

AERONAUTICAL CHARTING FORUM
Instrument Procedures Group
April 24, 2013
HISTORY RECORD

FAA Control # 13-01-307

Subject: TDZE is required by 91.175, THRE is not

Background/Discussion: To support ICAO harmonization, new approach charts have removed the reference to touchdown zone elevation (TDZE) and replaced it with threshold elevation (THRE). 14 CFR, Part 91.175 (c) states in part (emphasis is mine):

(3) Except for a Category II or Category III approach where any necessary visual reference requirements are specified by the Administrator, at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

(i) The approach light system, except that the pilot may not descend below 100 feet above the **touchdown zone elevation** using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

THRE and TDZE (the highest elevation in the first three thousand feet of the landing surface) have different definitions, the elevations of which may differ by as much as 20, depending on runway slope. If the intent of the change is to redefine the 100 foot limit defined in 91.175 to be either the TDZE or THRE, the regulation should be updated to reflect the change; otherwise the pilot does not have the data on the chart necessary to comply with the regulation. Additionally, the acronym THRE is listed on the front matter of the TPP but the PCG, AIM and FAA-H-8083-15B - Instrument Flying Handbook 2012 do not address the subject.

Recommendations: 1) Update Part 91.175 to add the Threshold Elevation option. 2) Add a description in the PCG defining THRE. 3) Add information in the AIM and the Pilot Instrument Handbook to discuss the change.

Comments: This recommendation affects 14 CFR, Part 91.175, the Pilot Controller Glossary, the AIM, and FAA-H-8083-15B - Instrument Flying Handbook 2012.

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Initial Discussion - MEETING 13-01: New issue presented by John Collins, GA Pilot. John expressed concern that when TERPS Change 20 became effective, procedures were designed and minimums tied to the runway threshold elevation (THRE) vice the touchdown zone elevation (TDZE). 14 CFR Part 91.175(c)(3)(i) requires that pilots not descend "...below 100 feet above the **touchdown zone elevation** using the approach lights as a reference...". The IAP charts to which Change 20 has been applied no longer show TDZE. Because the touchdown zone elevation is defined as the highest point within the first 3,000 feet of the runway, pilots utilizing the only elevation they have (THRE) may inadvertently violate this rule when approaching an up-sloping runway. John recommends that a rule change should be made to 91.175 to add the THRE as an option to using the TDZE. He also recommends that FAA add a definition of THRE to the Pilot/Controller Glossary (PCG) and add information to the AIM and IHP to discuss the change. Tom Schneider, AFS-420, responded that there has been much discussion within AFS-400 regarding John's Recommendation Document (RD) and turned the floor over to Bryant Welch, AFS-410, who briefed background and AFS-400 actions considered thus far. A copy of Bryant's briefing slides is attached here (). Bryant briefed the history of the AFS effort to harmonize FAA landing minimums with PansOps and the Joint Aviation Requirement for the Operation of Commercial Transport (JAR-OPS). This initiative, which was undertaken at the request of Air Transport Association (now Airlines for America, A4A), was complete with the publication of TERPS Change 20 in December, 2007; however, as noted in the ACF RD, all rulemaking requirements to support the change were not accomplished. After initial study of the RD, AFS-400 has developed three options that are under consideration:

1. Revert procedure design standards to using TDZE. This will require modifying TERPS criteria and charting specifications back to pre-TERPS Change 20 implementation. It will also require amending over 3,000 procedures that have been developed under TERPS Change 20. This reversion would allow the current rule to remain unchanged, but would negate all JAA and ICAO harmonization efforts.

2. Affirm transition to THRE in both criteria and operations. This option will require updating 91.175(c) to allow either THRE or TDZE as published on the approach chart and continue the current application of TERPS Change 20 using THRE. It would not require any changes to either criteria or charting standards. It would also allow the international harmonization efforts to continue; however, operations may be affected during the rule change process.

3. Continue to use TDZE in operational rules and use THRE in procedure development. This will require adding the TDZE (proposed to the airport sketch) on over 3,000 IAP charts that are currently published with THRE and all future charts to which Change 20 is applied. The benefit is that rulemaking would not be required.

Bryant closed saying that no decision has been made and all options are still on the table; however, Option 3 is favored by AFS-400. A sample chart showing the depiction of both THRE and TDZE on the IAP chart was shown to the group and is included in Bryant's briefing slides. Valerie Watson, AJV-3B, asked why not pursue the rule change as recommended in John Collins' RD as it appears that Option 2 best serves all. Mike Foster, USAASA agreed. Gary Powell, AFS-401 responded that the FAA needs to re-assess whether ICAO harmonization on this issue is needed. He stated that AFS tried to change the definition of HAT to mean height above threshold elevation vice height above touchdown during the RNAV Notice of Proposed Rulemaking (NPRM) of December 2002, but there was significant pushback from industry. Gary added that in discussions whether to change 91.175(c), it was determined that it is not a

safety issue, but a compliance with the rule technicality. Valerie suggested that any immediate action should be based on the decision regarding the rule change. If the decision to change the rule is made, no chart or criteria changes will be made. If the decision is NOT to pursue the rule change, then one of the other 2 options (reversion to TDZE or dual elevation depiction) will need to be decided and acted upon. Ted Thompson, Jeppesen, voiced objection to the proposed solution in Option 3 because of the fact that the official 8260-series regulatory document will not be the method of conveyance of the TDZE. He voiced that this would force charting agents to rely on another source stream for the appropriate value in order to reinstate and maintain TDZE data. Ted also questioned the potential source of confusion to users if both TDZE and THRE values are charted, especially in those cases where they reflect different values. He added that the chart depictions used by FAA are different than commercially produced charts; i.e., Jeppesen and Lido. John Collins asked whether there was any quick method to effect a rule change. Bryant responded that there was so much push back during the RNAV NPRM, he doubted that FAA General Council would consider a direct-to-final-rule request. Lev Prichard, APA, stated that this is a big issue due to the possible differences in elevations on up-sloping runways. Michael Stromberg, Air Wisconsin, agreed stating it is especially so on runways that have the maximum allowable slope. Gary McMullin, Southwest Airlines, agreed that publishing two values could be confusing when entering values into avionics systems and most pilots in attendance agreed. Mark Cato, ALPA, asked whether a pilot could receive a deviation if he uses THRE when that is all that is available to him on the chart. Bryant replied, no, and that AFS needs to get the associated guidance out to inspectors. Bryant added that, in the interim, AFS-400, in concert with AeroNav Products, is drafting a plan to develop a listing of TDZEs for those IAPs that are currently published with THRE only. Once complete, the list would be published in the NTAP to provide necessary information so pilots can comply with the existing rule pending a decision on what option to pursue. Tom closed the discussion stating that no decision will be made today and that the ACF-IPG discussion, including the industry participant's preference for a rule change, will be captured in the minutes and forwarded for consideration by AFS-400 during the decision process. **ACTION: AFS-410.**

Editor's Note: Post meeting, AeroNav Products, AJV-3B, forwarded a listing of those procedures developed under TERPS Change 20 and published with THRE only as of the April 2013 AIRAC cycle. A copy is included here (). It must be noted that the list is dynamic and will require updating at each chart cycle until either TDZE is on all charts or the rule changes to allow either THRE or TDZE. John Collins commented after the minutes were published that the listing is of little value unless it also includes the TDZE.

MEETING 13-02: Bryant Welch, AFS-410, provided a recap on the issue. 14 CFR, Part 91.175 requires TDZE be known by pilot to use approach lights to descend below minimums; however, the TDZE was removed with TERPS Change 20 in 2007 and replaced with THRE. Since then, there has been a lot of push back by industry stating that the lack of TDZE information could cause them to violate a Rule. After staffing the issue, Flight Standards decided to return to the old way of computing and basing minimums on the TDZE. This will require changing 4000+ charts back to TDZE, (with about 150 more per cycle currently being added to this number). Until accomplished, it is proposed to publish a listing of affected runway TDZEs on an AJV web site and possibly in the NTAP. Since minimums are not affected, this will provide the necessary information for pilots to compute the 100 foot above TDZE point. John Collins, GA Pilot, recommends when both values are the same; i.e., THRE is the TDZE,

just publish the TDZE. Bryant agreed and stated they are proposing to publish a list in the NTAP.

Val Watson, AJV-3B, asked if there is some way to halt the development of procedures using THRE, since we are publishing procedure charts to the wrong data every day. Bruce DeCleene, AFS-400, stated that AFS had sent a memo to accommodate this and asked where AJV was in implementing the new standard. Brad Rush, AJV-3B, responded they will not change procedure development until the supporting criteria is in place. Tom Schneider, AFS-420, said all these changes are in the 8260.19F, which is scheduled for January, 2014. The second piece to the solution is TERPS Change 26, which has been delayed. Val asked if we can have interim guidance or a policy memo on this. Tom responded there is a problem with this, since we do not usually make changes to directives signed by AFS-1 without either a NOTICE or a change to the Order directly. We originally believed changes to Orders.8260.19 and 8260.3 were going to come out sooner. Also automation needs to be changed for both FAA and DoD. Bruce recommended this portion of the discussion be taken off line.

Michael Stromberg, Air Wisconsin, stated that it seemed the simplest solution would be to change the rule. Bruce responded that there was a rich dialog within Flight Standards on this issue centering on what is operationally pertinent to the pilot and the response is TDZE. THRE is irrelevant; no one lands on a threshold. AFS tried to change the rule once before and there was significant industry pushback, especially from Boeing and Airbus, who both expressed concern over the impact on autoland operations. In short, industry is on public record as opposed to the change and FAA has gone on record as accepting the industry comments. Moving on, the next issue is the impact on procedure design and criteria needs to be reversed to pre-Change 20 and return to use of TDZE for minimums calculations. AFS agrees that in the interim a manual workaround is acceptable for procedure designers. We must also make the current TDZE known for those procedures designed to THRE when the TDZE is a higher value.

Rich Boll, NBAA, stated that this is not just an airline issue as some Part 91 operators also use the 100' provision. Rich believes the NTAP is not a good medium for promulgating the TDZE information and asked whether it could be done through the regular NOTAM process. Bill Hammett, AFS-420, (ISI/Pragmatics Contract Support), stated that this could probably be distributed as a NOTAM D as updating runway information. Brad Rush, AJV-3, objected, stating that NOTAMs should be for safety of flight conditions only. Val Watson, AJV-3, also voiced that a runway NOTAM is not appropriate, as the runway information is not changed or updated, it is simply not depicted on the approach plate. Rich responded that NOTAMs are also used to broadcast operational information and referred to Order 7930.2M, Paragraph 1-3-5.

George Bland, AFFSA, asked if the FAA would/could do this manually, and stated the DoD will have to change automation first. Brad commented that FAA is aware of the automation problem, and it will take time and money to resolve it. Tom said a memo went out to advise of upcoming policy changes some time ago, so this shouldn't be a surprise.

Tom moved to end discussion of issue. He stated that minimums can be raised by P-NOTAM if necessary. Bill Hammett responded to a question about placing both TDZE and THRE on IAP charts by reminding the group this subject was discussed at a previous ACF, and was violently objected to by nearly all pilot industry groups. Bruce suggested the discussion of how to expedite day forward TDZE usage for new/revised charts be taken off line and worked between AFS-400 and AJV-3. Brad re-stated that criteria changes are needed before automation changes can be done and discussed the possible introduction of errors due to manually changing numbers.

Two IOUs are now open on the issue: 1) AFS-400 and AJV-3 will jointly work a plan for immediate implementation of using TDZE for all computations; and, 2) AFS-410 and AJV-3B to work the issue of publishing TDZE information on those current procedures developed under TERPS Change 20. **ACTION: AFS-400, AJV-3, AFS-410 and AJV-3B.**

MEETING 14-01: Kel Christianson, AFS-470, provided background on the issue, including a Bruce DeCleene, AFS-400, memo to address situation. A list of affected airports is posted on the AeroNav Products web site with associated TDZE. This list will be continually updated until all procedures are amended to restore TDZE values to the chart. Ted Thompson, Jeppesen, asked how this is progressing. Brad Rush, AJV-3, advised there is an implemented day forward-day back process. In the day back process, we are making the changes via P-NOTAM (200 to 500 per chart cycle). This is a very time consuming process and will take about a year to complete. All day forward procedure development utilizes TDZE. Brad stated we are changing HATs & DAs, but not MDAs or visibility as previously agreed. Tom Schneider, AFS-420, said the policy criteria in Order's 8260.3B and 8260.19F has changed back to TDZE, and recommend closing this issue. Ted agreed.

Status: **Issue CLOSED**