

## CAROLINE

## JOHN DEERE 944X M02-0932 1DW944XAPPLX03758

**Diesel Engine** 

## JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- QTS)

Test    UCM    Method    Linkby/L    History/L    History/L    History/L      Sample Number    Client Hind    Z Apr 202        Macrina ragin    Fill    Client Hind    Z Str        Macrina ragin    Fill    Client Hind    Z Str        Fill    Client Hind    Z Str         Fill    Client Hind    Z Str         Sample Name    Client Hind    X Str    X Str        WEAR    Into    pm    Str<    1        Notel    ppm    Str<    1         Notel    ppm    Str<    1         Notel    ppm    Str<    1         Notel    ppm    Str<    Str    Str        Notel    ppm	JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (	- (13)						
Sample Number    Client Info    PR012848    ····    ····      Sample Date    Client Info    22 Apr 204    ···    ····      Machine Age    hrs    Client Info    764    ···    ····      Oi Age    hrs    Client Info    235    ···    ····    ····      Filter Age    hrs    Client Info    Rife Changed    Client Info    Rife Changed    ···· <th>RECOMMENDATION</th> <th>Test</th> <th>UOM</th> <th>Method</th> <th>Limit/Abn</th> <th>Current</th> <th>History1</th> <th>History2</th>	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample DateClient Info21 Apr 2011<								
Machine Age    Ins    Clint Info    764    Ind    101      Oil Age    Ins    Clint Info    235    Ind    Ind      Filter Age    Ins    Clint Info    235    Ind    Ind      Oil Changed    Client Info    Het Change    Ind								
Oil Age    hrs    Client Info    235    IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII			hrs			-		
Filter Age    Ins    Client Info    No Changi    Client Info      OII Changed    Client Info    No Changi		-						
Oil Changad Hitter Changad Sample Status    Client Info (Lichangad Sample Status    Not Chang (Lichangad NORMA       WEAR    Iron    ppm    ASTU 2518m    >51    19        Chromium    ppm    ASTU 2518m    >51    19        Chromium    ppm    ASTU 2518m    >51    11        Nicke    ppm    ASTU 2518m    >51    11        Silver    ppm    ASTU 2518m    >51         Silver    ppm    ASTU 2518m    >26    27        Coper    ppm    ASTU 2518m    >26    14        Coper    ppm    ASTU 2518m    >26    144        Veina    NONE    NONE    NONE    NONE    NONE    NONE       Veina    NONE    NONE    NONE    NONE        Veina    NONE		-						
Filter Changed Sample Status    Not Changed NORMAL		-		Client Info		Not Changd		
Sample Status    NPML    n    N      Non    ppm    ASTM 05H5    51    19    10    10      Nokel    ppm    ASTM 05H5    51    11    10    10    10      Nokel    ppm    ASTM 05H5    51    11    10    10    10      Nokel    ppm    ASTM 05H5    51    10		-		Client Info		-		
Chromium    ppm    ASTM D555s    11     i      Titanium    ppm    ASTM D555s    -        Silver    ppm    ASTM D515s    -        Aluminum    ppm    ASTM D515s    -26    14        Aluminum    ppm    ASTM D515s    -26    144        Copper    ppm    ASTM D515s    -26    144        Tin    ppm    ASTM D515s    -26    144        Vanadium    ppm    ASTM D515s    -26    144        Vanadium    ppm    ASTM D515s    -4    4        Vanadium    ppm    ASTM D515s    -4    44        Vanadium    ppm    ASTM D515s    -26    9        Vanadium    ppm    ASTM D515s    -22    9								
Chromium    ppm    ASTM D555s    11     i      Titanium    ppm    ASTM D555s    -        Silver    ppm    ASTM D515s    -        Aluminum    ppm    ASTM D515s    -26    14        Aluminum    ppm    ASTM D515s    -26    144        Copper    ppm    ASTM D515s    -26    144        Tin    ppm    ASTM D515s    -26    144        Vanadium    ppm    ASTM D515s    -26    144        Vanadium    ppm    ASTM D515s    -4    4        Vanadium    ppm    ASTM D515s    -4    44        Vanadium    ppm    ASTM D515s    -26    9        Vanadium    ppm    ASTM D515s    -22    9								
Nickel    ppm    ASTM 26158    >5    c1        Titanium    ppm    ASTM 26158    >3    0        Silver    ppm    ASTM 26158    >3    0        Atumium    ppm    ASTM 26158    >3    0        Copper    ppm    ASTM 26158    >26    27        Vandum    ppm    ASTM 26158    >26    144        Vandum    ppm    ASTM 26158    >4    4        Vandum    ppm    ASTM 26158    >26    9        Vandum    ppm    ASTM 26158    >20    9        Vandum    ppm    ASTM 26158    >20    9	WEAR		ppm					
Titanium    ppm    ASTM D5185    31    0       Silver    ppm    ASTM D5185    33    0        Lead    ppm    ASTM D5185    -326    27        Copper    ppm    ASTM D5185    -26    144        Tin    ppm    ASTM D5185    -26    144        White Metal    scalar    'Visual    NONE    NONE        Valiadum    ppm    ASTM D5185    -22    9        Veliow Metal    scalar    'Visual    NONE    NONE        Valiadum    ppm    ASTM D5185    -20    9         Valiadum    ppm    ASTM D5185    -20    9        Solicon    ppm    ASTM D5185    -20    9.3        Solicon    ppm    ASTM D524    -20 <th></th> <th></th> <th>ppm</th> <th></th> <th></th> <th></th> <th></th> <th></th>			ppm					
Silver    ppm    ASTM DS185n    -31    0        Aluminum    ppm    ASTM DS185n    -26    27        Copper    ppm    ASTM DS185n    -26    144        Vanadium    ppm    ASTM DS185n    -22    9        Vallow Metal    Scalar    'Visual    NONE    NONE    NONE       Silicon    ppm    ASTM D5185n    -22    9        Vallow Metal    Scalar    'Visual    NONE    NONE        Silicon    scalar    'Visual    NONE    NONE        Silit    s					>5			
Aluminum    ppm    ASTM D5185m    >31    6        Lead    ppm    ASTM D5185m    >26    27        Copper    ppm    ASTM D5185m    >26    1144        Vanadium    ppm    ASTM D5185m    >4    4        White Metal    scalar    Visual    NONE    NONE        Velow Metal    scalar    Visual    NONE    NONE        Potassium    ppm    ASTM D5185m    >22    9        Water    WC Method    NONE    NONE        Water    WC Method    NONE    NC    NC       Glycod    WC Method    NONE    NC        Solt %    %    'ASTM D5185m    20    9.3        Solt %    %    'ASTM D5185m    20.3			ppm					
Lead    ppm    ASTM D5185m    >26    17        Copper    ppm    ASTM D5185m    >4    4        Vanadium    ppm    ASTM D5185m    >4    4        Vanadium    ppm    ASTM D5185m         Vanadium    ppm    ASTM D5185m         Velow Media    scalar    *Visual    NONE    NONE        Velow Media    scalar    *Visual    NONE    NONE        Potassium    ppm    ASTM D5185m    >20    9        Water    WC Method    >0.21    NEG         Silicon    ppm    ASTM D524    >20    9.3        Soli %    %    %    % Sili M574    >30    20.3        Sulfation    Astifm M744    >3<								
Copper    ppm    ASTM bitism    >26    144        Tin    ppm    ASTM bitism          Vanadium    ppm    ASTM bitism          White Metal    scalar    *Visual    NONE         Velow Metal    scalar    *Visual    NONE         Silicon    ppm    ASTM bitism    -22    9        Fuel    %    ASTM 03264    -2.1    1.0        Water    WC Method    NEG          Glycol    WC Method    NEG          Soot %    %    YaSIM 0745    >3    0.4        Silia coalar    Visual    NONE    NONE         Silia coalar    Visual    NONE    NO								
Tin    ppm    ASTM 0516sm    P4    4        Vanadium    ppm    ASTM 0516sm    -         White Metal    scalar    Visual    NONE    NONE    NONE        Vellow Metal    scalar    Visual    NONE    NONE        Potassium    ppm    ASTM 0516sm    >-22    9        Potassium    ppm    ASTM 0516sm    >-22    9        Water    w    WC Method    >-0.21    NEG        Glycol    Water    WC Method    >-0.21    NEG        Stiltation    Abs/cm    ASTM 0744    S-0    4        Sulfation    Abs/cm    ASTM 0744    S-0    4        Sulfation    Abs/cm    NONE    NONE    NONE    NONE       Sulfation			ppm					
Vanadium    ppm    ASTM D5185m    <1								
White Metal Yellow Metal    scalar scalar    'Visual NONE    NONE NONE    In					>4			
Yellow Metal    scalar    'Visual    NONE        CONTAMINATION    Silicon    ppm    ASTM D518m    >-22    9        Potassium    ppm    ASTM D518m    >-20    9        Water    %    MC Method    D.0    Encl        Glycol    WC Method    NC    MEG         Soot %    %    *1370745    >-30    20.3        Sulfation    Abe.tm    AStM D7145    >-30    20.3        Sulfation    Abe.tm    ASTM D7145    >    NONE    NONE       Sulfation    scalar								
CONTAMINATION    Silicon Potassium Fuel    ppm    ASTM D5185m S20    9        Fuel    %    ASTM D5185m S20    9         Water    WC Method Glycol    NOL    NEG         Glycol    WC Method Soot %    %    'ASTM D7844    >3    0.4        Nitration    Abs/m    'Yisual    NONE         Sulfation    Asztm 7'Visual    NONE    NONE         Sand/Dirt    scalar    'Visual    NONE    NONE        Appearance    scalar    'Visual    NORML    NORML        Boron    ppm    ASTM D585m    31    1        Molybdenum    ppm    ASTM D585m    21         Appearance    scalar    'Visual    NORML    NORML								
Potassium    ppm    ASTM 05185m    >20    9       Fuel    %    ASTM 0524    >2.1    <1.0        Water    WC Method    >0.21    NEG        Giycol    WC Method    >0.21    NEG        Soot %    %    ASTM 0784    >3    0.4        Sulfation    Abs/tmm    ASTM 0745    >30    0.3        Sulfation    Abs/tmm    ASTM 0715    >30    20.3        Sulfation    Abs/tmm    MSNE    20.3    20.3        Sulfation    Abs/tmm    MSNE    S0.0    20.3    20.3        Sulfation    Abs/tmm    MONE    NONE    20.3        Sulfation    scalar    Visual    NORM    NORM        Appearance    scalar    Visual    NORM		Yellow Metal	scalar	*Visual	NONE	NONE		
Potassium    ppm    ASTM 05185m    >20    9       Fuel    %    ASTM 0524    >2.1    <1.0        Water    WC Method    >0.21    NEG        Giycol    WC Method    >0.21    NEG        Soot %    %    ASTM 0784    >3    0.4        Sulfation    Abs/tmm    ASTM 0745    >30    0.3        Sulfation    Abs/tmm    ASTM 0715    >30    20.3        Sulfation    Abs/tmm    MSNE    20.3    20.3        Sulfation    Abs/tmm    MSNE    S0.0    20.3    20.3        Sulfation    Abs/tmm    MONE    NONE    20.3        Sulfation    scalar    Visual    NORM    NORM        Appearance    scalar    Visual    NORM	CONTAMINATION	Silicon	nnm	ASTM D5185m	<u>_</u> 22	٥		
Fuel    %    ASTM D3524    >2.1    <1.0	CONTAMINATION							
Water    W C Method    >0.21    NEG       Glycol    WC Method    NEG     NEG       Soot %    %    'ASTM D764/    >20    9.3        Nitration    Abs/rm    'ASTM D764/    >20    9.3        Sulfation    Abs/rm    'ASTM D764/    >30    20.3        Sulfation    Abs/rm    'ASTM D764/    >30    20.3        Sulfation    Abs/rm    'ASTM D764/    NONE    NONE        Sulfation    Abs/rm    'Visual    NONE    NONE        Sand/Dirt    scalar    'Visual    NORH    NORH        Appearance    scalar    'Visual    NORH    NORH        Odor    scalar    'Visual    NORH         Dobris    scalar    'Visual    NORH								
Glycol    WC Method    NEG       Soot %    %    *ASTM D7844    >-3    0.4        Nitration    Abs/    *ASTM D7624    >-20    9.3        Sulfation    Abs/    *ASTM D764    >-20    9.3        Sulfation    Abs/    *ASTM D764    >00    NONE        Sulfation    Abs/    *STM D7165    Scal    NONE    NONE        Sand/Drin    scalar    *Visual    NONE    NONE        Sand/Drin    scalar    *Visual    NORE    NONE        Odor    scalar    *Visual    NORM    NORM        Ebron    ppm    scalar    *Visual    NORM    NORM       Boron    ppm    ASTM D5185m     1        Molybdenum    ppm    ASTM D5185m			/0					
Soot %    %    *ASTM D7844    >3    0.4       Nitration    Abs/cm    *ASTM D7624    >20    9.3        Sulfation    Abs/tm    *ASTM D7624    >20    9.3        Sulfation    Abs/tm    *Visual    NONE    20.3        Sift    scalar    *Visual    NONE    NONE        Debris    scalar    *Visual    NONE    NONE        Sand/Dirt    scalar    *Visual    NOR    NOR        Appearance    scalar    *Visual    NOR    NORML       Odor    scalar    *Visual    NORML    NORML					>0.21			
Nitration  Abs/cm  *ASTM D7624  >20  9.3     Sulfation  Abs/tm  *ASTM D7415  >30  20.3      Silf  scalar  *Visual  NONE  NONE      Debris  scalar  *Visual  NONE  NONE      Sand/Dirt  scalar  *Visual  NORE  NONE      Appearance  scalar  *Visual  NORM  NORML      Odor  scalar  *Visual  NORML  NORML      Odor  scalar  *Visual  NORML  NORML      Odor  scalar  *Visual  NORML  NORML			0/_		13			
Sulfation    Abs/Imm    'ASTM D7415    >30    20.3        Silt    scalar    'Visual    NONE    NONE        Debris    scalar    'Visual    NONE    NONE        Sand/Dirt    scalar    'Visual    NONE    NONE        Appearance    scalar    'Visual    NORM    NORM        Odor    scalar    'Visual    NORM    NORM        Odor    scalar    'Visual    NORM    NORM        Bori    scalar    'Visual    NORM    NORM        Borin    ppm    ASTM D5185m    >31    1        Maganese    ppm    ASTM D5185m    <    1								
Siltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORUNORUNORUOrscalar*VisualNORUNORUNORU <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>								
Debrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.21NEGSodiumppmASTM D5185m>311BoronppmASTM D5185m>33BariumppmASTM D5185m33MolybdenumppmASTM D5185m186ManganeseppmASTM D5185m2PhosphorusppmASTM D5185m938ZincppmASTM D5185m1049SulfurppmASTM D5185m1049SulfurppmASTM D5185m1049SulfurppmASTM D5185m1049SulfurppmASTM D5185m1049SulfurppmASTM D5185m14.9SulfurppmASTM D5185m14.9SulfurppmASTM D5185m14.9Sulfur <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>								
Sand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.21NEGNEGscalar*Visual>0.21NEGBoronppmASTM D5185m>311BariumppmASTM D5185m<33MolybdenumppmASTM D5185m<33MaganeseppmASTM D5185m<186MagnesiumppmASTM D5185m<425PhosphorusppmASTM D5185m<1747ZincppmASTM D5185m<1049SulfurppmASTM D5185m<1049SulfurppmASTM D5185m<1049SulfurppmASTM D5185m<1049SulfurppmASTM D5185m<3300OxidationAbs/:m'ASTM D5185m14.9SulfurppmASTM D5185m<14.9SulfurppmASTM D5185m14.9Magne (BN)ypmASTM D5185m14.9SulfurppmASTM D5185m3300SulfurppmASTM D5185m14.9 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>								
Appearance Odorscalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.21NEGSodiumppmASTM D5185m>311BoronppmASTM D5185m>311BariumppmASTM D5185m3MolybdenumppmASTM D5185m3MagnesiemppmASTM D5185m2MagnesiumppmASTM D5185m2CalciumppmASTM D5185m11747PhosphorusppmASTM D5185m1049SulfurppmASTM D5185m1049SulfurppmASTM D5185m14.9OxidationAbs/.1mm'ASTM D7141>2514.9Base Number (BN)mg KOHgASTM D288613.67.7								
Odor    scalar    *Visual    NORML    NORML        Emulsified Water    scalar    *Visual    >0.21    NEG       NEG     NEG         Boron    ppm    ASTM D5185m    >31    1        Barium    ppm    ASTM D5185m    <    3        Molybdenum    ppm    ASTM D5185m     1        Magnessee    ppm    ASTM D5185m     3        Magnesium    ppm    ASTM D5185m     2        Phosphorus    ppm    ASTM D5185m     425        Sulfur    ppm    ASTM D5185m     938        Sulfur    ppm    ASTM D5185m     9300        Sulfur    ppm    ASTM D5185m     33000 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>								
Emulsified Water    scalar    *Visual    >0.21    NEG       FLUID CONDITION    Sodium    ppm    ASTM D5185m    >31    1        Boron    ppm    ASTM D5185m    >31    119        Barium    ppm    ASTM D5185m    1    19        Molybdenum    ppm    ASTM D5185m    186        Magnesium    ppm    ASTM D5185m    2        Magnesium    ppm    ASTM D5185m    1747        Calcium    ppm    ASTM D5185m    1049        Phosphorus    ppm    ASTM D5185m    1049        Sulfur    ppm    ASTM D5185m    1049        Oxidation    Abs/.1mm    *ASTM D7414    >25    14.9								
Sodium    ppm    ASTM D5185m    >31    1       Boron    ppm    ASTM D5185m    119        Barium    ppm    ASTM D5185m    3        Barium    ppm    ASTM D5185m    3        Molybdenum    ppm    ASTM D5185m    3        Manganese    ppm    ASTM D5185m    2        Magnesium    ppm    ASTM D5185m    425        Phosphorus    ppm    ASTM D5185m    1747        Zinc    ppm    ASTM D5185m    938        Sulfur    ppm    ASTM D5185m    3300        Oxidation    Abs/.1mm    'ASTM D5185m    14.9								
BoronppmASTM D5185m119BariumppmASTM D5185m3MolybdenumppmASTM D5185m186ManganeseppmASTM D5185m2MagnesiumppmASTM D5185m12MagnesiumppmASTM D5185m1747CalciumppmASTM D5185m1747PhosphorusppmASTM D5185m1049ZincppmASTM D5185m1049SulfurppmASTM D5185m3300OxidationAbs/.1mm*ASTM D7414>2514.9Base Number (BN)mg KOHgASTM D288613.67.7								
BariumppmASTM D5185mGGMolybdenumppmASTM D5185mI1866ManganeseppmASTM D5185mC2MagnesiumppmASTM D5185mI4255CalciumppmASTM D5185mI1747PhosphorusppmASTM D5185mI9388ZincppmASTM D5185mI1049SulfurppmASTM D5185mI33000OxidationAbs/.1mm*ASTM D7414>2514.9Base Number (BN)mg KOHgASTM D289613.67.7	FLUID CONDITION	Sodium	ppm	ASTM D5185m	>31	1		
MolybdenumppmASTM D5185mImage		Boron	ppm	ASTM D5185m		119		
ManganeseppmASTM D5185m2MagnesiumppmASTM D5185m425CalciumppmASTM D5185m1747PhosphorusppmASTM D5185m0938ZincppmASTM D5185m1049SulfurppmASTM D5185m1049OxidationAbs/.1mm*ASTM D7414>2514.9Base Number (BN)mg KOH/gASTM D289613.67.7		Barium	ppm	ASTM D5185m		3		
Magnesium  ppm  ASTM D5185m  425     Calcium  ppm  ASTM D5185m  1747     Phosphorus  ppm  ASTM D5185m  938     Zinc  ppm  ASTM D5185m  1049     Sulfur  ppm  ASTM D5185m  3300     Oxidation  Abs/.1mm  *ASTM D7414  >25  14.9     Base Number (BN)  mg KOH/g  ASTM D2896  13.6  7.7		Molybdenum	ppm	ASTM D5185m				
Calcium  ppm  ASTM D5185m  1747      Phosphorus  ppm  ASTM D5185m  938      Zinc  ppm  ASTM D5185m  1049      Sulfur  ppm  ASTM D5185m  3300      Oxidation  Abs/.1mm  *ASTM D7414  >25  14.9     Base Number (BN)  mg KOH/g  ASTM D2896  13.6  7.7		-	ppm			2		
Phosphorus  ppm  ASTM D5185m  938     Zinc  ppm  ASTM D5185m  1049     Sulfur  ppm  ASTM D5185m  3300     Oxidation  Abs/.1mm  *ASTM D7414  >25  14.9     Base Number (BN)  mg KOH/g  ASTM D2896  13.6  7.7		Magnesium	ppm	ASTM D5185m		425		
Zinc  ppm  ASTM D5185m  1049      Sulfur  ppm  ASTM D5185m  3300      Oxidation  Abs/.1mm  *ASTM D7414  >25  14.9      Base Number (BN)  mg KOH/g  ASTM D2896  13.6  7.7			ppm					
Sulfur    ppm    ASTM D5185m    3300        Oxidation    Abs/.1mm    *ASTM D7414    >25    14.9        Base Number (BN)    mg KOH/g    ASTM D2896    13.6    7.7		Phosphorus	ppm	ASTM D5185m		938		
Oxidation    Abs/.1mm    *ASTM D7414    >25    14.9       Base Number (BN)    mg KOH/g    ASTM D2896    13.6    7.7			ppm					
Base Number (BN)    mg KOH/g    ASTM D2896    13.6    7.7			ppm			3300		
Visc @ 100°C cSt ASTM D445 15.4 (12.1)						7.7		
		Visc @ 100°C	cSt	ASTM D445	15.4	12.1		



LUCK STONE - MILFORD Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : JR0124848 Received 19380 RICHMOND TURNPIKE : 10 May 2024 Lab Number : 06176578 Tested MILFORD, VA : 13 May 2024 Unique Number : 11022631 Diagnosed : 15 May 2024 - Sean Felton US 22514 Test Package : CONST (Additional Tests: FuelDilution, TBN) Contact: BRYAN MORRIS Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. bmorris@luckstone.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (804)400-3630 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: x:

Contact/Location: BRYAN MORRIS - LUCMIL Page 2 of 2