# Measurement of Liquid Hydrocarbons

Does the operator ensure that royalty meter facilities include the following approved components (or other BSEE-approved components) which are compatible with the systems to which they are connected:

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### M-100

**A meter equipped with a non-reset totalizer?**

**Authority:** 30 CFR 250.1202(b)(1)(i)

**Enforcement Actions:** W/C

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### M-101

**A calibrated prover tank, a master meter, or a mechanical displacement (pipe) prover?**

**Authority:** 30 CFR 250.1202(b)(1)(ii)

**Enforcement Actions:** W/C

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### M-102

**A proportional to flow sampling device which is pulsed by the meter output?**

**Authority:** 30 CFR 250.1202(b)(1)(iii)

**Enforcement Actions:** C

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### M-103

**A temperature measurement or temperature compensation device?**

**Authority:** 30 CFR 250.1202(b)(1)(iv)

**Enforcement Actions:** C

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### M-104

**Is each royalty meter facility maintained to ensure that meters are operated within the gravity range specified by the manufacturer?**

**Authority:** 30 CFR 250.1202(b)(3)(i)

**Enforcement Actions:** W/C
M-105  IS EACH ROYALTY METER FACILITY MAINTAINED TO ENSURE THAT METERS ARE OPERATED WITHIN THE MANUFACTURER’S SPECIFICATIONS FOR MAXIMUM AND MINIMUM FLOW RATES?

Authority: 30 CFR 250.1202(b)(3)(ii)  Enforcement Actions: W/C

M-106  IS EACH ROYALTY METER FACILITY MAINTAINED TO ENSURE THAT METERS ARE RE-PROVEN WHEN CHANGES IN METERING CONDITIONS AFFECT THE METERS PERFORMANCE?

Authority: 30 CFR 250.1202(b)(3)(iii)  Enforcement Actions: W/C

M-107  IS THE SAMPLING DEVICE INSTALLED SUCH THAT THE SAMPLING POINT IS IN THE FLOW STREAM IMMEDIATELY UPSTREAM OR DOWNSTREAM OF THE METER OR DIVERT SYSTEM?

Authority: 30 CFR 250.1202(b)(4)(i)  Enforcement Actions: C

M-108  IS THE SAMPLING CONTAINER FOR THE SAMPLING DEVICE VAPOR-TIGHT?

Authority: 30 CFR 250.1202(b)(4)(ii)  Enforcement Actions: C

M-109  DOES THE SAMPLE CONTAINER FOR THE SAMPLING DEVICE INCLUDE A MIXING DEVICE TO PERMIT COMPLETE MIXING OF THE SAMPLE PRIOR TO REMOVAL FROM THE CONTAINER?

Authority: 30 CFR 250.1202(b)(4)(ii)  Enforcement Actions: C

M-110  IS THE SAMPLING DEVICE INSTALLED SUCH THAT THE SAMPLE PROBE IS IN THE CENTER OF THE FLOW PIPING IN A VERTICAL RUN OR DOWNSTREAM OF A MIXING DEVICE IF IN A HORIZONTAL RUN?

Authority: 30 CFR 250.1202(b)(4)(iii)  Enforcement Actions: C

M-111  IS THE SAMPLING DEVICE INSTALLED SUCH THAT THE SAMPLE PROBE IS LOCATED AT LEAST THREE PIPE DIAMETERS DOWNSTREAM OF ANY PIPE FITTING WITHIN A REGION OF TURBULENT FLOW?

Authority: 30 CFR 250.1202(b)(4)(iii)  Enforcement Actions: C
M-112  IS THE BSEE REPRESENTATIVE(S) PERMITTED TO WITNESS PROVINGS?

Authority: 30 CFR 250.1202(d)(1)  Enforcement Actions: W

M-113  IS THE CALIBRATION OF EACH MECHANICAL DISPLACEMENT PROVER, PROVER TANK, OR OTHER TYPE OF PROVER TRACEABLE TO TEST MEASURES WHICH HAVE BEEN CERTIFIED BY THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY AND ARE THESE PROVERS CALIBRATED AT LEAST ONCE EVERY 5 YEARS (API MPMS)?

Authority: 30 CFR 250.1202(d)(2)  Enforcement Actions: W

30 CFR 250.1202(f)(1)

M-114  IS THE MASTER METER CALIBRATED TO OBTAIN A MASTER METER FACTOR BEFORE USING THE MASTER METER TO ESTABLISH AN OPERATING METER FACTOR?

Authority: 30 CFR 250.1202(e)(1)  Enforcement Actions: C

M-115  IS THE MASTER METER CALIBRATED WITH A FLUID OF SIMILAR GRAVITY, VISCOSITY, FLOW RATE, AND TEMPERATURE AS FLOWS THROUGH THE OPERATING METER?

Authority: 30 CFR 250.1202(e)(2)  Enforcement Actions: C

M-116  IS THE MASTER METER CALIBRATION BEING CONDUCTED MONTHLY BUT WITH THE TIME BETWEEN CALIBRATION NOT EXCEEDING 42 DAYS (OR AS OTHERWISE APPROVED BY THE DISTRICT MANAGER)?

Authority: 30 CFR 250.1202(e)(3)  Enforcement Actions: W

M-117  DOES THE LESSEE CALIBRATE A MASTER METER BY CONDUCTING AND RECORDING RUNS?

Authority: 30 CFR 250.1202(e)(4)  Enforcement Actions: C
M-118  IS THE AVERAGE OF THE RUNS WHICH PRODUCED THE ACCEPTABLE RESULTS USED TO COMPUTE THE MASTER METER FACTOR?
Authority: 30 CFR 250.1202(e)(4)  Enforcement Actions: W

M-119  IS THE MASTER METER INSTALLED UPSTREAM OF ANY BACK-PRESSURE OR REVERSE FLOW CHECK VALVES ASSOCIATED WITH THE OPERATING METER?
Authority: 30 CFR 250.1202(e)(5)  Enforcement Actions: C

M-120  IS EACH OPERATING ROYALTY METER PROVED TO DETERMINE THE METER FACTOR EACH MONTH, WITH THE TIME BETWEEN METER FACTOR DETERMINATIONS NOT EXCEEDING 42 DAYS?
Authority: 30 CFR 250.1202(d)(3)  Enforcement Actions: W/C

M-121  WHEN ESTABLISHING AN OPERATING METER FACTOR WITH A PROVER TANK, ARE PROOF RUNS MADE AND RECORDED?
Authority: 30 CFR 250.1202(h)(3)  Enforcement Actions: W/C

M-122  IS THE AVERAGE OF THE RESULTS OF TWO ACCEPTABLE CONSECUTIVE RUNS ON A PROVER TANK USED TO COMPUTE THE METER FACTOR?
Authority: 30 CFR 250.1202(h)(3)  Enforcement Actions: C

M-123  WHEN ESTABLISHING AN OPERATING METER FACTOR WITH A MASTER METER, HAS THE OPERATOR RECORDED PROOF RUNS UNTIL 3 CONSECUTIVE RUNS PRODUCE A TOTAL METER FACTOR DIFFERENCE OF NO GREATER THAN 0.0005?
Authority: 30 CFR 250.1202(h)(2)  Enforcement Actions: C
M-129  ARE SAMPLES FROM AN ALLOCATION METER TAKEN CONTINUOUSLY OR DAILY, OR IN THE CASE OF TURBINE METERS, TAKEN PROPORTIONAL TO THE FLOW ONLY?

Authority: 30 CFR 250.1202(k)(1)  Enforcement Actions: W
30 CFR 250.1202(k)(2)

M-130  ARE ALLOCATION METERS MEASURING 50 BARRELS OF OIL PER DAY OR MORE PROVEN MONTHLY?

Authority: 30 CFR 250.1202(k)(3)  Enforcement Actions: W

M-131  ARE ALLOCATION METERS MEASURING LESS THAN 50 BARRELS OF OIL PER DAY PROVEN EACH CALENDAR QUARTER?

Authority: 30 CFR 250.1202(k)(4)  Enforcement Actions: W

M-132  IS A COPY OF EACH ALLOCATION METER PROVING REPORT KEPT AT THE FIELD LOCATION FOR A PERIOD OF 2 YEARS?

Authority: 30 CFR 250.1202(k)(5)  Enforcement Actions: W

M-133  IF AN ALLOCATION METER PROVING RESULTS IN A METER FACTOR WHICH DIFFERS FROM THE PREVIOUS METER FACTOR BY AN AMOUNT GREATER THAN 2 PERCENT, AND LESS THAN 7 PERCENT, IS THE ALLOCATION METER ADJUSTED AND RE-PROVEN PRIOR TO RETURN TO SERVICE?

Authority: 30 CFR 250.1202(k)(6)  Enforcement Actions: W

M-134  IF AN ALLOCATION METER PROVING RESULTS IN A METER FACTOR WHICH DIFFERS FROM THE PREVIOUS METER FACTOR BY AN AMOUNT EQUAL TO OR GREATER THAN 7 PERCENT, IS THE ALLOCATION METER REPAIRED AND RE-PROVEN PRIOR TO RETURN TO SERVICE?

Authority: 30 CFR 250.1202(k)(8)  Enforcement Actions: W
M-135
IS EACH ROYALTY AND INVENTORY TANK FACILITY DESIGNATED AS A LOCATION ON WHICH ROYALTY SHALL BE BASED EQUIPPED WITH A VAPOR-TIGHT THIEF HATCH?

Authority: 30 CFR 250.1202(l)(1)  Enforcement Actions: C

M-136
IS EACH ROYALTY OR INVENTORY TANK DESIGNATED AS A LOCATION ON WHICH ROYALTY SHALL BE BASED EQUIPPED WITH A VENT-LINE VALVE?

Authority: 30 CFR 250.1202(l)(1)  Enforcement Actions: C

M-137
IS EACH ROYALTY OR INVENTORY TANK FACILITY DESIGNATED AS A LOCATION ON WHICH ROYALTY SHALL BE BASED EQUIPPED WITH A FILL LINE DESIGNED TO MINIMIZE FREE FALL AND SPLASHING?

Authority: 30 CFR 250.1202(l)(1)  Enforcement Actions: C

M-138
DOES EACH ROYALTY METER FACILITY PREVENT REVERSAL OF FLOW THROUGH THE METER?

Authority: 30 CFR 250.1202(b)(2)(i)  Enforcement Actions: C

M-139
DOES EACH ROYALTY METER FACILITY PROTECT METERS FROM PRESSURE PULSATIONS OR SURGES?

Authority: 30 CFR 250.1202(b)(2)(ii)  Enforcement Actions: C

M-140
DOES EACH ROYALTY METER FACILITY PREVENT THE METER FROM BEING SUBJECTED TO SHOCK PRESSURES WHICH ARE GREATER THAN ITS MAXIMUM RATED WORKING PRESSURE?

Authority: 30 CFR 250.1202(b)(2)(iii)  Enforcement Actions: C
M-141  IS THE LESSEE USING PROCEDURES AND CORRECTION FACTORS ACCORDING TO THE APPLICABLE CHAPTERS OF API MPMS, AS INCORPORATED BY REFERENCE IN 30 CFR 250.198, WHEN OBTAINING NET STANDARD VOLUME AND ASSOCIATED MEASUREMENT PARAMETERS?

Authority: 30 CFR 250.1202(a)(3)  Enforcement Actions: C

M-142  WHEN REQUESTED BY THE BSEE REGIONAL SUPERVISOR, DOES THE LESSEE PROVIDE THE PIPELINE (RETROGRADE) CONDENSATE VOLUMES AS ALLOCATED TO THE INDIVIDUAL LEASES OR UNITS?

Authority: 30 CFR 250.1202(a)(4)  Enforcement Actions: C

M-143  FOR ROYALTY METERS AND ROYALTY TANKS, DOES THE LESSEE ENSURE THAT THE RUN TICKETS CLEARLY IDENTIFY ALL OBSERVED DATA, ALL APPLICABLE CORRECTION FACTORS, ON/OFF SEAL NUMBERS, AND THE NET STANDARD VOLUME?

Authority: 30 CFR 250.1202(c)(1)  Enforcement Actions: W/C

30 CFR 250.1202(c)(2)

M-144  DOES THE LESSEE PULL A RUN TICKET AT THE BEGINNING OF THE MONTH AND IMMEDIATELY AFTER ESTABLISHING THE MONTHLY METER FACTOR OR A MALFUNCTION METER FACTOR?

Authority: 30 CFR 250.1202(c)(3)  Enforcement Actions: C

M-150  ARE LIQUID ROYALTY METERS TAKEN OUT OF SERVICE, REPAIRED OR REPLACED, AND REPROVEN IF THE DIFFERENCE BETWEEN THE METER FACTOR AND THE PREVIOUS METER FACTOR EXCEEDS 0.0025?

Authority: 30 CFR 250.1202(i)(1)(i)  Enforcement Actions: W/C

30 CFR 250.1202(i)(1)(ii)
30 CFR 250.1202(i)(1)(iii)
30 CFR 250.1202(i)(1)(iv)
Measurement of Gas

M-200  IS THE GAS MEASURING EQUIPMENT INSTALLED AND OPERATED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN API MPMS, AS INCORPORATED BY REFERENCE IN 30 CFR 250.198?
Authority: 30 CFR 250.1203(b)(2)  Enforcement Actions: W/C

M-201  IS THE BSEE REPRESENTATIVE(S) PERMITTED TO WITNESS ALL REGULARLY SCHEDULED GAS METER CALIBRATIONS OR CALIBRATIONS REQUESTED BY THE REGIONAL SUPERVISOR?
Authority: 30 CFR 250.1203(c)(5)  Enforcement Actions: W

M-202  IS EACH GAS METER CALIBRATED MONTHLY, BUT NOT TO EXCEED 42 DAYS?
Authority: 30 CFR 250.1203(c)(1)  Enforcement Actions: W/C

M-203  IS THE METER CALIBRATED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS?
Authority: 30 CFR 250.1203(c)(1)  Enforcement Actions: C

M-204  ARE METER CALIBRATIONS CONDUCTED AS CLOSE AS POSSIBLE TO THE AVERAGE HOURLY RATE OF FLOW SINCE THE LAST CALIBRATION?
Authority: 30 CFR 250.1203(c)(3)  Enforcement Actions: W

M-205  DOES THE LESSEE RETAIN CALIBRATION TEST DATA AT THE FIELD LOCATION FOR A PERIOD OF 2 YEARS?
Authority: 30 CFR 250.1203(c)(4)  Enforcement Actions: W
WHENEVER A GAS METER IS NOT FUNCTIONING OR NOT REGISTERING WITHIN THE LIMITS OF ACCURACY PRESCRIBED BY THE MANUFACTURER, IS IT REMOVED FROM SERVICE AND NOT RETURNED TO SERVICE UNTIL REPAIRED OR ADJUSTED TO READ ACCURATELY?

**Authority:** 30 CFR 250.1203(d)(1)  
**Enforcement Actions:** C

30 CFR 250.1203(d)(2)

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ARE BSEE REPRESENTATIVES PERMITTED TO INSPECT THE MEASUREMENT AND SAMPLING EQUIPMENT OF NATURAL GAS PROCESSING PLANTS THAT PROCESS FEDERAL PRODUCTION?

**Authority:** 30 CFR 250.1203(e)(2)  
**Enforcement Actions:** W

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UPON REQUEST, DOES THE OPERATOR PROVIDE THE BSEE REGIONAL SUPERVISOR A COPY OF THE MONTHLY GAS PROCESSING PLANT ALLOCATION STATEMENT, AND THE GROSS HEATING VALUES OF THE INLET AND RESIDUE STREAMS WHEN NOT REPORTED ON THE GAS PLANT STATEMENT?

**Authority:** 30 CFR 250.1203(e)(1)(i)  
**Enforcement Actions:** W

30 CFR 250.1203(e)(1)(ii)

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DOES OPERATOR MAINTAIN CONSISTENT LEVELS OF ACCURACY FOR MEASUREMENT COMPONENTS THROUGHOUT THE SYSTEM?

**Authority:** 30 CFR 250.1203(b)(3)  
**Enforcement Actions:** W

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DID OPERATOR TAKE PROPORTIONAL-TO-FLOW OR SPOT SAMPLES UPSTREAM OR DOWNSTREAM OF THE METER AT LEAST ONCE EVERY SIX MONTHS?

**Authority:** 30 CFR 250.1203(b)(5)  
**Enforcement Actions:** W
Surface Production and Commingling

M-248
HAS THE LESSEE SUBMITTED A WRITTEN APPLICATION AND RECEIVED APPROVAL FROM THE BSEE REGIONAL SUPERVISOR BEFORE DOING THE FOLLOWING: (1) COMMENCING GAS OR LIQUID HYDROCARBON PRODUCTION; (2) COMMENCING THE COMMINGLING OF PRODUCTION; OR (3) MAKING CHANGES TO THE PREVIOUSLY-APPROVED PRODUCTION MEASUREMENT OR COMMINGLING PROCEDURES?

Authority: 30 CFR 250.1202(a)(1)
30 CFR 250.1203(b)(1)
30 CFR 250.1204(a)(1)

Enforcement Actions: C

M-249
UPON REQUEST, HAS THE LESSEE DELIVERING STATE LEASE PRODUCTION INTO A FEDERAL COMMINGLING SYSTEM PROVIDED THE BSEE REGIONAL SUPERVISOR WITH VOLUMETRIC FRACTIONAL ANALYSIS DATA ON THE STATE LEASE PRODUCTION THROUGH THE DESIGNATED SYSTEM OPERATOR?

Authority: 30 CFR 250.1202(a)(2)

Enforcement Actions: C

M-250
DOES THE LESSEE CONDUCT A WELL TEST FOR ALLOCATION PURPOSES AT LEAST ONCE EVERY 2 MONTHS (1 TIME EVERY 60 DAYS) (OR AS OTHERWISE APPROVED BY THE BSEE REGIONAL SUPERVISOR), AND FOLLOW THE WELL TEST PROCEDURES IN 30 CFR PART 250, SUBPART K?

Authority: 30 CFR 250.1204(b)(1)
30 CFR 250.1204(b)(2)

Enforcement Actions: W

M-251
DOES THE LESSEE RETAIN TEST DATA AT THE FIELD LOCATION FOR A PERIOD OF 2 YEARS?

Authority: 30 CFR 250.1204(b)(3)

Enforcement Actions: W

Site Security

M-298
IS THE LESSEE PROTECTING FEDERAL PRODUCTION AGAINST PRODUCTION LOSS OR THEFT?

Authority: 30 CFR 250.1205(a)(1)

Enforcement Actions: C/S
M-299  IF THEFT, MISHANDLING OF PRODUCTION, TAMPERING OR BYPASSING OF ANY COMPONENT OF THE ROYALTY MEASUREMENT FACILITY, OR THE FALSIFYING OF PRODUCTION MEASUREMENT HAS OCCURRED, DID THE LESSEE REPORT IT TO THE BSEE REGIONAL SUPERVISOR AS SOON AS POSSIBLE, BUT NO LATER THAN THE NEXT BUSINESS DAY AFTER DISCOVERY?

Authority: 30 CFR 250.1205(a)(4)(i)  Enforcement Actions: W
30 CFR 250.1205(a)(4)(ii)
30 CFR 250.1205(a)(4)(iii)

M-300  ARE THE COMPONENTS OF ROYALTY MEASURING DEVICES (METERING UNITS AND TANKS) SEALED IN A MANNER TO PRECLUDE TAMPERING?

Authority: 30 CFR 250.1205(b)(1)  Enforcement Actions: W/C

M-301  ARE WIRE OR OTHER ACCEPTABLE TYPES OF SEALS NUMBERED AND RECORDED?

Authority: 30 CFR 250.1205(b)(3)  Enforcement Actions: W/C

M-302  IS A LIST OF THE SEAL NUMBERS MAINTAINED AT THE FIELD LOCATION FOR AT LEAST 2 YEARS AND IS THE LOCATION MADE AVAILABLE FOR INSPECTION BY BSEE REPRESENTATIVES?

Authority: 30 CFR 250.1205(b)(3)  Enforcement Actions: W
30 CFR 250.1205(b)(4)

M-304  ARE ALL METER STACK COMPONENT CONNECTIONS, FROM THE BASE OF THE STACK, UP TO AND INCLUDING, THE REGISTER, SEALED IN SUCH A MANNER THAT TAMPERING CANNOT OCCUR WITHOUT DESTROYING THE SEAL?

Authority: 30 CFR 250.1205(b)(1)(i)  Enforcement Actions: W/C

M-305  ARE SAMPLING SYSTEMS, INCLUDING PACKING DEVICES, FITTINGS, SIGHT GLASS, AND CONTAINER LIDS, SEALED IN SUCH A MANNER THAT TAMPERING CANNOT OCCUR WITHOUT DESTROYING THE SEAL?

Authority: 30 CFR 250.1205(b)(1)(ii)  Enforcement Actions: W/C
M-306  ARE COMPONENTS OF THE TEMPERATURE AND GRAVITY COMPENSATION DEVICE SEALED IN SUCH A MANNER THAT TAMPERING CANNOT OCCUR WITHOUT DESTROYING THE SEAL?

Authority: 30 CFR 250.1205(b)(1)(iii)  Enforcement Actions: W/C

M-307  ARE ALL VALVES ON LINES LEAVING A ROYALTY OR INVENTORY STORAGE TANK INCLUDING LOAD-OUT LINE VALVES, DRAIN-LINE VALVES, AND CONNECTION-LINE VALVES BETWEEN ROYALTY AND NON-ROYALTY TANKS SEALED IN SUCH A MANNER THAT TAMPERING CANNOT OCCUR WITHOUT DESTROYING THE SEAL?

Authority: 30 CFR 250.1205(b)(1)(iv)  Enforcement Actions: W/C

M-308  IS EACH STORAGE TANK (ROYALTY OR INVENTORY) USED IN THE ROYALTY DETERMINATION PROCESS IDENTIFIED BY A SIGN THAT CONTAINS THE NAME OF THE FACILITY OPERATOR, THE SIZE OF THE TANK, AND THE TANK NUMBER?

Authority: 30 CFR 250.1205(a)(2)  Enforcement Actions: W

M-309  IS THERE NO BYPASS OF BSEE-APPROVED LIQUID HYDROCARBON ROYALTY METERS AND TANKS?

Authority: 30 CFR 250.1205(a)(3)  Enforcement Actions: W/C

M-310  ARE THE BYPASS VALVES OF GAS ROYALTY AND GAS ALLOCATION METERS SEALED IN A MANNER THAT TAMPERING CANNOT OCCUR WITHOUT DESTROYING THE SEAL?

Authority: 30 CFR 250.1205(b)(2)  Enforcement Actions: W/C