

IHS Enerdeq: PRODFit Formations

Updated June 2018: Enerdeq Browser 2018 v5

June 14, 2018

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IHS Enerded PRODFit Formation - Introduction

IHS Markit has been correlating Geological Formation Tops across the U.S. since 1968. This historical wealth of information allows IHS Markit to leverage considerable insight from mature plays, but more importantly, they provide a deep understanding into the recent explosion of numerous unconventional plays. Over the past few years, IHS Markit has developed a new proprietary process called PRODFit (Producing Formations from Interpreted Tops) which weighs Interpreted Tops control against historical Well and Production data attributes to accurately populate millions of missing Operator-reported data elements and correct millions more.



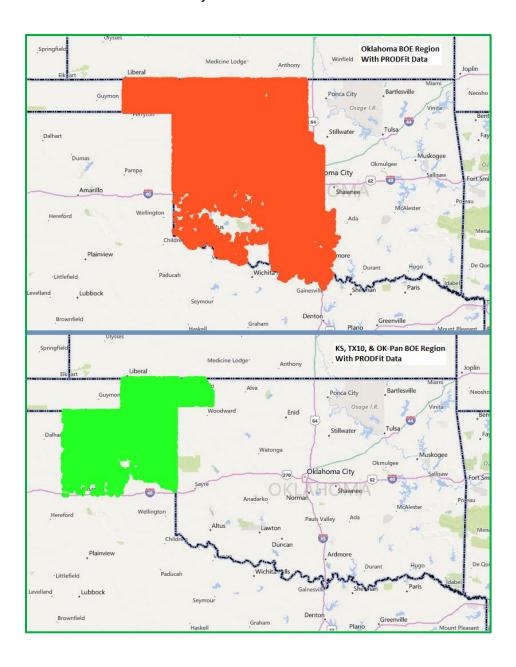
PRODFit Formation Data Attributes

The initial release of PRODFit Formation will include formation data associated with the following data attributes:

- PRODFit Formation at Total Depth
- **PRODFit Producing Formation**
- PRODFit Formation at the 80 Degree Heel Point
- **PRODFit Completion Formation**
- **PRODFit Formation Cores**
- PRODFit Formation Oil Analysis
- **PRODFit Formation Gas Analysis**
- **PRODFit Formation Water Analysis**
- PRODFit Formation Perforation
- PRODFit Formation Tests (IP, PT & DST)
- PRODFit Formation Pressure
- **PRODFit Formation Tubular**
- **PRODFit Formation Mud Weights**

New for Enerdeq Browser Release 2018 v5

PRODFit Formations in Anadarko Basin has now been released in Enerdeq Browser and Web Services. Customers who are entitled to both Well Data and Interpreted Tops for Oklahoma BOE Region and/or KS, TX10 OK-Panhandle BOE region will be able to see the newly released PRODFit Formations.

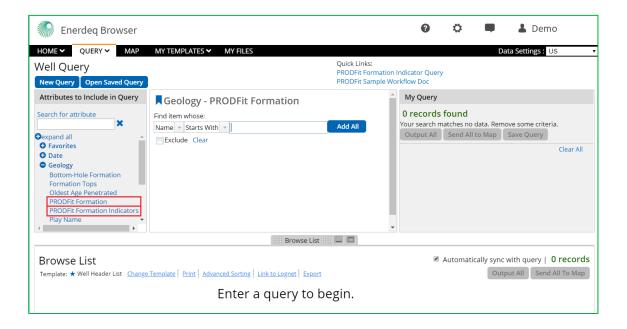


PRODFit Formation Data query

Enerdeq Browser release 2018 v4 the PRODFit Formation Query has been changed. Previously the formation query was limited to formations associated with the 80 Degree Heel Point. Now the PRODFit Formation Query will look across all the PRODFit Formation data elements.

In the Enerdeg Browser, you can find the following PRODFit Formation gueries in the Geology subfolder:

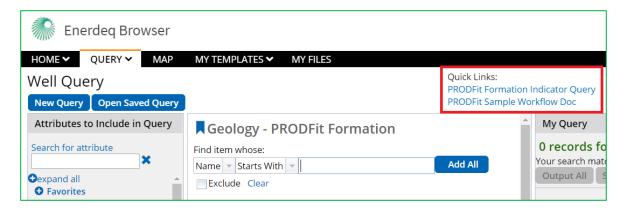
- **PRODFit Formation Indicator**
- **PRODFit Formation**
- Oldest Age Penetrated



Two new links were added to the **PRODFit Formation Query**

- PRODFIT Formation Indicator Query link
- PRODFit Sample Workflow Doc link

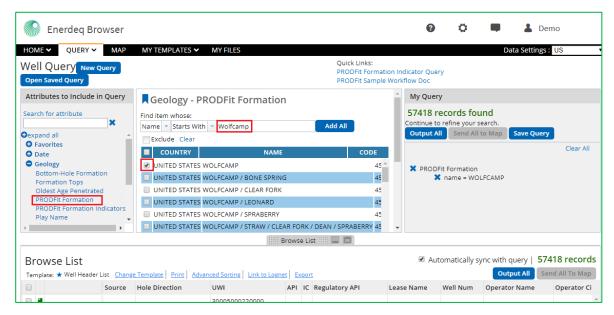
Updated for V5!



The PRODFIT Formation Indicator Query link is simply a shortcut to the **PRODFIT Formation Indicator Query**

PRODFit Sample Workflow Doc is a link to this document.

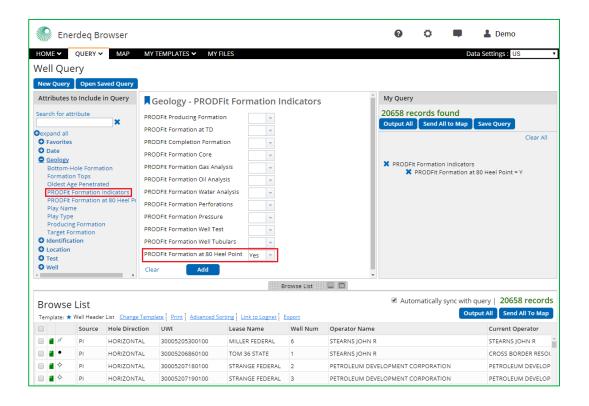
The **PRODFit Formation** allows users to search for formation across all PRODFit data elements.



PRODFit Formation Data Indicator query

The PRODFit Formation Indicators Query allows users to search for wells with specific PRODFit data elements.

No changes for release 2018 v5.

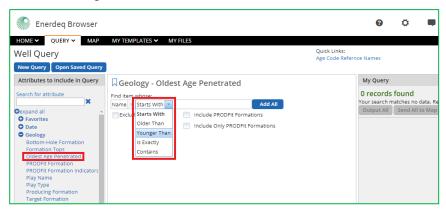


Oldest Age Penetrated query

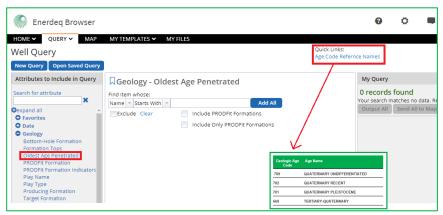
Oldest Age Penetrated query have been updated to allow for only PRODFit formations to be gueried. In addition, new qualifiers have been added to help refine search (Older Than & Younger Than). A quick link has been provided that lists IHS Markit Age Names for reference. Sample workflow flow are provided below.

In the Enerdeq Browser, you can find the following Oldest Age Penetrated queries in the Geology subfolder:

Oldest Age Penetrated



Age Reference Document



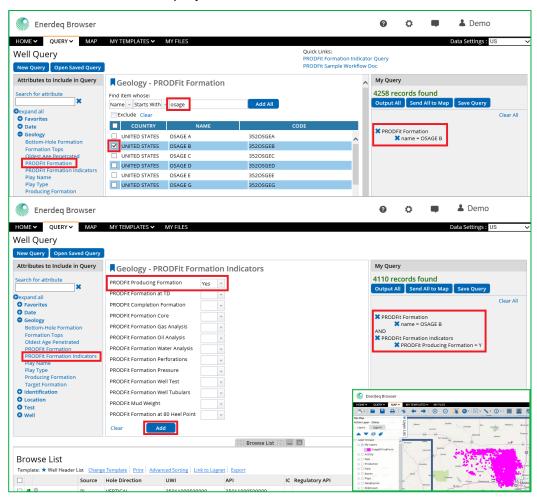
Sample Queries

Queries that leverage the new PRODFit Formations Query

Sample Query 1: Querying for specific PRODFit Formation associated with the 80 **Degree Heel Point**

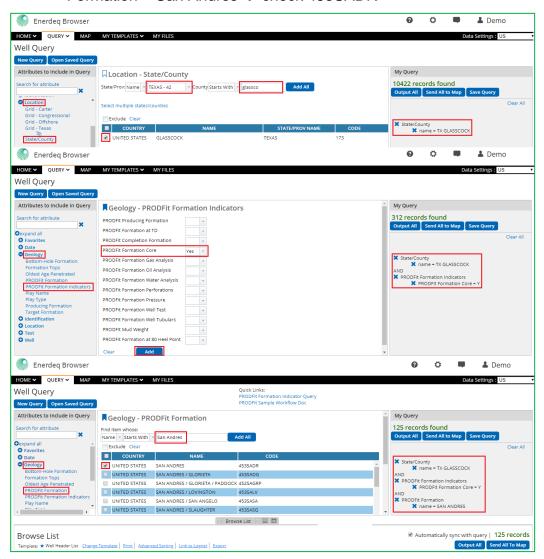
- Geology
 - PRODFit Formation
 - Formation = Osage → check 352OSGEB
 - PRODFit Formation Indicator
 - PRODFit Producing Formation = Yes → Add

The Browse List will display the PRODFit data elements.



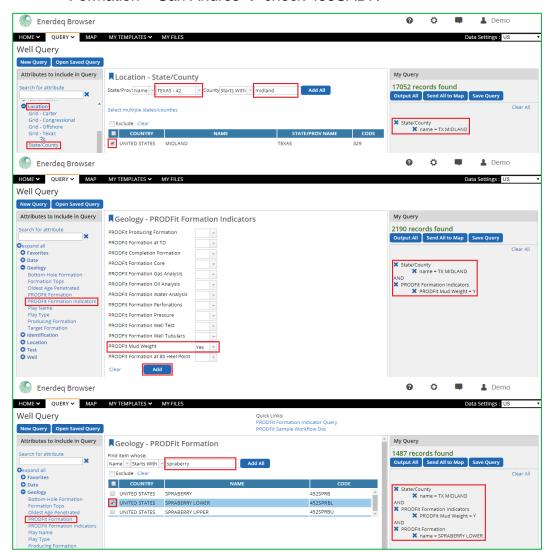
Sample Query 2: Querying for wells with PRODFit Formations associated with Cores

- Location
 - State/County = Texas/Glasscock
- Geology
 - PRODFit Formation Indicator
 - PRODFit Formation Cores = Yes → Add
- Geology
 - PRODFit Formation
 - Formation = San Andres → check 453SADR



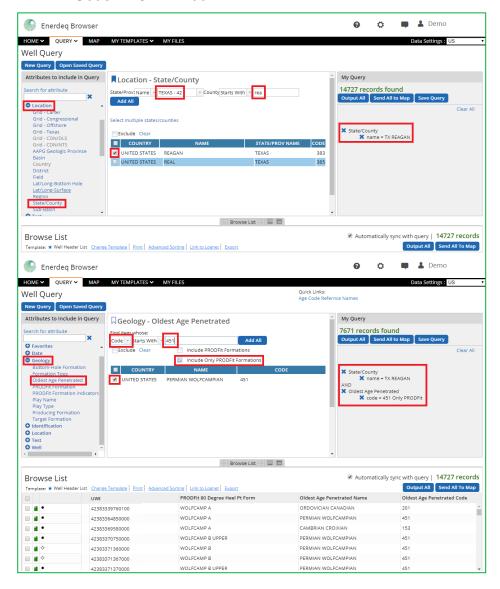
Sample Query 3: Querying for wells with PRODFit Formations associated with Mud Weights

- Location
 - State/County = Texas/Midland
- Geology
 - PRODFit Formation Indicator
 - PRODFit Mud Weights = Yes → Add
- Geology
 - PRODFit Formation
 - Formation = San Andres → check 453SADR



Sample Query 4: Querying for wells using the new features associate with Oldest Age Penetrated

- Location
 - State/County = Texas/Reagan
- Geology
 - Oldest Age Penetrated
 - Include Only PRODFit Formations → Check
 - Change 'Starts With' → 'Older Than'
 - Code = 451 → Add

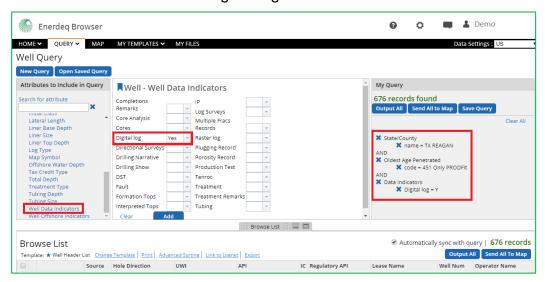


Results of the query will provide a list of wells in Reagan County that are of Permian Wolfcampain Age and older.

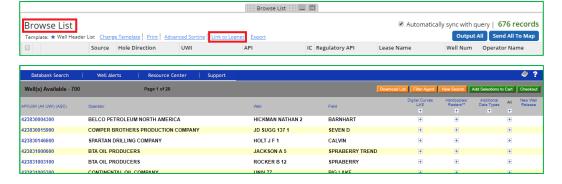
Taking this query one step further:

Sample Query 4b: Add in the following query criteria

- Well
 - Well Data Indicator → Digital Log = Yes → Add



- **Browse List**
 - ° Link to Lognet



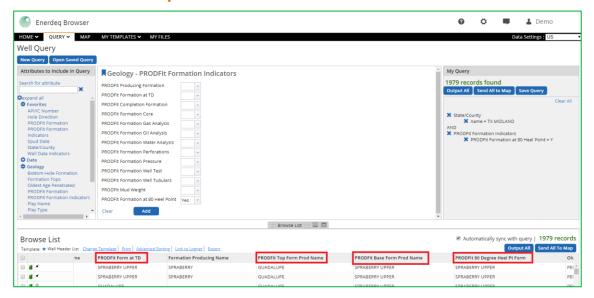
Now you have a listing of all the wells in Reagan County with Digital Logs on wells that penetrated the Wolfcamp and deeper.

PRODFit Formation Data in Enerdeq: Exports & Reports

PRODFit Formation data has been incorporated into a number of Exports and Reports.

Exports

In the Browse List **Updated!**



(Some columns have been hidden to allow screen shot to fit)

Excel 2007 export of the Browse List **Updated!**



Well One Line

Updated!

А	AM	AM	AO	AD	40	A.D.
UWI	Formation at TD Name	PRODFit Formation at TD Name	ormation Producing Nam	PRODFit Top Form Prod Name	PRODFit Base Form Prod Name	PRODFit 80 Degree Heel Pt Form
42329312750100	MONTOYA	DEVONIAN	DEVONIAN	DEVONIAN	DEVUNIAN	DEVONIAN
42329312870100	SPRABERRY	SPRABERRY UPPER	SPRABERRY	GUADALUPE	SPRABERRY UPPER	SPRABERRY UPPER
42329313020100	SPRABERRY	SPRABERRY UPPER	SPRABERRY	GUADALUPE	SPRABERRY UPPER	SPRABERRY UPPER
42329313030100	SPRABERRY	SPRABERRY UPPER	SPRABERRY	GUADALUPE	SPRABERRY UPPER	SPRABERRY UPPER
42329313200100	DEVONIAN	DEVONIAN	DEVONIAN	DEVONIAN	DEVONIAN	DEVONIAN
42329313200200	DEVONIAN	DEVONIAN	DEVONIAN	DEVONIAN	DEVONIAN	DEVONIAN
42329313270100	SAN ANDRES	QUEEN	SAN ANDRES	QUEEN	QUEEN	QUEEN
42329313370100	SPRABERRY	SPRABERRY LOWER	SPRABERRY	SPRABERRY UPPER	SPRABERRY LOWER	SPRABERRY LOWER
42329314260100	SAN ANDRES	QUEEN	SAN ANDRES	QUEEN	QUEEN	QUEEN
42329314820100	DEVONIAN	DEVONIAN	DEVONIAN	DEVONIAN	DEVONIAN	DEVONIAN

Directional Survey (filtered on the rows with H80 formation) **Updated!**

Α	F	G	H	1	J I	K L N		_		_
UWI -	Measured De	TV Depth 🔻	Deviation Angle	Deviation Azimuth	Deviation N/S ▼ N	▼ Deviation E/W ▼ E	PRODFit Formation Code	PRODFit Formation Name	Point Type Code	Point Type Name
42329000310100	7208	7085.29	9 84.4	345.7	239.68 N	47.48 W	45ZSPRBU	SPRABERRY UPPER	H80	80 DEGREE HEEL POINT
42329000350100	7121	7045.6	5 80.3	349.2	143.77 N	44.69 W	452SPRBU	SPRABERRY UPPER	H80	80 DEGREE HEEL POINT
42329003330100	7168	7103.96	5 88.2	187	24.28 S	92.03 E	452SPRBU	SPRABERRY UPPER	H80	80 DEGREE HEEL POINT
42329003330200	7220	7126.7	81.8	281.1	104.58 N	47.1 W	452SPRBU	SPRABERRY UPPER	H80	80 DEGREE HEEL POINT
42329005520100	8071	7827.22	2 80.4	319.	399.11 N	304.36 W	452SPRBL	SPRABERRY LOWER	H80	80 DEGREE HEEL POINT
42329006270100	7483	7376.1	7 84	165.8	60.98 S	184.45 E	452SPRBU	SPRABERRY UPPER	H80	80 DEGREE HEEL POINT
42329008010100	12056	11961.29	81.6	184.6	217.86 S	37.65 E	309DVNN	DEVONIAN	H80	80 DEGREE HEEL POINT
42329008140100	11923	11819.3	81.7	7 262.4	28.8 S	162.48 W	309DVNN	DEVONIAN	H80	80 DEGREE HEEL POINT
42329008290100	7149	7090.5	7 87.5	191.2	80.5 S	72.25 W	452SPRBU	SPRABERRY UPPER	H80	80 DEGREE HEEL POINT
42329010410100	13155	13041.33	87.2	102.9	179.98 N	540.21 E	201ELBG	ELLENBURGER	H80	80 DEGREE HEEL POINT

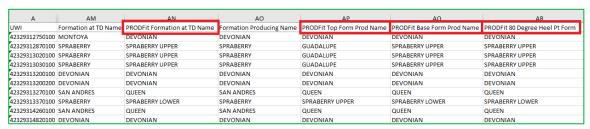
Well Completion **Updated!**

А	AB	AC	AD .	ΔF	ΔF	AG
UWI	Formation at TD Name	PRODFit Formation at TD Name	Formation Producing Name	PRODFit Top Formation Producing Name	PRODFit Base Formation Producing Name	PRODFit 80 Degree Heel Point Formation
42329000310100	SPRABERRY	SPRABERRY UPPER	SPRABERRY	GUADALUPE	SPRABERRY UPPER	SPRABERRY UPPER
42329000350100	SPRABERRY	SPRABERRY UPPER	SPRABERRY	GUADALUPE	SPRABERRY UPPER	SPRABERRY UPPER
42329003330100	SPRABERRY	GUADALUPE		GUADALUPE	SPRABERRY UPPER	SPRABERRY UPPER
42329006270100	SPRABERRY	SPRABERRY UPPER	SPRABERRY	SPRABERRY UPPER	SPRABERRY UPPER	SPRABERRY UPPER
42329008140100	MONTOYA	DEVONIAN	DEVONIAN	DEVONIAN	DEVONIAN	DEVONIAN
42329008290100	WOLFCAMP	SPRABERRY UPPER		GUADALUPE	SPRABERRY UPPER	SPRABERRY UPPER
42329103110100	SPRABERRY	SPRABERRY UPPER	SPRABERRY	SPRABERRY UPPER	SPRABERRY UPPER	SPRABERRY UPPER

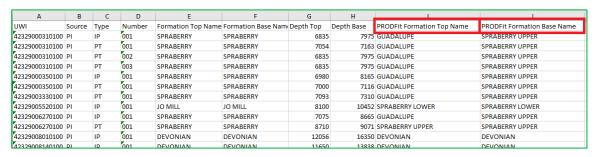
Well Header List **Updated!**



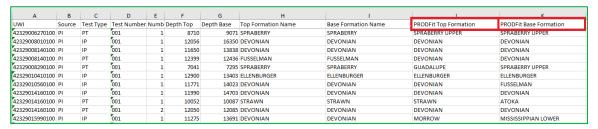
Well Workbook - Header tab **Updated!**



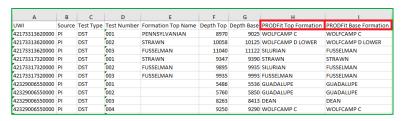
Well Workbook - Test tab



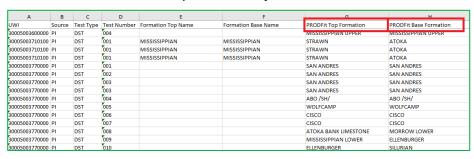
Well Workbook - Test Perforation tab New!



Well Workbook – DST tab



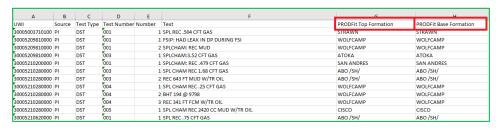
Well Workbook - DST Pipe Recovery



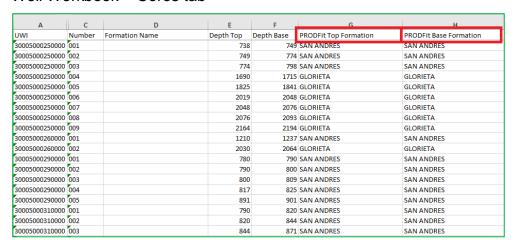
Well Workbook - DST Material to Surface tab

Α	В	С	D	E	F	G	Н	1 .	J	K
UWI	Source	Test Type	Test Number	Number	Amount	Units	Type	Time to Surface	PRODFit Top Formation	PRODFit Base Formation
30005001070000	PI	DST	001	2			GAS	15	SAN ANDRES	SAN ANDRES
30005001160000	PI	DST	006	2	1954	MCFD	GAS	3	CISCO	CISCO
30005001160000	PI	DST	010	2			GAS	70	CISCO	CISCO
30005001720000	PI	DST	001	2	3000	MCFD	GAS	1	CISCO	CISCO
30005001720000	PI	DST	002	2	180	MCFD	GAS	4	CISCO	CISCO
30005001720000	PI	DST	005	2			GAS	28	CISCO	CISCO
30005001780000	PI	DST	001	2			GAS	3	SAN ANDRES	SAN ANDRES
30005002050000	PI	DST	001	2			GAS	54	ABO /SH/	ABO /SH/
30005002050000	PI	DST	003	2	2880	MCFD	GAS	3	CISCO	CISCO

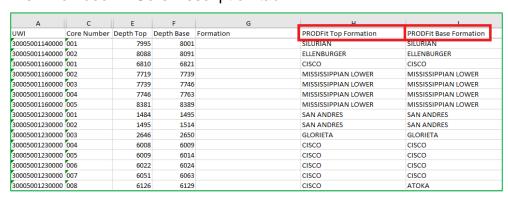
Well Workbook - DST Narrative tab



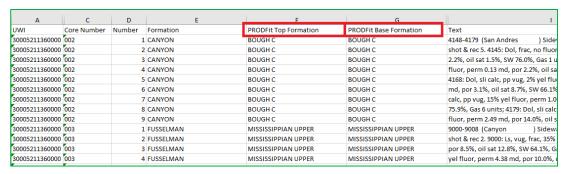
Well Workbook - Cores tab



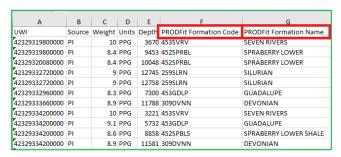
Well Workbook - Core Description tab



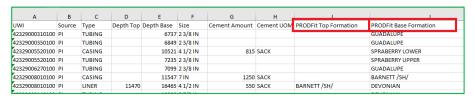
Well Workbook – Core Narrative



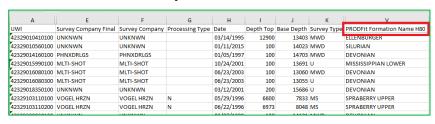
Well Workbook - Mud tab



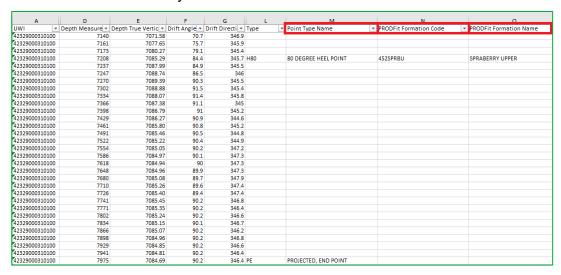
Well Workbook – String tab



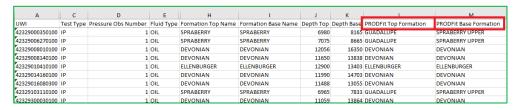
Well Workbook - Survey tab



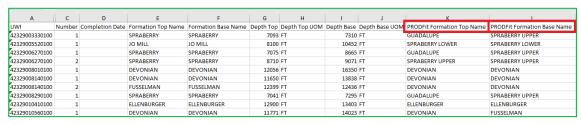
Well Workbook - Survey Point tab



Well Workbook - Pressure tab



Well Workbook - Completion tab



Reports

PRODFit Formation data now appears in Enerdeq reports, including the Scout Ticket and Well Summary reports.

PRODFit data elements added to various **Exports**.

Export Name / Tab Name	Column Header	Column Alpha
Well Workbook / Header	PRODFit Formation at TD	AN
Well Workbook / Header	PRODFit Top Formation Producing Name	AP
Well Workbook / Header	PRODFit Base Formation Producing Name	AQ
Well Workbook / Header	PRODFit 80 Degree Heel Point	AR
Well Workbook / Test	PRODFit Formation Top Name	1
Well Workbook / Test	PRODFit Formation Base Name	J
Well Workbook / Test Perforation	PRODFit Top Formation	J
Well Workbook / Test Perforation	PRODFit Base Formation	К
Well Workbook / DST	PRODFit Formation Top Name	Н
Well Workbook / DST	PRODFit Formation Base Name	1
Well Workbook / DST Pipe Recovery	PRODFit Top Formation	G
Well Workbook / DST Pipe Recovery	PRODFit Base Formation	Н
Well Workbook / DST Material to Surface	PRODFit Top Formation	J
Well Workbook / DST Material to Surface	PRODFit Base Formation	К
Well Workbook / DST Narrative	PRODFit Top Formation	G
Well Workbook / DST Narrative	PRODFit Base Formation	Н
Well Workbook / Cores	PRODFit Top Formation	G
Well Workbook / Cores	PRODFit Base Formation	Н
Well Workbook / Cores Description	PRODFit Top Formation	Н
Well Workbook / Cores Description	PRODFit Base Formation	I ·
Well Workbook / Core Narrative	PRODFit Top Formation	F
Well Workbook / Core Narrative	PRODFit Base Formation	G
Well Workbook / Mud	PRODFit Formation Code	F

Well Workbook / Mud	PRODFit Formation Name	G
Well Workbook / String	PRODFit Top Formation	I
Well Workbook / String	PRODFit Base Formation	J
Well Workbook / Survey	PRODFit Formation Name H80	V
Well Workbook / Survey Point	Point Type	М
Well Workbook / Survey Point	PRODFit Formation Name	N
Well Workbook / Survey Point	PRODFit Formation Name	0
Well Workbook / Pressure	PRODFit Top Formation	L
Well Workbook / Pressure	PRODFit Base Formation	М
Well Workbook / Completion	PRODFit Formation Top Name	К
Well Workbook / Completion	PRODFit Formation Base Name	L
Directional Survey Export	PRODFit Formation Code	N
Directional Survey Export	PRODFit Formation Name	0
Directional Survey Export	Point Type Code	Р
Directional Survey Export	Point Type Name	Q
Well One-Line Export	PRODFit Formation at TD	AN
Well One-Line Export	PRODFit Top Formation Producing Name	AP
Well One-Line Export	PRODFit Base Formation Producing Name	AQ
Well One-Line Export	PRODFit 80 Degree Heel Pt Form	AR
Well Completion List Export	PRODFit Formation at TD	AC
Well Completion List Export	PRODFit Top Formation Producing Name	AE
Well Completion List Export	PRODFit Base Formation Producing Name	AF
Well Completion List Export	PRODFit 80 Degree Heel Point Formation	AG
Well Header List Export	PRODFit Form at TD	AE
Well Header List Export	PRODFit Top Form Prod Name	Al
Well Header List Export	PRODFit Base Form Prod Name	AJ
Well Header List Export	PRODFit 80 Degree Heel Pt Form	AK

PRODFit data elements added to **Reports**.

Report Name	Block	Sub-Block	Attribute
Scout Ticket	General Information	IP Summary	PRODFit Top Form
Scout Ticket	General Information	IP Summary	PRODFit Base Form
Scout Ticket	Dates & Depths		PRODFIt Form Code TD
Scout Ticket	Dates & Depths		PRODFIt Form Name TD
Scout Ticket	Initial Potential Test		PRODFit Top Form Code
Scout Ticket	Initial Potential Test		PRODFit Top Form Name
Scout Ticket	Initial Potential Test		PRODFit Base Form Code
Scout Ticket	Initial Potential Test		PRODFit Base Form Name
Scout Ticket	Initial Potential Test	Oil Analysis	PRODFit Top Form Code
Scout Ticket	Initial Potential Test	Oil Analysis	PRODFit Top Form Name
Scout Ticket	Initial Potential Test	Oil Analysis	PRODFit Base Form Code
Scout Ticket	Initial Potential Test	Oil Analysis	PRODFit Base Form Name
Scout Ticket	Initial Potential Test	Gas Analysis	PRODFit Top Form Code
Scout Ticket	Initial Potential Test	Gas Analysis	PRODFit Top Form Name
Scout Ticket	Initial Potential Test	Gas Analysis	PRODFit Base Form Code
Scout Ticket	Initial Potential Test	Gas Analysis	PRODFit Base Form Name
Scout Ticket	Initial Potential Test	Perforations	PRODFit Top Form Code
Scout Ticket	Initial Potential Test	Perforations	PRODFit Top Form Name
Scout Ticket	Initial Potential Test	Perforations	PRODFit Base Form Code
Scout Ticket	Initial Potential Test	Perforations	PRODFit Base Form Name
Scout Ticket	Production Test	Perforations	PRODFit Top Form Code
Scout Ticket	Production Test	Perforations	PRODFit Top Form Name
Scout Ticket	Production Test	Perforations	PRODFit Base Form Code
Scout Ticket	Production Test	Perforations	PRODFit Base Form Name

Scout Ticket	Oil Analysis		PRODFit Top Form Code
Scout Ticket	Oil Analysis		PRODFit Top Form Name
Scout Ticket	Oil Analysis		PRODFit Base Form Code
Scout Ticket	Oil Analysis		PRODFit Base Form Name
Scout Ticket	Gas Analysis		PRODFit Top Form Code
Scout Ticket	Gas Analysis		PRODFit Top Form Name
Scout Ticket	Gas Analysis		PRODFit Base Form Code
Scout Ticket	Gas Analysis		PRODFit Base Form Name
Scout Ticket	Water Analysis		PRODFit Top Form Code
Scout Ticket	Water Analysis		PRODFit Top Form Name
Scout Ticket	Water Analysis		PRODFit Base Form Code
Scout Ticket	Water Analysis		PRODFit Base Form Name
Scout Ticket	Perforations		PRODFit Top Form Code
Scout Ticket	Perforations		PRODFit Top Form Name
Scout Ticket	Perforations		PRODFit Base Form Code
Scout Ticket	Perforations		PRODFit Base Form Name
Scout Ticket	Drill Stem Test		PRODFit Top Form Code
Scout Ticket	Drill Stem Test		PRODFit Top Form Name
Scout Ticket	Drill Stem Test		PRODFit Base Form Code
Scout Ticket	Drill Stem Test		PRODFit Base Form Name
Scout Ticket	Casing, Liner, Tubing	Casing	PRODFit Top Formation Code
Scout Ticket	Casing, Liner, Tubing	Casing	PRODFit Base Formation Code
Scout Ticket	Casing, Liner, Tubing	Tubing	PRODFit Top Formation Code
Scout Ticket	Casing, Liner, Tubing	Tubing	PRODFit Base Formation Code
Scout Ticket	Casing, Liner, Tubing	Liner	PRODFit Top Formation Code
Scout Ticket	Casing, Liner, Tubing	Liner	PRODFit Base Formation Code
Scout Ticket	Horizontal		PRODFit Formation at 80 Degree Heel Point

	I		
Well Summary Report	General Information Header		PRODFit Formation at TD
Well Summary Report	General Information Header		PRODFit Producing Formation
Well Summary Report	Initial Potential Test		PRODFit Top Form
Well Summary Report	Initial Potential Test		PRODFit Base Form
Well Summary Report	IP Perforation		PRODFit Top Form
Well Summary Report	IP Perforation		PRODFit Base Form
Well Summary Report	Production Test		PRODFit Top Form
Well Summary Report	Production Test		PRODFit Base Form
Well Summary Report	Cores		PRODFit Top Form
Well Summary Report	Cores		PRODFit Base Form
Well Summary Report	Casing, Liner, Tubing	Casing	PRODFit Top Formation Code
Well Summary Report	Casing, Liner, Tubing	Casing	PRODFit Base Formation Code
Well Summary Report	Casing, Liner, Tubing	Tubing	PRODFit Top Formation Code
Well Summary Report	Casing, Liner, Tubing	Tubing	PRODFit Base Formation Code
Well Summary Report	Casing, Liner, Tubing	Liner	PRODFit Top Formation Code
Well Summary Report	Casing, Liner, Tubing	Liner	PRODFit Base Formation Code

Sample entitlement matrix to see PRODFit Formation Data in Enerdeq & Web Services

Examples of BOE Region combinations that entitle PRODFit Formations

Entitled BO	E Region			
Well Data	Interpreted Tops	PRODFit Permian	PRODFit Oklahoma	PRODFit KS,TX10, OKPH
Full U.S.	Full U.S.	x	x	x
Full U.S.	Permian	х		
Full U.S.	Oklahoma		х	
Full U.S.	KS,TX10,OKPH			х
Full U.S.	Oklahoma & KS,TX10,OKPH		х	х
Permian	Full U.S.	х		
Oklahoma	Full U.S.		х	
KS,TX10,OKPH	Full U.S.			x
Permian & Oklahoma	Full U.S.	х	х	
Permian	Permian	х		
Oklahoma	Oklahoma		х	
KS,TX10,OKPH	KS,TX10,OKPH			Х
Permian & KS,TX10,OKPH	Oklahoma		X *	

^{*} Oklahoma Panhandle counties include Cimarron, Texas, Beaver & Harper (Cimarron & Texas counties to be delivered at a future date).