****** *LIQUID SPILLS - VOLUME CALCULATIONS* ******

| Location of spill: | COG -Grey Hawk State 1H | Date of Spill: | 31-Oct-2019 |

If the leak/spill is associated with production equipment, i.e. - wellhead, stuffing box, flowline, tank battery, production vessel, transfer pump, or storage tank **place an "X" here:** [X]

Input Data:

	OIL:	WATER:
If spill volumes from measurement, i.e. metering, tank volumes, etc. are known enter the volumes here:	0.0 BBL	0.0 BBL

If "known" spill volumes are given, input data for the following "Area Calculations" is optional. The above will override the calculated volumes.

Total Area Calculations

Total Surface Area	width	length		wet soil depth	oil (%)
Rectangle Area #1	40 ft	20 ft	X	3.00 in	0%
Rectangle Area #2	0 ft X	0 ft	X	0.00 in	0%
Rectangle Area #3	0 ft X	0 ft	X	0 in	0%
Rectangle Area #4	0 ft X	0 ft	X	0 in	0%
Rectangle Area #5	0 ft X	0 ft	X	0 in	0%
Rectangle Area #6	0 ft X	0 ft	X	0 in	0%
Rectangle Area #7	0 ft X	0 ft	X	0 in	0%
Rectangle Area #8	0 ft X	0 ft	X	0 in	0%

Standing Liquid Calculations

Standing Liquid Area	width	length	liquid depth	oil (%)
Rectangle Area #1	0 ft X	0 ft X	0 in	0%
Rectangle Area #2	0 ft X	0 ft X	0 in	0%
Rectangle Area #3	0 ft X	0 ft X	0 in	0%
Rectangle Area #4	0 ft X	0 ft X	0 in	0%
Rectangle Area #5	0 ft X	0 ft X	0 in	0%
Rectangle Area #6	0 ft X	0 ft X	0 in	0%
Rectangle Area #7	0 ft X	0 ft X	0 in	0%
Rectangle Area #8	0 ft X	0 ft X	0 in	0%

okay

production system leak - DAILY PRODUCTION DATA REQUIRED

Average Daily Production: Oil 0 BBL   Water 0 BBL   0 Gas (MCFD)

Total Hydrocarbon Content in gas: 0% (percentage)

Did leak occur before the separator?: [ ] YES   [ ] N/A   *(place an "X")*

H2S Content in Produced Gas: 0 PPM
H2S Content in Tank Vapors: 0 PPM

Amount of Free Liquid Recovered: 0 BBL   okay

Percentage of Oil in Free Liquid Recovered: 0% (percentage)

Liquid holding factor *: 0.14 gal per gal

Use the following when the spill wets the grains of the soil.
* Sand = **0.08** gallon (gal.) liquid per gal. volume of soil.
* Gravelly (caliche) loam = **0.14** gal. liquid per gal. volume of soil.
* Sandy clay loam soil = **0.14** gal liquid per gal. volume of soil.
* Clay loam = **0.16** gal. liquid per gal. volume of soil.

Use the following when the liquid completely fills the pore space of the soil:
Occurs when the spill soaked soil is contained by barriers, natural (or not).
* Clay loam = **0.20** gal. liquid per gal. volume of soil.
* Gravelly (caliche) loam = **0.25** gal. liquid per gal. volume of soil.
* Sandy loam = **0.5** gal. liquid per gal. volume of soil.

| Total Solid/Liquid Volume: | 800 sq. ft. | 200 cu. ft. | cu. ft. | Total Free Liquid Volume: | sq. ft. | cu. ft. | cu. ft. |

Estimated Volumes Spilled

	H2O	OIL
Liquid in Soil:	5.0 BBL	0.0 BBL
Free Liquid:	0.0 BBL	0.0 BBL
Totals:	5.0 BBL	0.0 BBL

| Total Liquid Spill Liquid: | 5.0 BBL | 0.00 BBL |

Recovered Volumes

| Estimated oil recovered: | BBL | check - okay |
| Estimated water recovered: | BBL | check - okay |

Estimated Production Volumes Lost

	H2O	OIL
Estimated Production Spilled:	0.0 BBL	0.0 BBL

Estimated Surface Damage

| Surface Area: | 800 sq. ft. |
| Surface Area: | .0184 acre |

Estimated Weights, and Volumes

| Saturated Soil = | 22,400 lbs | 200 cu. ft. | 7 cu. yds. |
| Total Liquid = | 5 BBL | 209 gallon | 1,743 lbs |

Air Emission from flowline leaks:

Volume of oil spill:	-	BBL
Separator gas calculated:	-	MCF
Separator gas released:	-	MCF
Gas released from oil:	-	lb
H2S released:	-	lb
Total HC gas released:	-	lb
Total HC gas released:	-	MCF

Air Emission of Reporting Requirements:

	New Mexico	Texas
HC gas release reportable?	NO	NO
H2S release reportable?	NO	NO

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