වී	Mar	May Oct	Aug	Feb	Bilicon (Nov	Mar	May	Oct	Aug	Eah
	250				60 50	C	Jpin)				1		
	150				40								
	a 100 Abpormal				톱 30 20	Abnemal							
	50				10				_				
	Dec3/16	May6/20 -	May21/21	Aug29/22 -	Feb13/24	Dec3/16	Mar7/19	Nov6/19	May6/20	May21/21	0ct19/21-	Aug29/22	Eeh13/24
	Viscosity @ 40°C	2	Ma 0	Au	2	Additive:		Z	\geq	Ma	0	Au	đ
	¹⁰⁰ 90				2500	ca	alcium hosphoru						
	Abnormal 370 - Base				1500		nc	5					
	The second se	~			1000	The section of the section			L				
	60 Abnormal				500 								
	Dec3/16 0ct18/18 Mar7/19 Nov6/19	May6/20	May21/21 Oct19/21	Aug29/22	Feb13/24	Dec3/16 . 0ct18/18 .	Mar7/19	Nov6/19	May6/20	May21/21	0ct19/21	Aug29/22	Feb13/24
Laboratory Sample No. Lab Number Unique Number Test Package	: WearCheck USA - 501 : PCA0108768 : 06101259 : 10899489	Madiso Rece Testo	on Ave., (eived	Cary, N : 26 F : 28 F		Ke	emp Qu		Bentor	n Coun 15	t y Ston 5100 I ur Sp U	e - Gra	vette / 59 AF 768

1