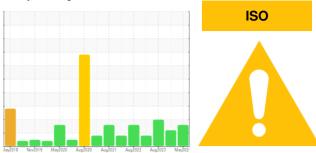


OIL ANALYSIS REPORT

Sample Rating Trend



Area [20022410529] A15685

Hydraulic System

PETRO CANADA PURITY FG AW HYDRAULIC 46 (--- GAL)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates present in the oil.

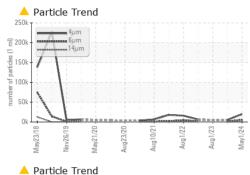
Fluid Condition

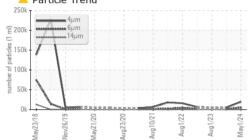
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

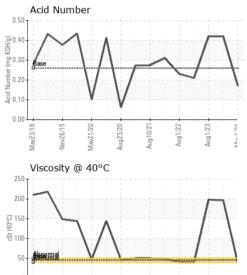
Sample Number Client Info WC0907943 WC0966710 WC0912023 Machine Age hrs Client Info 01 00 0 0 Oil Age hrs Client Info 0 0 0 0 Oil Age hrs Client Info 0 0 0 0 Oil Age hrs< Client Info N/A N/A N/A Sample Status Imath Mathion Current history1 history2 Vater WC.Method >0.1 NEG NEG NEG Vater ppm ASTM DS185m >10 0 0 0 Nickel ppm ASTM DS185m >10 0 0 0 Silver ppm ASTM DS185m >10 0 <1 1 1 Copper ppm ASTM DS185m >10 0 <1 1 1 Copper ppm ASTM DS185m >10 0 0 0 0	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 0 0 Oil Age hrs Client Info N/A N/A N/A N/A Oil Changed Client Info N/A N/A N/A N/A N/A Sample Status Imethod Imit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG Wear ppm ASTM D5185m >10 of 0 0 Nickel ppm ASTM D5185m >10 0 0 0 Silver ppm ASTM D5185m >10 0 0 2 Lead ppm ASTM D5185m >10 0 0 2 Cadmium ppm ASTM D5185m >10 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADTOTY method Imit/base current history1 history2	Sample Number		Client Info		WC0907943	WC0866710	WC0814211
Oil Age hrs Client Info N/A N/A N/A Sample Status Image Client Info N/A ABNORMAL ATTENTION ABNORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >20 0 0 4 Othromium ppm ASTM 05185m >10 0 0 0 Silver ppm ASTM 05185m >10 0 0 0 0 Aluminum ppm ASTM 05185m >10 0 0 0 0 0 Astm 05185m >10 0 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <	Sample Date		Client Info		01 May 2024	03 Nov 2023	01 Aug 2023
Oil Changed Client Info N/A N/A N/A N/A Sample Status Image Status Image Status ABNORMAL ATTENTION ABNORMAL CONTAMINATION method limit/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 0 0 4 Chromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >10 0 0 2 Lead ppm ASTM D5185m >10 0 1 1 Copper ppm ASTM D5185m >10 0 0 0 Adadium ppm ASTM D5185m 0 0 0 0 Adadium ppm ASTM D5185m 0 -1 1 1 <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>0</th> <th>0</th> <th>0</th>	Machine Age	hrs	Client Info		0	0	0
Sample Status Image ABNORMAL ATTENTION ABNORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185n >20 0 0 4 Chromium ppm ASTM D5185n >10 0 0 0 Nickel ppm ASTM D5185n >10 0 0 0 Aluminum ppm ASTM D5185n >10 0 -1 -1 Copper ppm ASTM D5185n >10 0 -1 -1 Cadmium ppm ASTM D5185n >10 0 0 0 Vanadium ppm ASTM D5185n 0 0 0 0 Magnese ppm ASTM D5185n 0 -1 0 0 <t< th=""><th>Oil Age</th><th>hrs</th><th>Client Info</th><th></th><th>0</th><th>0</th><th>0</th></t<>	Oil Age	hrs	Client Info		0	0	0
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM 05185m >20 0 0 4 Chromium ppm ASTM 05185m >10 0 0 0 Nickel ppm ASTM 05185m >10 0 0 0 Aluminum ppm ASTM 05185m >10 0 0 2 Lead ppm ASTM 05185m >10 0 0 0 Vanadium ppm ASTM 05185m >10 0 0 0 Vanadium ppm ASTM 05185m 0 0 0 0 Vanadium ppm ASTM 05185m 0 0 0 0 Vanadium ppm ASTM 05185m 0 0 0 0	Oil Changed		Client Info		N/A	N/A	N/A
Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >10 0 0 4 Chromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >10 0 0 0 Silver ppm ASTM D5185m >10 0 0 2 Lead ppm ASTM D5185m >10 0 <1 <1 0 0 Vanadium ppm ASTM D5185m >10 0 <1 <1 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 0 Astm D5185m 0 0 <1 0 0 0 0 Astm D5185m 0 0 <1 0 0 2 1 1 1 1	Sample Status				ABNORMAL	ATTENTION	ABNORMAL
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 0 4 Chromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >10 0 0 0 Silver ppm ASTM D5185m >10 0 0 0 Aluminum ppm ASTM D5185m >10 0 <1 <1 Copper ppm ASTM D5185m >10 0 <1 <1 <1 Vanadium ppm ASTM D5185m >10 <1 0 0 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <t< th=""><th>CONTAMINATION</th><th>N</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINATION	N	method	limit/base	current	history1	history2
Iron ppm ASTM D5185m >20 0 0 4 Chromium ppm ASTM D5185m >10 <1	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium ppm ASTM D5185m >10 <1	WEAR METALS		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 0 0 0 Aluminum ppm ASTM D5185m >10 0 0 2 Lead ppm ASTM D5185m >10 <1 0 0 Copper ppm ASTM D5185m >10 <1 0 0 Vanadium ppm ASTM D5185m >10 <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 1 1 Magnesium ppm ASTM D5185m 0 0 2 1 Magnesium ppm ASTM D5185m 0 0 2 1 <th>Iron</th> <th>ppm</th> <th>ASTM D5185m</th> <th>>20</th> <th>0</th> <th>0</th> <th>4</th>	Iron	ppm	ASTM D5185m	>20	0	0	4
Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m 510 0 0 2 Lead ppm ASTM D5185m >10 0 <1 <1 Copper ppm ASTM D5185m >10 0 <1 <1 Copper ppm ASTM D5185m >10 <1 0 0 Vanadium ppm ASTM D5185m 0 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 0 <1 0 2 Phosphorus ppm ASTM D5185m 0 0 14	Chromium	ppm	ASTM D5185m	>10	<1	0	0
Silver ppm ASTM D5185m >10 0 0 0 Aluminum ppm ASTM D5185m >10 0 <11	Nickel	ppm	ASTM D5185m	>10	0	0	0
Atuminum ppm ASTM D5185m >10 0 0 2 Lead ppm ASTM D5185m >10 0 <1 <1 Copper ppm ASTM D5185m >10 <1 0 0 Vanadium ppm ASTM D5185m >10 <1 0 0 Cadmium ppm ASTM D5185m 0 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Magnese ppm ASTM D5185m 0 <1 0 2 Magnesium ppm ASTM D5185m 0 <1 0 2 1 Sulfur ppm ASTM D5185m 458 161 6184 2 3 2 3 2 3 2 3	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >10 0 <1	Silver	ppm	ASTM D5185m		0	0	0
Copper ppm ASTM D5185m >75 0 3 2 Tin ppm ASTM D5185m >10 <1 0 0 Vanadium ppm ASTM D5185m 0 0 <1	Aluminum	ppm	ASTM D5185m	>10	0	0	2
Tin ppm ASTM D5185m >10 <1	Lead	ppm	ASTM D5185m	>10	0	<1	<1
Vanadium ppm ASTM D5185m 0 <1	Copper	ppm	ASTM D5185m	>75	0	3	2
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 1 1 Magnesse ppm ASTM D5185m 0 0 1 0 2 Phosphorus ppm ASTM D5185m 0 0 161 168 Zinc ppm ASTM D5185m 458 161 168 Zinc ppm ASTM D5185m 4777 781 834 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m >20 0 <1	Tin	ppm	ASTM D5185m	>10	<1	0	0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 0 0 0 Malganese ppm ASTM D5185m 0 0 0 Magnesium ppm ASTM D5185m 0 <1 0 Magnesium ppm ASTM D5185m 0 <1 0 Calcium ppm ASTM D5185m 0 0 2 Phosphorus ppm ASTM D5185m 458 161 6 Sulfur ppm ASTM D5185m 458 161 6 Sulfur ppm ASTM D5185m 477 781 834 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m >20 1 0 <th>Vanadium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th><1</th> <th><1</th>	Vanadium	ppm	ASTM D5185m		0	<1	<1
Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 0 <1 0 Calcium ppm ASTM D5185m 0 <1 0 Calcium ppm ASTM D5185m 0 0 2 Phosphorus ppm ASTM D5185m 458 161 168 Zinc ppm ASTM D5185m 477 781 834 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m >20 0 <1 0 FLUID CLEANLINESS method limit/base current history1<	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 0 <1 0 Calcium ppm ASTM D5185m 0 0 2 Phosphorus ppm ASTM D5185m 458 161 168 Zinc ppm ASTM D5185m 477 781 834 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m >20 0 <1 0 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >1300 \$5345 1053 Particles >21µm ASTM D7647	Boron	ppm	ASTM D5185m		0	0	0
Manganese ppm ASTM D5185m 0 <1	Barium	ppm	ASTM D5185m		<1	0	0
Magnesium ppm ASTM D5185m 0 <1	Molybdenum	ppm	ASTM D5185m			0	0
Calcium ppm ASTM D5185m 0 2 Phosphorus ppm ASTM D5185m 458 161 168 Zinc ppm ASTM D5185m 0 14 4 Sulfur ppm ASTM D5185m 0 14 4 Sulfur ppm ASTM D5185m 0 14 4 Sulfur ppm ASTM D5185m 477 781 834 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m >20 0 <1 0 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >1300 5345 1053 Particles >6µm ASTM D7647 >160 360 81 Particles >1µm ASTM D7647 >40 105 21 Particles >21µm ASTM D7647 3 1<	Manganese	ppm	ASTM D5185m		0	<1	<1
Phosphorus ppm ASTM D5185m 458 161 168 Zinc ppm ASTM D5185m 0 14 4 Sulfur ppm ASTM D5185m 477 781 834 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m >20 3 2 3 Potassium ppm ASTM D5185m >20 0 <11	-	ppm	ASTM D5185m		-		
Zinc ppm ASTM D5185m 0 14 4 Sulfur ppm ASTM D5185m 477 781 834 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m >20 0 <1 0 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 19650 5139 Particles >6µm ASTM D7647 >1300 5345 1053 Particles >14µm ASTM D7647 >160 360 81 Particles >21µm ASTM D7647 >10 9 0 Particles >38µm ASTM D7647 3 1 0 Particles >71µm ASTM D7647	Calcium	ppm	ASTM D5185m		0		_
SulfurppmASTM D5185m477781834CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20323SodiumppmASTM D5185m>200<1<1PotassiumppmASTM D5185m>200<10FLUID CLEANLINESSmethodlimit/basecurrenthistory1history2Particles >4µmASTM D7647196505139Particles >6µmASTM D7647>130053451053Particles >14µmASTM D7647>16036081Particles >21µmASTM D7647>1090Particles >38µmASTM D7647>310Particles >71µmASTM D7647>310Oil CleanlinessISO 4406 (c)>/17/1421/20/1620/17/14FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Phosphorus	ppm	ASTM D5185m			<u> </u>	68
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>20323SodiumppmASTM D5185m>200<1<1PotassiumppmASTM D5185m>200<10FLUID CLEANLINESSmethodlimit/basecurrenthistory1history2Particles >4µmASTM D7647196505139Particles >6µmASTM D7647>130053451053Particles >6µmASTM D7647>16036081Particles >14µmASTM D7647>1090Particles >21µmASTM D7647>1090Particles >38µmASTM D7647>310Particles >71µmASTM D7647>310Oil CleanlinessISO 4406 (c)/17/1421/20/1620/17/14FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2		ppm	ASTM D5185m		0	1 4	- 4
Silicon ppm ASTM D5185m >20 3 2 3 Sodium ppm ASTM D5185m <1	Sulfur	ppm	ASTM D5185m		477	781	834
Sodium ppm ASTM D5185m <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 <1	Silicon	ppm	ASTM D5185m	>20	3	2	3
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 19650 5139 Particles >6µm ASTM D7647 >1300 5345 1053 Particles >14µm ASTM D7647 >160 360 81 Particles >14µm ASTM D7647 >40 105 21 Particles >21µm ASTM D7647 >40 105 21 Particles >38µm ASTM D7647 >10 9 0 Particles >71µm ASTM D7647 >3 1 0 Oil Cleanliness ISO 4406 (c) >/17/14 21/20/16 20/17/14 FLUID DEGRADATION method limit/base current history1 history2	Sodium	ppm	ASTM D5185m		<1	<1	<1
Particles >4μm ASTM D7647 19650 5139 Particles >6μm ASTM D7647 >1300 5345 1053 Particles >14μm ASTM D7647 >160 360 81 Particles >21μm ASTM D7647 >40 105 21 Particles >21μm ASTM D7647 >10 9 0 Particles >38μm ASTM D7647 >3 1 0 Particles >71μm ASTM D7647 >3 1 0 Oil Cleanliness ISO 4406 (c) >/17/14 21/20/16 20/17/14 FLUID DEGRADATION method limit/base current history1 history2	Potassium	ppm	ASTM D5185m	>20	0	<1	0
Particles >6µm ASTM D7647 >1300 ▲ 5345 1053 Particles >14µm ASTM D7647 >160 ▲ 360 81 Particles >21µm ASTM D7647 >40 ▲ 105 21 Particles >38µm ASTM D7647 >10 9 0 Particles >38µm ASTM D7647 >3 1 0 Particles >71µm ASTM D7647 >3 1 0 Oil Cleanliness ISO 4406 (c) >/17/14 21/20/16 20/17/14 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	IESS	method	limit/base	current	history1	history2
Particles >14µm ASTM D7647 >160 ▲ 360 81 Particles >21µm ASTM D7647 >40 ▲ 105 21 Particles >38µm ASTM D7647 >10 9 0 Particles >71µm ASTM D7647 >3 1 0 Oil Cleanliness ISO 4406 (c) >/17/14 ▲ 21/20/16 20/17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647		19650	5139	
Particles >21µm ASTM D7647 >40 ▲ 105 21 Particles >38µm ASTM D7647 >10 9 0 Particles >38µm ASTM D7647 >3 1 0 Particles >71µm ASTM D7647 >3 1 0 Oil Cleanliness ISO 4406 (c) >/17/14 21/20/16 20/17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300	<u> </u>	1053	
Particles >38μm ASTM D7647 >10 9 0 Particles >71μm ASTM D7647 >3 1 0 Oil Cleanliness ISO 4406 (c) >/17/14 21/20/16 20/17/14 FLUID DEGRADATION method limit/base current history1 history2	· ·			>160			
Particles >71μm ASTM D7647 >3 1 0 Oil Cleanliness ISO 4406 (c) >/17/14 21/20/16 20/17/14 FLUID DEGRADATION method limit/base current history1 history2					<u> </u>	21	
Oil Cleanliness ISO 4406 (c) >/17/14 21/20/16 20/17/14 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm					0	
FLUID DEGRADATION method limit/base current history1 history2			ASTM D7647	>3	1		
	Oil Cleanliness		ISO 4406 (c)	>/17/14	A 21/20/16	20/17/14	
Acid Number (AN) mg KOH/g ASTM D8045 0.26 0.17 0.42 0.42							
2:18:35) Rev: 1 Contact/Location: JAMES ROBINSON III - ROCROCUS	FLUID DEGRADA	TION	method	limit/base	current	history1	history2



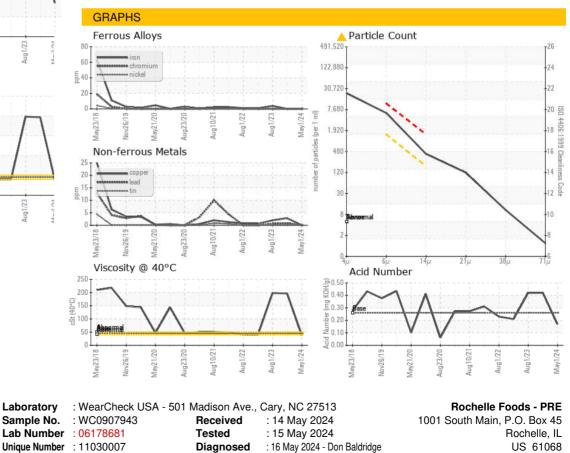
OIL ANALYSIS REPORT







VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	LIGHT	NONE	🔺 MODER
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	45.36	38.2	96	98.3
SAMPLE IMAGES	6	method	limit/base	current	history1	history2
Color						
Bottom					(\bigcirc)	





Vov26/19 -

May23/18

Mav21/20.

Aug23/20

To discuss this sample report, contact Customer Service at 1-800-237-1369. * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Test Package : IND 2

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (815)562-4147

Report Id: ROCROCUS [WUSCAR] 06178681 (Generated: 05/16/2024 12:18:35) Rev: 1

Certificate 12367

Aug1/22

Aug10/21

Contact/Location: JAMES ROBINSON III - ROCROCUS

Page 2 of 2

T:

Contact: JAMES ROBINSON III

jrobinson3@hormel.com