**Protocol van Overdracht**

**DikesOvertopping 22.1.1**

**Status en Versie**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Project-nummer | Versie | Datum | Auteur (ontwikkelaar, PL) | Paraaf | Review applicatie beheerder Deltares / RWS-WVL | Paraaf | Goedkeuring  SLA-Managers | Paraaf |
| 11208059 | 01 | 21-3-'22 | Edwin Spee |  | Hans de Waal |  | Gerard Blom |  |
|  |  |  |  |  | Robert Slomp |  | Yann Friocourt |  |

1. **Woord vooraf***.*

DikesOvertopping is een rekenkernel die als module wordt gebruikt in (andere rekenkernels in) applicaties zoals Riskeer, Hydra-NL en BM Gras Buitentalud.

1. **Onderbouwing van de wijziging/ontwikkeling**
2. *Een omschrijving van de wijziging/ontwikkeling.*

Ten opzichte van de voorgaande versie (versie 19.1.1) zijn de aanpassingen:

* De rekensnelheid in geval van herhaalde aanroep is verbeterd.
* De onderhoudbaarheid in termen van SIG score is verbeterd.
* De kernel is 'gesigned', hetgeen inhoudt dat het gecertificeerd is als Deltares product.

1. *De aanleiding/achtergrond/doel van de wijziging/ontwikkeling.*

De aanleiding voor de aanpassingen bestaat uit diverse onderdelen:

* Er wordt gezocht naar mogelijkheden om de rekentijd van Hydra-Ring (binnen Riskeer) te verkleinen. In diverse types Hydra-Ring berekeningen speelt DikesOvertopping een rol. Er was zicht op tijdwinst in het herhaald aanroepen van deze module.
* De SIG score voor de onderhoudbaarheid van de DikesOvertopping code was relatief laag.
* Er waren al relatief lange tijd geen werkzaamheden meer aan de code verricht, waardoor kennis van de code ver weg dreigde te zakken.
* Het ontbreken van certificering leidde bij sommige gebruikers tot een blokkerende waarschuwing vanuit antivirus-software.

1. *Het effect van de wijziging/ontwikkeling.*

De aanpassingen hebben geen betrekking op de rekenmethode en hebben daardoor ook geen invloed op de rekenresultaten.

1. *Het effect van het gewijzigde of de ontwikkelde applicatie op relaties met andere applicaties.*

Versie 22.1.1 is voor de gebruiker backward compatible met versie 19.1.1. Echter, om gebruik te maken van de verbeterde rekensnelheid moet in de aanroep van de module een - optionele - extra invoerparameter meegegeven worden. Dit staat beschreven in het Technisch ontwerp.

1. **Applicatieonderdelen van de wijziging/ontwikkeling**
2. *Op welke programmatuur en versie is de wijziging/ontwikkeling gebaseerd.*

DikesOvertopping 22.1.1 is gebaseerd op DikesOvertopping 19.1.1.

1. *Beschrijf het toegepaste proces om de kwaliteit van de gewijzigde/ontwikkelde applicatie te beoordelen en te garanderen?*

De kwaliteit van het softwareproduct DikesOvertopping is geborgd door middel van a) collegiale review en b) de testprocedure zoals beschreven in het DikesOvertopping testplan. De testresultaten zijn beschreven in het DikesOvertopping testrapport.

1. **Gebruik van de applicatie**

De kernel DikesOvertopping bevat alle functionaliteit voor het berekenen van de golfoverslag bij dijken: de module berekent de 2% oploophoogte, het overslagdebiet, de bijbehorende Z-functie en/of de zogenaamde omkeervariant (het hydraulische belastingniveau). De toepasbaarheidsgrenzen in de vorm van het toegestane bereik van de invoerparameters zijn beschreven in het functioneel ontwerp.

Deltares beveelt RWS aan om DikesOvertopping 22.1.1 te gaan gebruiken op alle plaatsen waar op dit moment nog een eerdere versie van DikesOvertopping wordt gebruikt. Inhoudelijk gezien is overigens geen sprake van urgentie van een dergelijke overstap. Het profijt voor eindgebruikers - in de vorm van kortere rekentijden - is met name realiseerbaar bij toepassing in een probabilistische context, zoals Hydra-Ring (binnen Riskeer) en Hydra-NL.

1. **Uitlevering**

De module zal na acceptatie door RWS-WVL worden opgenomen in de modellenbibliotheek van RWS bij Deltares. Van hieruit kan de module aan beheerders van gebruikende RWS-applicaties (en eventueel aan derden) ter beschikking worden gesteld.

1. **Producten**

Programmatuur:

De kernel zelf bestaat uit de volgende bestanden:

Voor toepassing onder Windows, 32 bit:

* dllDikesOvertopping.dll
* feedbackDLL.dll

Voor toepassing onder Windows, 64 bit:

* dllDikesOvertopping.dll
* feedbackDLL.dll

Voor toepassing onder Linux (alleen 64 bit):

* libDikesOvertopping.so
* libFeedbackDll.so
* libifcoremt.so.5
* libifport.so.5
* libimf.so
* libintlc.so.5
* libiomp5.so

Documentatie (digitaal):

Bij deze kernel horen - naast onderhavig Protocol van Overdracht - de volgende documenten:

* Functional Design
* Technical Design
* Technical Documentation (generated with Doxygen from in-line comments)
* Test Plan
* Test Report
* Release notes

1. **Beheer van de modellen**

De kernel wordt beheerd en onderhouden in het werkpakket 'B&O RWS Waterveiligheidsinstrumentarium', binnen het KPP project WK03 'Ondersteuning'.

1. **Referenties**

De Waal, J.P., 2017. Wave overtopping at dikes - kernel. Functional Design. Deltares software documentation, October 2017.

De Waal, J.P., 2018. Wave overtopping at dikes - kernel. Test plan. Deltares software documentation, December 2018.

De Waal, J.P., 2022. Wave overtopping at dikes kernel. Test report 22.1.1. Deltares software documentation, March 2022.

Spee, E.J., 2022. Wave overtopping at dikes kernel. Technical Design. Deltares software documentation, March 2022.

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