DEPARTMENT OF ENERGY

10 CFR Parts 429 and 431

[Docket No. EERE-2013-BT-TP-0055]

RIN: 1905-AD50

Energy Conservation Program: Test Procedure for Pumps

Correction

In proposed rule document 2015-06945 beginning on page 17585 in the issue of Wednesday, April 1. 2015 make the following correction:

On page 17637, in the first column, beginning with the third paragraph under the section heading "E. Issues on Which DOE Seeks Comment" and continuing through to the third column, on page 17639 up to the heading entitled "VI. Approval of the Office of the Secretary", revise the existing text to read as follows:

(2) DOE requests comment on the proposed definitions for "pump," "bare pump,"

"mechanical equipment," "driver," and "control."

(3) DOE requests comment on the proposed definitions for "continuous control"

and "non-continuous control."

(4) DOE also requests comment and information regarding how often pumps with

continuous or non-continuous controls are packaged and distributed in

commerce, by manufacturers, with integrated sensors and feedback logic that

would allow such pumps to automatically actuate.

(5) DOE also requests comment on the likelihood of pumps with continuous and

non-continuous controls being distributed in commerce, but never paired with

any sensor or feedback mechanisms that would enable energy savings.

(6) DOE requests comment on the proposed definition for “basic model” as applied to pumps. Specifically, DOE is interested in comments on DOE’s proposal to allow manufacturers the option of rating pumps with trimmed impellers as a single basic model or separate basic models, provided the rating for each pump model is based on the maximum impeller diameter for that model.

(7) DOE requests comment on the proposed definition for “full impeller.”

(8) DOE requests comment on the proposal to require that all pump models be rated in a full impeller configuration only.

(9) DOE requests comment on any other characteristics of pumps that are unique from other commercial and industrial equipment and may require modifications to the definition of “basic model,” as proposed.

(10) DOE requests comment on the proposed applicability of the test procedure to the five pump equipment classes noted above, namely ESCC, ESFM, IL, RSV, and VTS pumps.

(11) DOE requests comment on the proposed definitions for end suction pump, end suction frame mounted pump, end suction close-coupled pump, in-line pump, radially split multi-stage vertical in-line casing diffuser pump, rotodynamic pump, single axis flow pump, and vertical turbine submersible pump.

(12) DOE requests comment on whether the references to ANSI/HI nomenclature are necessary as part of the equipment definitions in the regulatory text, are likely to cause confusion due to inconsistencies, and whether discussing the ANSI/HI nomenclature in this preamble would provide sufficient reference material for manufacturers when determining the appropriate equipment class for their pump models.

(13) DOE requests comment on whether it needs to clarify the flow direction to distinguish RSV pumps from other similar pumps when determining test procedure and standards applicability.

(14) DOE requests comment on whether any additional language is necessary in the proposed RSV definition to make the exclusion of immersible pumps clearer

(15) DOE requests comment on its proposal to exclude circulators and pool pumps from the scope of this test procedure rulemaking.

(16) DOE requests comment on the proposed definitions for circulators and dedicated-purpose pool pumps.

(17) DOE requests comment on the extent to which ESCC, ESFM, IL, and RSV pumps require attachment to a rigid foundation to function as designed. Specifically, DOE is interested to know if any pumps commonly referred to as ESCC, ESFM, IL, or RSV do not require attachment to a rigid foundation.

(18) DOE requests comment on its initial determination that axial/mixed flow and PD pumps are implicitly excluded from this rulemaking based on the proposed definitions and scope parameters. In cases where commenters suggest a more explicit exclusion be used, DOE requests comment on the appropriate changes to the proposed definitions or criteria that would be needed to appropriately differentiate axial/mixed flow and/or PD pumps from the specific rotodynamic pumps equipment classes proposed for coverage in this NOPR.

(19) DOE requests comment on the proposed definition for “clean water pump.”

(20) DOE requests comment on its proposal to incorporate by reference the definition for “clear water” in HI 40.6–2014 to describe the testing fluid to be

used when testing pumps in accordance with the DOE test procedure.

(21) DOE requests comment on the proposed definition for “fire pump,” “selfpriming pump,” “prime-assisted pump,” and “sealless pump.”

(22) Regarding the proposed definition of a self-priming pump, DOE notes that such pumps typically include a liquid reservoir above or in front of the impeller to allow recirculating water within the pump during the priming cycle. DOE requests comment on any other specific design features that enable the pump to operate without manual re-priming, and whether such specificity is needed in the definition for clarity.

(23) DOE requests comment on the proposed specifications and criteria to determine if a pump is designed to meet a specific Military Specification and if Military Specifications other than MIL-P-17639F should be referenced.

(24) DOE requests comment on excluding the following pumps from the test procedure: fire pumps, self-priming pumps, prime-assist pumps, sealless pumps, pumps designed to be used in a nuclear facility subject to 10 CFR part 50 -- Domestic Licensing of Production and Utilization Facilities, and pumps meeting the design and construction requirements set forth in Military Specification MIL-P-17639F, “Pumps, Centrifugal, Miscellaneous Service, Naval Shipboard Use” (as amended).

(25) DOE requests comment on the listed design characteristics (power, flow, head, design temperature, design speed, and bowl diameter) as limitations on the scope of pumps to which the proposed test procedure would apply.

(26) DOE requests comment on the proposed definition for “bowl diameter” as it would apply to VTS pumps.

(27) DOE requests comment on its proposal to test pumps sold with non-electric

drivers as bare pumps.

(28) DOE requests comment on its proposal that any pump distributed in commerce with a single-phase induction motor be tested and rated in the bare pump configuration, using the calculation method.

(29) DOE requests comment from interested party on any categories of electric motors, except submersible motors, that: (1) are used with pumps considered in this rulemaking and (2) typically have efficiencies lower than the default nominal full load motor efficiency for NEMA Design A, NEMA Design B, or IEC Design N motors....

(30) DOE requests comment on the proposed load points and weighting for PEICL for bare pumps and pumps sold with motors and PEIVL for pumps inclusive of motors and continuous or non-continuous controls.

(31) DOE requests comments on the proposed PEICL and PEIVL metric architecture.

(32) DOE requests comment on its proposal to base the default motor horsepower for the minimally compliant pump on that of the pump being evaluated. That is, the motor horsepower for the minimally compliant pump would be based on the calculated pump shaft input power of the pump when evaluated at 120 percent of BEP flow for bare pumps and the horsepower of the motor with which that pump is sold for pumps sold with motors and controls (with or without continuous or non-continuous controls).

(33) DOE requests comment on using HI 40.6–2014 as the basis of the DOE test procedure for pumps.

(34) DOE requests comment on its proposal to not incorporate by reference section 40.6.5.3, section A.7, and appendix B of HI 40.6–2014 as part of the DOE test

procedure.

(35) DOE requests comment on its proposal to require that data be collected at least every 5 seconds for all measured quantities.

(36) DOE requests comment on its proposal to allow dampening devices, as described in section 40.6.3.2.2, but with the proviso noted above (i.e., permitted to integrate up to the data collection interval, or 5 seconds).

(37) DOE requests comment on its proposal to require data collected at the pump speed measured during testing to be normalized to the nominal speeds of 1,800 and 3,600.

(38) DOE requests comment on its proposal to adopt the requirements in HI 40.6–2014 regarding the deviation of tested speed from nominal speed and the variation of speed during the test. Specifically, DOE is interested if maintaining tested speed within ±1 percent of the nominal speed is feasible and whether this approach would produce more accurate and repeatable test results.

(39) DOE requests comment on the proposed voltage, frequency, voltage unbalance, total harmonic distortion, and impedance requirements that are required when performing a wire-to-water pump test or when testing a bare pump with a calibrated motor. Specifically, DOE requests comments on whether these tolerances can be achieved in typical pump test labs, or whether specialized power supplies or power conditioning equipment would be required.

(40) DOE requests comment on its proposal to test RSV and VTS pumps in their 3- and 9-stage versions, respectively, or the next closest number of stages if the pump model is not distributed in commerce with that particular number of stages.

(41) DOE requests comment on its proposal to use a linear regression of the pump shaft input power with respect to flow rate at all the tested flow points greater than or equal to 60 percent of expected BEP flow to determine the pump shaft input power at the specific load points of 75, 100, and 110 percent of BEP flow. DOE is especially interested in any pump models for which such an approach would yield inaccurate measurements.

(42) DOE requests comment on its proposal that for pumps with BEP at run-out, the BEP would be determined at 40, 50, 60, 70, 80, 90, and 100 percent of expected BEP flow instead of the seven data points described in section 40.6.5.5.1 of HI 40.6–2014 and that the constant load points for pumps with BEP at run-out shall be 100, 90, and 65 percent of BEP flow, instead of 110, 100, and 75 percent of BEP flow.

(43) DOE requests comment on the type and accuracy of required measurement equipment, especially the equipment required for electrical power measurements for pumps sold with motors having continuous or noncontinuous controls.

(44) DOE requests comment on its proposal to conduct all calculations and corrections to nominal speed using raw measured values and that the PERCL and PEICL or PERVL and PEIVL, as applicable, be reported to the nearest 0.01.

(45) DOE requests comment on its proposal to determine the default motor horsepower for rating bare pumps based on the pump shaft input power at 120 percent of BEP flow. DOE is especially interested in any pumps for which the 120 percent of BEP flow load point would not be an appropriate basis to determine the default motor horsepower (e.g., pumps for which the 120 percent of BEP flow load point is a significantly lower horsepower than the

BEP flow load point).

(46) DOE requests comment on its proposal that would specify the default, minimally compliant nominal full load motor efficiency based on the applicable minimally allowed nominal full load motor efficiency specified in DOE's energy conservation standards for NEMA Design A, NEMA Design B, and IEC Design N motors at 10 CFR 431.25 for all pumps except pumps sold with submersible motors.

(47) DOE requests comment on the proposed default minimum full load motor efficiency values for submersible motors.

(48) DOE requests comment on defining the proposed default minimum motor full load efficiency values for submersible motors relative to the most current minimum efficiency standards levels for regulated electric motors, through the use of "bands" as presented in Table III.6.

(49) DOE requests comment on the proposal to allow the use of the default minimum submersible motor full load efficiency values presented in Table III.6 to rate: (1) VTS bare pumps, (2) pumps sold with submersible motors, and (3) pumps sold with submersible motors and continuous or noncontinuous controls as an option instead of wire-to-water testing. .

(50) DOE requests comment on the development and use of the motor part load loss factor curves to describe part load performance of covered motors and submersible motors including the default motor specified in section III.D.1 for bare pumps and calculation of PERSTD.

(51) DOE requests comment on its proposal to determine the part load losses of motors covered by DOE's electric motor energy conservation standards at 75, 100, and 110 percent of BEP flow based on the nominal full load efficiency of

the motor, as determined in accordance with DOE's electric motor test procedure, and the same default motor part load loss curve applied to the default motor in test method A.1 for the bare pump.

(52) DOE requests comment on its proposal to determine the PERCL of pumps sold with submersible motors using the proposed default minimum efficiency values for submersible motors and applying the same default motor part load loss curve to the default motor in test method A.1 for the bare pump.

(53) DOE also requests comment on its proposal that pumps sold with motors that are not addressed by DOE's electric motors test procedure (except submersible motors) would be rated based on a wire-to-water, testing-based approach.

(54) DOE requests comment on the proposed system curve shape to use, as well as whether the curve should go through the origin instead of the statically loaded offset.

(55) DOE requests comment on the proposed calculation approach for determining pump shaft input power for pumps sold with motors and continuous controls when rated using the calculation-based method.

(56) DOE requests comment on the proposal to adopt four part load loss factor equations expressed as a function of the load on the motor (i.e., motor brake horsepower) to calculate the losses of a combined motor and continuous controls, where the four curves would correspond to different horsepower ratings of the continuous control.

(57) DOE also requests comment on the accuracy of the proposed equation compared to one that accounts for multiple performance variables (speed and torque).

(58) DOE requests comment on the proposed 5 percent scaling factor that was applied to the measured VSD efficiency data to generate the proposed coefficients of the four part load loss curves. Specifically, DOE seeks comment on whether another scaling factor or no scaling factor would be more appropriate in this context.

(59) DOE requests comment on the variability of control horsepower ratings that might be distributed in commerce with a given pump and motor horsepower.

(60) DOE requests comment and data from interested parties regarding the extent to which the assumed default part load loss curve would represent minimum efficiency motor and continuous control combinations.

(61) DOE requests comment on its proposal to require testing of each individual bare pump as the basis for a certified PEICL or PEIVL rating for one or more pump basic models.

(62) DOE requests comment on its proposal to limit the use of calculations and algorithms in the determination of pump performance to the calculation-based methods proposed in this NOPR.

(63) DOE requests comment on its proposal to determine BEP for pumps rated with a testing-based method by using the ratio of input power to the driver or continuous control, if any, over pump hydraulic output. DOE also seeks input on the degree to which this method may yield significantly different BEP points from the case where BEP is determined based on pump efficiency.

(64) DOE requests comment on the proposed testing-based method for pumps sold with motors and continuous or non-continuous controls.

(65) DOE requests comment on the proposed testing-based method for determining the input power to the pump for pumps sold with motors and non-continuous

controls.

(66) DOE requests comment on any other type of non-continuous control that may be sold with a pump and for which the proposed test procedure would not apply.

(67) DOE requests comment on its proposal to establish calculation-based test methods as the required test method for bare pumps and testing-based methods as the required test method for pumps sold with motors that are not regulated by DOE's electric motor energy conservation standards, except for submersible motors, or for pumps sold with any motors and with noncontinuous controls.

(68) DOE also requests comment on the proposal to allow either testing-based methods or calculation-based methods to be used to rate pumps sold with continuous control-equipped motors that are either (1) regulated by DOE's electric motor standards or (2) submersible motors.

(69) DOE requests comment on the level of burden to include with any certification requirements the reporting of the test method used by a manufacturer to certify a given pump basic model as compliant with any energy conservation standards DOE may set.

(70) DOE requests comment on the proposed sampling plan for certification of commercial and industrial pump models.

(71) DOE requests comment regarding the size of pump manufacturing entities and the number of manufacturing businesses represented by this market.

(72) DOE requests comment on its assumption that, for most pump models, only physical testing of the underlying bare pump model is required, and subsequent ratings for that bare pump sold with a motor or motor and

continuous control can be based on calculations only.

(73) DOE requests information on the percentage of pump models for which the rating of the bare pump, pump sold with a motor, and pump sold with a motor and controls cannot be based on the same fundamental physical test of the bare pump. For example, DOE is interested in the number of pump models sold with motors that are not covered by DOE's energy conservation standards for electric motors or the number of pump models sold with controls that would not meet DOE's definition of continuous control.

(74) DOE requests comment on the testing currently conducted by pump manufacturers and the magnitude of incremental changes necessary to transform current test facilities to conduct the DOE test procedure as described in this NOPR.

(75) DOE requests comment on its assumption that using a non-calibrated test motor and VFD would be the most common and least costly approach for testing bare pumps in accordance with the proposed DOE test procedure.

(76) DOE requests comment on the estimates of materials and costs to build a pump testing facility as presented.

(77) DOE requests comment on the test facility description and measurement equipment assumed in DOE's estimate of burden.

(78) DOE requests comment and information regarding the burden associated with achieving the power quality requirements proposed in the NOPR.

(79) DOE requests comment on the number of pump models per manufacturer that would be required to use the wire-to-water test method to certify pump performance.

(80) DOE requests comment on the estimation of the portion of pumps that would

need to be newly certified or recertified annually.

(81) DOE requests comment on the use of annual sales as the financial indicator for this analysis and whether another financial indicator would be more representative to assess the burden upon the pump manufacturing industry.

(82) DOE requests comment on its conclusion that the proposed rule may have a significant impact on a substantial number of small entities. DOE is particularly interested in feedback on the assumptions and estimates made in the analysis of burden associated with implementing the proposed DOE test procedure.

(83) DOE requests comment on the burden estimate to comply with the proposed recordkeeping requirements.

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