

|  | OFFICE US                                      | SE ONLY                        |
|--|--|--------------------------------|
| CERTIFICATION PREAPPROVAL (OSP)  | APPLICATION #: 0                               | DSP – 0609                     |
| OSHPD Special Seismic Certification Preapproval (OSP)  |  |                                |
| Type: 🛛 New 🗌 Renewal  |  |                                |
| Manufacturer Information   |  |                                |
| Manufacturer: Cummins Power Generation   |  |                                |
| Manufacturer's Technical Representative: Prasant Panigrahy   |  |                                |
| Mailing Address: _ 1400 73 <sup>rd</sup> Ave NE, Fridley, MN – 55432 USA   |  |                                |
| Telephone: 612-270-9214  | t.k.panigrahy@cummins.c                        | om                             |
| Product Information  | MA   |                                |
| Product Name: Power Generator Systems OSHPD  | TI   |                                |
| Product Type: Power Generator Sets OSP-0609  | · · ·  |                                |
| Product Model Number: DQDAA, B, C & DQCA, B, C & DQFAA, B, C<br>(List all unique product identification numbers and/or part numbers) Othy J Pila<br>General Description: 250-1000 kW Cummins Diesel Powered General<br>with or without internal isolators. | C, D, H<br>nd<br>prators with or without enclo | osure; on and off tank;        |
| Mounting Description: <u>Rigid base mounted with or without internal vit</u>   | pration isolators.                             |                                |
| Applicant Information  | ODE  |                                |
| Applicant Company Name: The VMC Group  |  |                                |
| Contact Person: John P Giuliano, PE  |  |                                |
| Mailing Address: _ 113 Main Street, Bloomingdale, NJ 07403   |  |                                |
| Telephone: (973) 838-1780 Email: john.gi   | uliano@thevmcgroup.com                         |                                |
| I hereby agree to reimburse the Office of Statewide Health R<br>accordance with the California Administrative Code, 2016.<br>Signature of Applicant:   | Planning and Develop                           | ment review fees in<br>6/12/19 |
| Title: President Company Name: The VI  | MC Group                                       |                                |
| "Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"   | MAMAM  | OSHPD                          |
| STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY<br>OSH-FD-759 (REV 12/16/15)  | . A will for the flat for the                  | Page 1 of 3                    |



| California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)   |
|--|
| Company Name:  |
| Name:       Mr. Ken Tarlow       California License Number:       SE2851   |
| Mailing Address: <u>113 Main St., Bloomingdale, NJ 07403</u>   |
| Telephone:       _(973) 838-1780         Email: <u>ken.tarlow@thevmcgroup.com</u>  |
| Supports and Attachments Preapproval   |
| <ul> <li>Supports and attachments are preapproved under OPM-<br/>(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)</li> <li>Supports and attachments are preapproved under OPM-<br/>(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)</li> </ul> |
| Supports and attachments are not preapproved   |
| Certification Method   |
| <ul> <li>Testing in accordance with: ICC-ES AC156</li> <li>Other (Please Specify): OSP-0609</li> </ul>   |
| BY:Timothy J Piland  |
| Testing Laboratory DATE: 03/24/2021  |
| Company Name: University of California Berkeley, PEER  |
| Contact Name: Amarnath Kasalanati  |
| Mailing Address:   |
| Telephone: 510-642-6475 Email: Amarnath1@berkeley.edu  |

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OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

#### **Seismic Parameters**

| Design in accordance with ASCE 7-10 Chapter 13: 🖂 Yes 🗌 No   |
|--|
| $DQDA \text{ Models:} \qquad \text{Rigid (1.44); Internally Isolated (4.50)} \\ Design Basis of Equipment or Components (F_p/W_p) = \underbrace{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC \text{ Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC Models: Rigid (0.47); Internally Isolated (1.46)}_{DQFA \& DQC Models & Rigid (0.47); Internall$ |
| DQDA Models (2.00)<br>S <sub>DS</sub> (Design spectral response acceleration at short period, g) = <u>DQFA &amp; DQC Models (0.65)</u>   |
| a <sub>p</sub> (In-structure equipment or component amplification factor) = <u>2.5 (Internally Isolated)</u> ; 1.0 (Rigid)   |
| R <sub>p</sub> (Equipment or component response modification factor) =2.0 (Internally Isolated); 2.5 (Rigid)   |
| $\Omega_0$ (System overstrength factor) = <u>2.0</u>   |
| $I_p$ (Importance factor) = 1.5  |
| z/h (Height factor ratio) = _1   |
| Equipment or Component Natural Frequencies (Hz) = See Attachment   |
| Overall dimensions and weight (or range thereof) = <u>See Attachment</u>   |
| Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15:  Yes X No  |
| Design Basis of Equipment or Components (V/W) =  |
| S <sub>Ds</sub> (Design spectral response acceleration at short period, g) =   |
| S <sub>D1</sub> (Design spectral resp <mark>onse</mark> acceleration at 1 second period, g) =  |
| R (Response modification coefficient) ¥.Timothy J Piland   |
| $\Omega_0$ (System overstrength factor) =  |
| C <sub>d</sub> (Deflection amplification factor) =DATE: 03/24/2021   |
| $I_p$ (Importance factor) = 1.5 2  |
| Height to Center of Gravity above base =   |
| Equipment or Component Natural Frequencies (Hz) =  |
| Overall dimensions and weight (or range thereof) =   |
| Tank(s) designed in accordance with ASME BPVC, 2015: Yes X No  |
| List of Attachments Supporting Special Seismic Certification   |
|  |
| I est Report(s) Drawings Calculations Manufacturer's Catalog   |
| Other(s) (Please Specify):   |
| OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025   |
| Signatura: All 1   |
| Print Name: Timothy/I Piland Title: SSE  |
| Special Seismic Certification Valid Lin to: $S_{22}(q) = S_{22}(A_{2}) = S_{22}(q) = \frac{7}{2}$  |
| Condition of Approval (if applicable):   |
|  |
|  |
| "Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"   |
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| Model                     | Max Dating [ kW ]                   | Max. Package<br>Dimensions<br>[ in ] |                   |               | Max.<br>Operating S <sub>DS</sub> [ g ]<br>Weight W/ |              | Configuration | Installation      | Internal | UUT       |              |
|---------------------------|-------------------------------------|--------------------------------------|-------------------|---------------|--|--------------|---------------|-------------------|----------|-----------|--------------|
| Model                     |                                     | Length                               | Width             | Height        | Fuel (if<br>applicable)<br>[ lbs ]                   | z/h =<br>0.0 | z/h =<br>1.0  | Configuration     | Method   | Isolation | 001          |
| DQDAA, B, <u>C</u>        | 250, 275, <u>300</u>                | 119                                  | 50                | 66            | 5,113  | 2.48         | 2.00          | Open Off Tank     | Rigid    | Yes       | UUT-01       |
| DQDAA, B, <u>C</u>        | 250, 275, <u>300</u>                | 233                                  | 90                | 100           | 13,039   | 2.48         | 2.00          | Enclosed Off Tank | Isolated | Yes       | UUT-02       |
| DQDAA, B, <u>C</u>        | 250, 275, <u>300</u>                | 222                                  | 86                | 104           | 14,250   | 2.48         | 2.00          | Enclosed On Tank  | Rigid    | Yes       | UUT-03       |
| DQDAA, B, <u>C</u>        | 250, 275, <u>300</u>                | 222                                  | 90                | 116           | 20,790   | 2.48         | 2.00          | Open On Tank      | Isolated | Yes       | UUT-04       |
| DQDAA, B, <u>C</u>        | 250, 275, <u>300</u>                | 232                                  | 90                | 128           | 29,504   | 2.48         | 2.00          | Enclosed On Tank  | Isolated | Yes       | UUT-05       |
| DQCA, B, C                | 600, 750, 800                       | 315                                  | 102               | 119           | 29,291   | 1.94         | 0.65          | Enclosed Off Tank | Isolated | Yes       | Interpolated |
| DQCA, B, C                | 600, 750, 800                       | 315                                  | 102               | <b>4/ 131</b> | 43,156   | 1.94         | 0.65          | Open On Tank      | Isolated | No        | Interpolated |
| DQCA, B, C                | 600, 750, 800                       | 338                                  | 102               | 142           | 52,082   | 1.94         | 0.65          | Enclosed On Tank  | Isolated | Yes       | Interpolated |
| DQFAA, B, C, <u>D</u> , H | 750, 800, 900, <u>1000,</u><br>1000 | 338                                  | 97                | 115<br>B      | 18,642   | 1.94         | 0.65          | Open Off Tank     | Isolated | No        | UUT-06       |
| DQFAA, B, C, D, H         | 750, 800, 900, 1000,<br>1000        | 338                                  | 10 <mark>2</mark> | 138           | 45,202   | 1.94         | 0.65          | Open On Tank      | Isolated | No        | Interpolated |
| DQFAA, B, C, <u>D</u>     | 750, 800, 900, <u>1000</u>          | 315                                  | 102               | 119 D         | ATE29,79424/   | 21.941       | 0.65          | Enclosed Off Tank | Isolated | No        | UUT-07       |
| DQFAA, B, C, <u>D</u>     | 750, 800, 900, <u>1000</u>          | 338                                  | 97                | 137           | 53,425   | 1.94         | 0.65          | Enclosed On Tank  | Isolated | No        | UUT-08       |

#### **Table 1 - Product Line Matrix**



| Manufacturer | Model   | Models Where Used | Material  | Max. Wet Weight<br>[ lbs ] | S <sub>DS</sub> @<br>z/h=0.0 | S <sub>DS</sub> @<br>z/h=1.0 | UUT                       |
|--------------|---------|-------------------|-----------|----------------------------|------------------------------|------------------------------|---------------------------|
|              | QSL9-G7 | DQDA, B, C        | Cast Iron | 1,627                      | 2.48                         | 2.00                         | UUT-01, 02, 03,<br>04, 05 |
| Cummins      | QSK23   | DQCA, B, C        | Cast Iron | 6,170                      | 1.94                         | 0.65                         | Interpolated              |
|              | QST30   | DQFAA, B, C, D, H | Cast Iron | 6,860                      | 1.94                         | 0.65                         | UUT-06, 07, 08            |

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## Table 1 - Certified Subcomponents: Engine Matrix

**Note:** Listed engine models are not interchangeable.

### Table 2 - Certified Subcomponents: Alternator Matrix

| Manufacturer | Model | Models Where Used                | 125 | Material                                | Max. Wet Weight<br>[ lbs ] | S <sub>DS</sub> @<br>z/h=0.0 | S <sub>DS</sub> @<br>z/h=1.0 | UUT                       |
|--------------|-------|----------------------------------|-----|---|----------------------------|------------------------------|------------------------------|---------------------------|
|              | HC4   | DQDA, B, C                       | Ī   | Steel Laminations & Copper Windings     | 2,582                      | 2.48                         | 2.00                         | UUT-01, 02, 03,<br>04, 05 |
| Cummino      | S6    | DQCA, B, C,<br>DQFAA, B, C, D    |     | Steel Laminations & Copper Windings     | Pila15,028                 | 1.94                         | 0.65                         | Interpolated              |
| Cummis       | HC6   | DQCA, B, C,<br>DQFAA, B, C, D, H | V   | Steel Laminations & Copper Windings 4/2 | 021 5,602                  | 1.94                         | 0.65                         | UUT-06, 08                |
|              | P7    | DQFAA, B, C, D, H                | C P | Steel Laminations & Copper Windings     | 6,654                      | 1.94                         | 0.65                         | UUT-07                    |

Note: S6, HC6 and P7 alternator models cannot be replaced with HC4.

### Table 3 - Certified Subcomponents: Radiator Matrix

| Manufacturar | Core Size Models Whore Used |                   | Materia            |                         | S <sub>DS</sub> @ | S <sub>DS</sub> @ | Max. Wet |              |
|--------------|-----------------------------|-------------------|--------------------|-------------------------|-------------------|-------------------|----------|--------------|
| Manulacturer | [ ft <sup>2</sup> ]         | models where used | Core (fin + tube)  | Supporting<br>Structure | z/h=0.0           | z/h=1.0           | [ lbs ]  | 001          |
|              | 10                          | DQDA, B, C        | Auminum + Aluminum | Carbon Steel            | 2.48              | 2.00              | 464      | UUT-03       |
| AKG          | 26                          | DQCA, B, C        | Auminum + Aluminum | Carbon Steel            | 1.94              | 0.65              | 1,303    | Interpolated |
| ANG          | 34 DQFAA, B, C, D, H        |                   | Auminum + Aluminum | Carbon Steel            | 1.94              | 0.65              | 1,614    | UUT-06, 08   |

ODE.

Note: Listed radiator sizes are not interchangeable.

| Manufacturer | Model   | Models Where Used                | Material                 | Max. Wet Weight<br>[ lbs ] | S <sub>DS</sub> @<br>z/h=0.0 | S <sub>DS</sub> @<br>z/h=1.0 | UUT                       |
|--------------|---------|----------------------------------|--------------------------|----------------------------|------------------------------|------------------------------|---------------------------|
|              | PCC2100 | DQDA, B, C                       | Carbon Steel and Plastic | 10                         | 2.48                         | 2.00                         | UUT-01, 02, 03,<br>04, 05 |
| Cummins      | PC 2.3  | DQCA, B, C                       | Carbon Steel and Plastic | 90                         | 1.94                         | 0.65                         | Interpolated              |
|              | PC 3.3  | DQCA, B, C,<br>DQFAA, B, C, D, H | Carbon Steel and Plastic | 90                         | 1.94                         | 0.65                         | UUT-06, 08                |

# Table 4 - Certified Subcomponents: Controller Matrix

Note: PC 2.3 and PC 3.3 models cannot be replaced with PCC2100.

## Table 5 - Certified Subcomponents: Enclosure Matrix

| Manufacturer | Model Name | Models Where Used             | RA | 7 | OSMateria 69                        | CT | S <sub>DS</sub> @<br>z/h=0.0 | S <sub>DS</sub> @<br>z/h=1.0 | UUT            |
|--------------|------------|-------------------------------|----|---|-------------------------------------|----|------------------------------|------------------------------|----------------|
|              | Thor-I     | DQDA, B, C                    |    |   | Carbon Steel                        |    | 2.48                         | 2.00                         | UUT-02, 03, 05 |
| Cummins      | Thor-II    | DQCA, B, C,<br>DQFAA, B, C, D |    |   | BY: HMOTHY J Piland<br>Carbon Steel |    | 0 1.94                       | 0.65                         | UUT-06, 07, 08 |

Note: Thor-I and Thor-II enclosures are not interchangeable.

DATE: 03/24/2021

# Table 6 - Certified Subcomponents: Fuel Tank

| Manufacturer      | Capacity<br>[ gals ] | Models Where Used             | Material     | Max. Wet Weight | S <sub>DS</sub> @<br>z/h=0.0 | S <sub>DS</sub> @<br>z/h=1.0 | UUT        |
|-------------------|----------------------|-------------------------------|--------------|-----------------|------------------------------|------------------------------|------------|
| Tramont           | 270 - 1,470          | DQDA, B, C                    | Carbon Steel | 14,697          | 2.48                         | 2.00                         | UUT-04, 05 |
| Hennig            | 270                  | DQDA, B, C                    | Carbon Steel | 3,988           | 2.48                         | 2.00                         | UUT-03     |
| United Alloy Inc. | 200 - 2,400          | DQCA, B, C,<br>DQFAA, B, C, D | Carbon Steel | 24,072          | 1.94                         | 0.65                         | UUT-08     |

Note: Listed tanks are not interchangeable.



**UUT-01** 

#### **Summary Sheet** PEI-PEER-CUM-130; UUT-30 Model Number Model Line Manufacturer DQDA DQDAC Cummins **Product Construction Summary** Structural Carbon Steel Skid **Options / Subcomponent Summary** Cummins Engine; Cummins Alternator; Cummins Controller; Bearward Radiator ORCODE **UUT Properties** Dimensions [ in ] Lowest Nat. Freq. [ Hz ] Weight [ lbs ] Length Width Height F-B V S-S 5,113 119 (50SP-66 3.49 6.22 11.09 UUT Highest Passed Seismic Run Information **Building Code** Test Criteria A<sub>RIG-H</sub> A<sub>FLX-V</sub> A<sub>RIG-V</sub> SDS z/h -LP A<sub>FLX-H</sub> 2.48 0 1.5 2.48 0.99 1.66 0.67 CBC 2019 **ICC-ES** AC156 2.00 1 1.5 3.20 2.40 1.34 0.54 Test Mounting Details Genset secured to the fixture using (4) 3/4" dia ASTM 325 bolts.



#### **UUT-02**

#### **Summary Sheet**

|                         |                             |                  |                  |               |                    | PEI-Pi             | EER-CUM-1          | 30; 001-32         |
|-------------------------|-----------------------------|------------------|------------------|---------------|--------------------|--------------------|--------------------|--------------------|
| Model Line              |                             | Мо               | del Numl         | ber           |                    | N                  | lanufacture        | r                  |
| DQDA                    |                             |                  | DQDAC            |               |                    |                    | Cummins            |                    |
|                         | I                           | Product Co       | nstructio        | n Summary     |                    |                    |                    |                    |
| Structural Carbon Steel | Skid                        |                  |                  |               |                    |                    |                    |                    |
|                         |                             | Options / Sub    | compon           | ent Summary   | ,                  |                    |                    |                    |
| Cummins Engine; Cumn    | nins Alternator; Cummir     | ns Controller; E | Bearward         | Radiator; Cun | nmins Enclo        | osure              |                    |                    |
|                         |                             |                  |                  |               |                    |                    |                    |                    |
|                         |                             |                  | 00               | Fa            |                    |                    |                    |                    |
|                         |                             | PEUR             |                  | - CON         |                    |                    |                    |                    |
|                         |                             | UU.              | T Propert        | ties          |                    |                    |                    |                    |
| Weight                  |                             | Dimension        | ns [ in ]        | 2D N          | Z                  | Lowes              | st Nat. Freq.      | . [ Hz ]           |
| [lbs]                   | Length                      | Widt             | th               | Hei           | ght                | F-B                | S-S                | V                  |
| 13,039                  | 233                         | 90               | 5P-06            | 10 10         | <u>m 00</u>        | 5.54               | 4.40               | 6.98               |
|                         |                             | Highest Passe    | ed Seism         | ic Run Inforn | nation             | · · · ·            | ,                  |                    |
| Building Code           | Test C <mark>riteria</mark> | BY               | try J            | Piland        | A <sub>FLX-H</sub> | A <sub>RIG-H</sub> | A <sub>FLX-V</sub> | A <sub>RIG-V</sub> |
| CBC 2016                | ICC-ES AC156                | 2.48             | 0                | 1.5           | 2.48               | 0.99               | 1.66               | 0.67               |
|                         |                             | 2.00             | $\frac{1}{24/2}$ | 1.5           | 3.20               | 2.40               | 1.34               | 0.54               |
|                         |                             | Test M           | ounting I        | Jetails       |                    |                    |                    |                    |
|                         |                             | A B              |                  | ING COD       |                    |                    |                    |                    |
|                         |                             |                  |                  |               | 1.                 |                    |                    |                    |



#### UNIT UNDER TEST (UUT) Summary Sheet

#### UUT-03

VMA-45782-01E; UUT-1 Model Line **Model Number** Manufacturer DQDA DQDAC-QSL9-G7 Cummins **Product Construction Summary** Structural Carbon Steel Skid and Carbon Steel Sheet Metal Enclosure **Options / Subcomponent Summary** Cummins Engine; Cummins Alternator; Cummins Controller; AKG Radiator; Cummins Enclosure; Hennig Fuel Tank RCODE **UUT Properties** Dimensions [ in ] Lowest Nat. Freq. [ Hz ] Weight [ lbs ] Width Length Height F-B S-S V 14,250 222 86 104 5.5 4.3 9.3 UUT Highest Passed Seismic Run Information **Building Code** Test Criteria z/h  $\mathbf{A}_{\mathsf{RIG-H}}$ A<sub>RIG-V</sub> S<sub>DS</sub> -IP A<sub>FLX-H</sub> A<sub>FLX-V</sub> 2.50 Ó 1.5 2.50 1.00 1.67 0.67 CBC 2016 **ICC-ES** AC156 2.00 1 1.5 3.20 2.40 1.34 0.54 **Test Mounting Details** Genset secured to fuel tank using (4) 3/4" dia. SAE Grade 5 bolts. Fuel tank secured to the fixture using (12) 1" dia. SAE Grade 8 bolts.



### UNIT UNDER TEST (UUT) Summary Sheet

**UUT-04** 

| Model Line         DQDA         tructural Carbon Steel Ski         ummins Engine; Cummins         Weight         [ Ibs ]         20,790 | d<br>s Alternator; Cummir | M<br>Product C<br>Options / Su<br>ns Controller | DQDAC<br>Onstruction<br>Ubcompone<br>; Bearward I | er<br>n Summary<br>Int Summary<br>Radiator; Tran | ,<br>mont Fuel Ta                                | M<br>ank        | lanufacture<br>Cummins | r               |
|---|---------------------------|---|---|--|--|-----------------|------------------------|-----------------|
| DQDA ructural Carbon Steel Ski ummins Engine; Cummins Weight [ Ibs ] 20,790   | d<br>s Alternator; Cummir | Product C<br>Options / Su<br>ns Controller      | DQDAC<br>onstruction<br>ubcompone<br>; Bearward I | n Summary<br>Int Summary<br>Radiator; Tran       | ,<br>mont Fuel Ta                                | ank             | Cummins                |                 |
| weight<br>[ Ibs ]<br>20,790   | s Alternator; Cummir      | Product C<br>Options / Su<br>ns Controller      | ubcompone<br>Bearward I                           | n Summary<br>Int Summary<br>Radiator; Tran       | ,<br>mont Fuel Ta                                | ank             |                        |                 |
| weight<br>[ Ibs ]<br>20,790   | d<br>s Alternator; Cummir | Options / Suits Controller                      | ubcompone<br>; Bearward I                         | nt Summary<br>Radiator; Trai                     | ,<br>mont Fuel Ta                                | ank             |                        |                 |
| Weight<br>[ Ibs ]<br>20,790   | s Alternator; Cummir      | Options / Su<br>ns Controller                   | ubcompone<br>; Bearward I                         | nt Summary<br>Radiator; Tran                     | ,<br>mont Fuel Ta                                | ank             |                        |                 |
| ummins Engine; Cummin:<br>Weight<br>[Ibs]<br>20,790   | s Alternator; Cummir      | Options / Suns Controller                       | Bearward R  | nt Summary<br>Radiator; Tran                     | ,<br>mont Fuel Ta                                | ank             |                        |                 |
| weight<br>[ Ibs ]<br>20,790   | s Alternator; Cummir      | ns Controller                                   | ; Bearward I                                      | Radiator; Tran                                   | nont Fuel Ta                                     | ank             |                        |                 |
| Weight<br>[ Ibs ]<br>20,790   | Laurette 2                | EDFO  | RCOD  | E Co.  |  |                 |                        |                 |
| Weight<br>[ Ibs ]<br>20,790   | Langette -                | EDFO  | RCOD  | E Co.  |  |                 |                        |                 |
| Weight  | Laurette 2                | EDFU  | K CODI  | $= C \land \land$                                |  |                 |                        |                 |
| Weight  |                           | U   |   |  |  |                 |                        |                 |
| Weight  | Lonath                    |   | UT Properti                                       | es   |  |                 |                        |                 |
| 20,790  |                           | Dimensi   | ons [ in ]  | 2D   | T  | Lowes           | st Nat. Freq.          | [ Hz ]          |
| 20,790  | Length                    | Wi  | dth   | Hei  | ght  | F-B             | S-S                    | <u> </u>        |
|   |                           | lighost Pas                                     | 5P-06   | DG 11  | 6 mation   | 3.11            | 4.40                   | 7.84            |
| Building Code   | Test Criteria             | Sec   |   |  |  | <b>A</b> nio 11 | Δ                      | <b>A</b> nia 1/ |
|   |                           | 2.48  | ptrfy J   | Piland   | 2.48   | 0.99            | 1.66                   | 0.67            |
| CBC 2016  | ICC-ES AC156              | 2.00  |   | 1.5  | 3.20   | 2.40            | 1.34                   | 0.54            |
|   |                           | DATE  | Mountina E  | etails   | <del>/////////////////////////////////////</del> | -               |                        |                 |
|   |                           | ORNIA   |   | NG COD   |  |                 | U                      | JT-04           |

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### UNIT UNDER TEST (UUT) Summary Sheet

UUT-05

|                         | <b>,</b>                              |  |                 |                    | PEI-PI             | EER-CUM-1          | 30; UUT-33         |  |
|-------------------------|---------------------------------------|--|-----------------|--------------------|--------------------|--------------------|--------------------|--|
| Model Line              |                                       | Model Numb                             | Manufacturer    |                    |                    |                    |                    |  |
| DQDA                    |                                       | DQDAC                                  |                 |                    |                    | Cummins            |                    |  |
|                         |                                       | Product Construction                   | Summary         |                    |                    |                    |                    |  |
| Structural Carbon Steel | Skid                                  |  | r ourmary       |                    |                    |                    |                    |  |
|                         |                                       |  |                 |                    |                    |                    |                    |  |
|                         | (                                     | Options / Subcompone                   | ent Summary     | ,                  |                    |                    |                    |  |
| Cummins Engine; Cumn    | nins Alternator; Cummin               | s Controller; Bearward I               | Radiator; Cum   | nmins Enclo        | sure; Tramo        | ont Fuel Tan       | k                  |  |
|                         |                                       |  |                 |                    |                    |                    |                    |  |
|                         |                                       | ORCOD                                  | 50.             |                    |                    |                    |                    |  |
|                         |                                       | OF                                     | - CON           |                    |                    |                    |                    |  |
|                         |                                       | UUT Properti                           | es              |                    |                    |                    | F 11- 1            |  |
| Weight<br>[ lbs ]       | Longth                                | Dimensions [ in ]                      | Hoir            | ht                 | Lowes              | st Nat. Freq       | . [HZ]             |  |
| 29.504                  | 232                                   | 06P-06                                 | 12              | 8                  | 3 11               | 4 40               | •<br>6 98          |  |
| 20,001                  | UUT H                                 | lighest Passed Seismi                  | c Run Inform    | ation              | 0.11               | 1.10               | 0.00               |  |
| Building Code           | Test C <mark>riteria</mark>           | S <sub>DS</sub> t z/h                  | Dilded          | A <sub>FLX-H</sub> | A <sub>RIG-H</sub> | A <sub>FLX-V</sub> | A <sub>RIG-V</sub> |  |
| 000 0040                | ICC-ES AC156                          | 2.48 0                                 | 1.5             | 2.4 <mark>8</mark> | 0.99               | 1.66               | 0.67               |  |
| CBC 2016                |                                       | 2.00 02/21/2                           | 1.5             | 3. <mark>20</mark> | 2.40               | 1.34               | 0.54               |  |
|                         |                                       | Test Mounting E                        | etails          |                    |                    |                    |                    |  |
| Genset secured to a sub | o-base tank via <mark>(4)</mark> EBCC | 0 4990-60 duro elastom                 | er isolators. S | Sub-base ta        | nk secured t       | o fixture usi      | ng (10) 5/8"       |  |
| dia. ASTM 325 dolts.    |                                       |  |                 | V                  |                    |                    |                    |  |
|                         |                                       | 00                                     |                 |                    |                    |                    |                    |  |
|                         |                                       | VIA DUIT                               | GCU             | , l-mi             |                    | 001-05             |                    |  |
|                         |                                       | R RULP                                 | Le CL           | I MARIE            |                    | -                  |                    |  |
| L.                      |                                       |  |                 |                    |                    | 1                  |                    |  |
| 1                       |                                       |  |                 |                    |                    | T                  |                    |  |
| -                       |                                       |  |                 |                    |                    | 51                 |                    |  |
|                         |                                       |  |                 |                    |                    |                    |                    |  |
| i.                      |                                       | IT I I I I I I I I I I I I I I I I I I |                 |                    |                    |                    |                    |  |
|                         | -                                     |  |                 |                    |                    | 11                 |                    |  |
| 1                       | A                                     |  |                 |                    |                    |                    |                    |  |
|                         |                                       |  |                 |                    |                    |                    |                    |  |
|                         |                                       |  |                 |                    |                    |                    |                    |  |
| 75                      |                                       |  |                 |                    |                    |                    |                    |  |
|                         | AT MILE COM                           |  |                 | /                  | /                  |                    |                    |  |
|                         | 1-1-                                  |  | 200             | -                  | 1                  |                    |                    |  |
|                         | 1                                     |  |                 |                    | A 19               |                    |                    |  |



#### **UUT-06**

#### **Summary Sheet**

40042.11

|                         |                |              |                      |            |              |                    | 1                        | VIVIA-4994         | 3; 001-34B         |  |
|-------------------------|----------------|--------------|----------------------|------------|--------------|--------------------|--------------------------|--------------------|--------------------|--|
| Model Line              |                | Model Number |                      |            | Manufacturer |                    |                          |                    |                    |  |
| DQFA                    | DQFAD          |              |                      | Cummins    |              |                    |                          |                    |                    |  |
|                         | •              |              | Product Co           | onstructio | n Summary    |                    |                          |                    |                    |  |
| Structural Carbon Steel | Skid.          |              |                      |            |              |                    |                          |                    |                    |  |
|                         |                | (            | Options / Su         | bcompone   | ent Summary  | 1                  |                          |                    |                    |  |
| Cummins Engine; Cumi    | mins Alternato | or; Cummin   | s Controller;        | AKG Radia  | ator.        |                    |                          |                    |                    |  |
|                         |                |              |                      |            |              |                    |                          |                    |                    |  |
|                         |                |              |                      | COD        |              |                    |                          |                    |                    |  |
|                         |                |              | FOF                  |            | ECON         |                    |                          |                    |                    |  |
|                         |                |              | E UI                 | JT Propert | ies          |                    |                          |                    |                    |  |
| Weight                  |                |              | Dimensio             | ons [ in ] |              | 4                  | Lowest Nat. Freq. [ Hz ] |                    |                    |  |
| [lbs]                   | Leng           | gth 🚽        | Wid                  | Width      |              | Height             |                          | S-S                | V                  |  |
| 18,642                  | 338            | 3 8          | 9                    | 6P-06      | 09 11        | )9 115             |                          | 2.9                | 4.5                |  |
|                         |                | UUT H        | lighest Pass         | ed Seismi  | c Run Inform | nation             |                          |                    |                    |  |
| Building Code           | Test Cr        | iteria       | BV <sup>.Ps</sup> im | z/h        | Piland       | A <sub>FLX-H</sub> | A <sub>RIG-H</sub>       | A <sub>FLX-V</sub> | A <sub>RIG-V</sub> |  |
| CBC 2016                | ICC-ES         | AC156        | 1.94                 | 0          | 1.5          | 1.94               | 0.78                     | 1.3                | 0.52               |  |
|                         |                |              | Test                 | Nounting [ | Details      |                    |                          |                    |                    |  |
|                         |                |              |                      |            |              |                    |                          |                    |                    |  |
|                         |                |              |                      |            | ///          | A PARTY            | H                        |                    | No.                |  |



### Summary Sheet

UUT-07

|                         |                             |                          |               |                    | PEI-P              | EER-CUM-1          | 23; UUT-13         |
|-------------------------|-----------------------------|--------------------------|---------------|--------------------|--------------------|--------------------|--------------------|
| Model Line              |                             | Model Numbe              | Manufacturer  |                    |                    |                    |                    |
| DQFA                    |                             | DQFAD                    |               |                    | Cummins            |                    |                    |
|                         |                             | Product Construction     | Summary       |                    |                    |                    |                    |
| Structural Carbon Steel | Skid and Carbon Steel S     | Sheet Metal Enclosure    |               |                    |                    |                    |                    |
|                         |                             |                          |               |                    |                    |                    |                    |
|                         | (                           | Options / Subcompone     | nt Summary    |                    |                    |                    |                    |
| Cummins Engine; Cumr    | nins Alternator; Cummin     | s Controller; Bearward F | Radiator; Cum | mins Thor-         | Il Enclosure       |                    |                    |
|                         |                             |                          |               |                    |                    |                    |                    |
|                         |                             | 0000                     |               |                    |                    |                    |                    |
|                         |                             | FORCODE                  | CON           |                    |                    |                    |                    |
|                         | - AL                        | UUT Propertie            | es            | -                  |                    |                    |                    |
| Weight                  |                             | Dimensions [ in ]        |               | T                  | Lowes              | st Nat. Freq.      | [ Hz ]             |
| [ lbs ]                 | Length                      | Width                    | Heig          | pht                | F-B                | S-S                | V                  |
| 29,794                  | 315                         | (102 P-06)               | )9 11         | 9                  | 5.54               | 8.8                | 13.97              |
|                         | UUT H                       | lighest Passed Seismic   | Run Inform    | ation              |                    |                    |                    |
| Building Code           | Test C <mark>riteria</mark> | By Spsimothz/h J         | Piland        | A <sub>FLX-H</sub> | A <sub>RIG-H</sub> | A <sub>FLX-V</sub> | A <sub>RIG-V</sub> |
| CBC 2016                | ICC-ES AC156                | 1.94 0                   | 1.5           | 1.9 <mark>4</mark> | 0.78               | 1.3                | 0.52               |
|                         |                             |                          |               |                    |                    |                    |                    |
|                         |                             | Ru" sami)                | -             | 0                  |                    |                    |                    |



#### UUT-08

#### Summary Sheet

VMA-49943; UUT-34A

|                         |                             |               |                        |               |                    | 1                        | VIVI/              | 5, 001-547         |  |
|-------------------------|-----------------------------|---------------|------------------------|---------------|--------------------|--------------------------|--------------------|--------------------|--|
| Model Line              |                             | Model Number  |                        |               |                    | Manufacturer             |                    |                    |  |
| DQFA                    |                             | DQFAD         |                        |               | Cummins            |                          |                    |                    |  |
|                         | •                           | Product C     | onstructio             | n Summary     |                    |                          |                    |                    |  |
| Structural Carbon Steel | Skid.                       |               |                        |               |                    |                          |                    |                    |  |
|                         |                             |               |                        |               |                    |                          |                    |                    |  |
|                         |                             | Options / S   | ubcompon               | ent Summary   | /                  |                          |                    |                    |  |
| Cummins Engine; Cumr    | nins Alternator; Cummi      | ns Controller | ; AKG Radi             | ator; Cummin  | s Enclosure        | ; UAI Fuel T             | ank.               |                    |  |
|                         |                             |               |                        |               |                    |                          |                    |                    |  |
|                         |                             |               | 0.00                   | Fa            |                    |                          |                    |                    |  |
|                         |                             | n FU          | N OOD                  | E CON         |                    |                          |                    |                    |  |
|                         |                             | JEP U         | UT Propert             | ies           |                    |                          |                    |                    |  |
| Weight                  | 4                           | Dimensi       | ons [ in ]             |               | Z                  | Lowest Nat. Freq. [ Hz ] |                    |                    |  |
| [ lbs ]                 | Length                      | Wi            | dth                    | Hei           | Height             |                          | S-S                | V                  |  |
| 53,425                  | 338                         | C             | <u>8P-06</u>           | 09 137 m      |                    | 1.8                      | 3.1                | 4.7                |  |
|                         | UUT                         | Highest Pas   | sed Seism              | ic Run Inforn | nation             |                          | 1                  | 1                  |  |
| Building Code           | Test C <mark>riteria</mark> | BYIDS         | oth <mark>r/h</mark> J | Piland        | A <sub>FLX-H</sub> | A <sub>RIG-H</sub>       | A <sub>FLX-V</sub> | A <sub>RIG-V</sub> |  |
| CBC 2016                | ICC-ES AC156                | 1.94          | Ó                      | 1.5           | 1.9 <mark>4</mark> | 0.78                     | 1.3                | 0.52               |  |
|                         |                             | ORNIA         | BUILD                  | NG COD        |                    |                          |                    |                    |  |
|                         |                             |               |                        |               |                    |                          |                    | A Des              |  |