



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION  
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR HCAI SPECIAL SEISMIC  
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

**APPLICATION #: OSP-0783**

**HCAI Special Seismic Certification Preapproval (OSP)**

Type:  New  Renewal

**Manufacturer Information**

Manufacturer: Evoqua Water Technologies / Xylem

Manufacturer's Technical Representative: Kevin Murray

Mailing Address: 251 W. Channel Road, Benicia, CA 94510

Telephone: (650) 631-6220 Email: kevin.r.murray@xylem.com

**Product Information**

Product Name: Industrial Control Panels

Product Type: Pump Control Panels

Product Model Number: 230020E

General Description: SPD control panel with carbon steel enclosure, programmable logic controller, human-machine interface, ethernet switch, quality and flow monitors and remote monitoring capabilities.

Mounting Description: Rigidly Mounted to Rigid/Flexible Wall

Tested Seismic Enhancements: None

**Applicant Information**

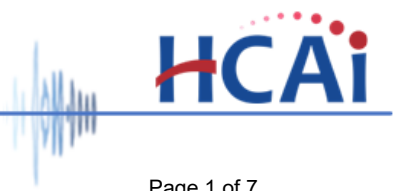
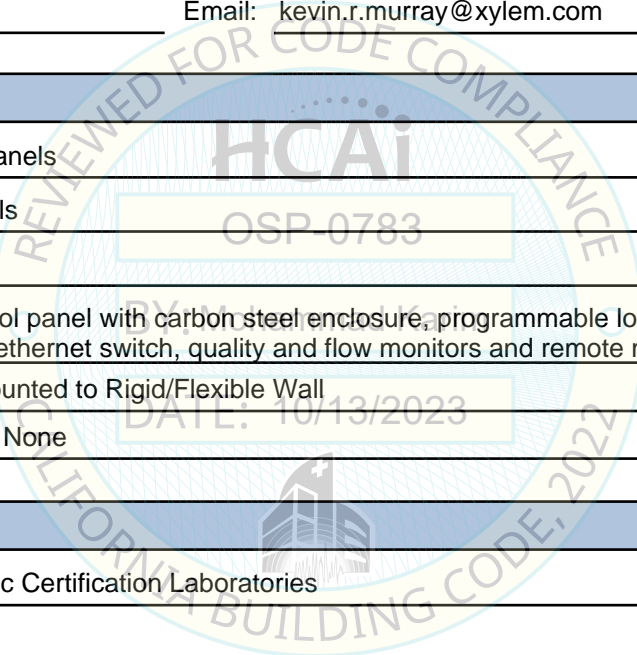
Applicant Company Name: Dynamic Certification Laboratories

Contact Person: Kelly Laplace

Mailing Address: 1315 Greg Street #109, Sparks, NV 89431

Telephone: (775) 358-5085 Email: kelly@shaketest.com

Title: Business Manager





**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION  
FACILITIES DEVELOPMENT DIVISION**

**California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)**

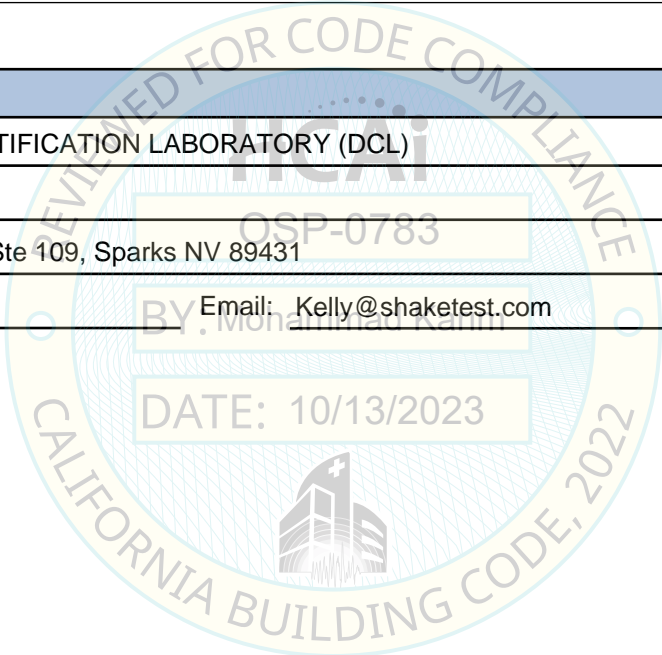
Company Name: THE VMC GROUP  
Name: Kenneth Tarlow California License Number: S2851  
Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814  
Telephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com

**Certification Method**

GR-63-Core       ICC-ES AC156       IEEE 344       IEEE 693       NEBS 3  
 Other (Please Specify): \_\_\_\_\_

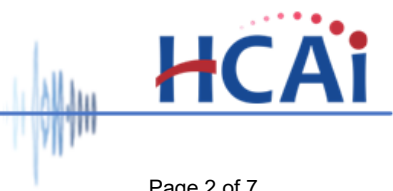
**Testing Laboratory**

Company Name: DYNAMIC CERTIFICATION LABORATORY (DCL)  
Contact Person: Kelly Laplace  
Mailing Address: 1315 Greg St., Ste 109, Sparks NV 89431  
Telephone: (775) 358-5085 Email: Kelly@shaketest.com



*"A healthier California where all receive equitable, affordable, and quality health care"*

**STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY**





**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION  
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**Seismic Parameters**

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 1.50 (Rigid; Sds 2.0g, z/h=1); 1.13 (Rigid; Sds 2.5g, z/h=0): 4.5  
(Isolated: Sds=2.0; z/h=1) and 1.9 (Isolated: Sds=2.5; z/h=0)

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SDS (Design spectral response acceleration at short period, g) = Sds 2.0g, z/h=1; Sds 2.5g, z/h=0

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$a_p$  (Amplification factor) = 2.5

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$R_p$  (Response modification factor) = 6(Rigid) and 2 (Vibration Isolated)

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$\Omega_0$  (System overstrength factor) = 2.0

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$I_p$  (Importance factor) = 1.5

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z/h (Height ratio factor) = 1 and 0

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Natural frequencies (Hz) = See Attachment

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Overall dimensions and weight = See Attachment

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**HCAI Approval (For Office Use Only) - Approval Expires on 10/13/2029**

Date: 10/13/2023

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Name: Mohammad Karim Title: Supervisor, Health Facilities

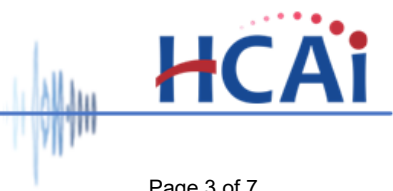
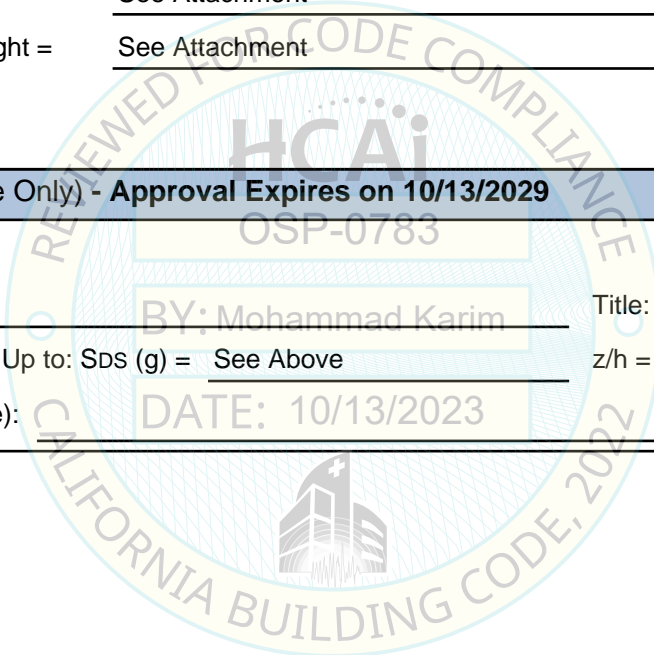
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Special Seismic Certification Valid Up to: SDS (g) = See Above z/h = See Above

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Condition of Approval (if applicable): DATE: 10/13/2023

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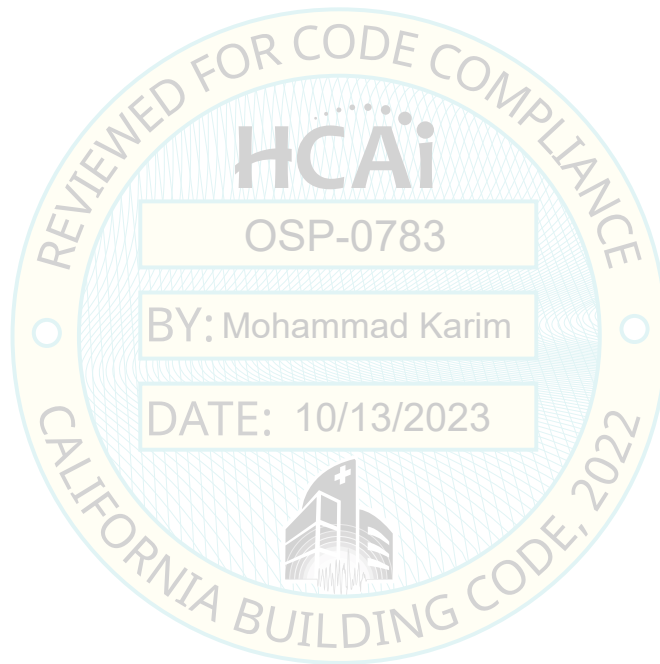


**Special Seismic Certification**  
**Table 1- Certified Component**



DCL Project Number: 45018-2301  
 Manufacturer: Evoqua Water Technologies / Xylem  
 Product Line: RO/DI Main Control Panel  
 Mounting: Rigidly Mounted to Rigid/Flexible Wall  
 Certified Seismic Levels:  $S_{DS} = 2.00g, z/h=1.0$ ;  $S_{DS} = 2.50g, z/h=0.0$

Model Number	Dimensions [in.]			Weight [ lb. ]	Unit
	Length	Width	Height		
230020E	12.0	20.0	24.0	62	UUT-01a,b UUT-02a,b



**Special Seismic Certification**  
**Table 2 - Certified Subcomponents**



DCL Project Number: 45018-2301

Certified Seismic Levels:  $S_{DS} = 2.00g, z/h=1.0$ ;  $S_{DS} = 2.50g, z/h=0.0$

Subcomponent Type	Manufacturer Model Number	Manufacturer	Description	Material	Weight (lb.)	Unit
Enclosure	CSD242010LG	Hoffman	NEMA 4/12, Dimensions <sup>1</sup> (HxWxL): 24"x20"x12"	Carbon Steel	15	UUT-01a,b UUT-02a,b
Back Panel	CP2016	Hoffman	N/A	Carbon Steel	4	UUT-01a,b UUT-02a,b
Programmable Logic Controller	1766-L32BWA	Allen Bradley	N/A	Plastic	<1	UUT-01a,b UUT-02a,b
Analog Input Module	1762sc-IF8u	Allen Bradley	N/A	Plastic	<1	UUT-01a,b UUT-02a,b
Human-Machine Interface	2711R-T7T	Allen Bradley	7" Display	Plastic	2	UUT-01a,b UUT-02a,b
Ethernet Switch	SE-SW5U	Stride	5-Port	Plastic	<1	UUT-01a,b UUT-02a,b
Power Supply	PSP24-120-S	Rhino	100-240 V (1.2A-2.4A)	Plastic	<1	UUT-01a,b UUT-02a,b
Selector Switch	3SU1002-2BF40-0AA0	SIEMENS	N/A	Plastic	<1	UUT-01a,b UUT-02a,b
	3SU1401-1BC40-0AA0	SIEMENS	N/A	Plastic	<1	UUT-01a,b UUT-02a,b
Alarm	TMW-86-201-S(S)	Floyd Bell	N/A	Plastic	<1	UUT-01a,b UUT-02a,b
Relay	D1RF1A	Eaton	120 VAC	Plastic	<1	UUT-01a,b UUT-02a,b
	D4PR21A	Eaton	120 VAC	Plastic	<1	UUT-01a,b UUT-02a,b
	RV8H-L-D24	Idec	24 VAC	Plastic	<1	UUT-01a,b UUT-02a,b
Fuse	GMA-3A	Cooper Bussmann	3 Amp	Glass	<1	UUT-01a,b UUT-02a,b
	GMA-5A	Cooper Bussmann	5 Amp	Glass	<1	UUT-01a,b UUT-02a,b
	HTCR15	Edison	15 Amp	Glass	<1	UUT-01a,b UUT-02a,b
Fuse Terminal Block	DN-F10	DINnectors	N/A	Plastic	<1	UUT-01a,b UUT-02a,b
Fuse Holder	EHCC1DU	Edison	N/A	Plastic	<1	UUT-01a,b UUT-02a,b
Conductivity/ Resistivity Analog Monitor	30 280 774	Mettler-Toledo Thornton	N/A	Plastic	2	UUT-01a,b UUT-02a,b

1. Length dimension of the enclosure doesn't include the length of the door (0.8") or externally attached conductivity/resistivity analog monitor (1.2")

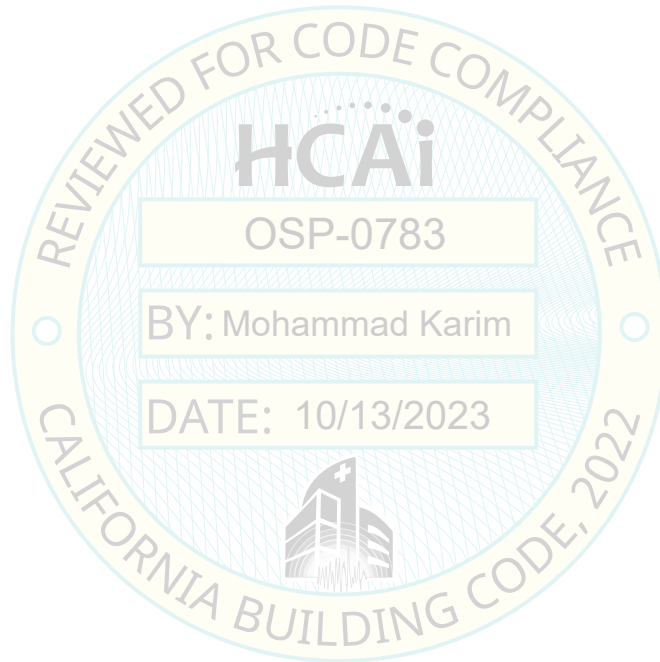
**Special Seismic Certification**

**Table 3 - Tested Units**



DCL Project Number: 45018-2301  
 Manufacturer: Evoqua Water Technologies / Xylem  
 Product Line: RO/DI Main Control Panel  
 Mounting: Rigidly Mounted to Rigid/Flexible Wall  
 Certified Seismic Levels:  $S_{DS} = 2.00g, z/h=1.0; S_{DS} = 2.50g, z/h=0.0$

Model Number	Dimensions [in.]			Weight [ lb. ]	Unit
	Length	Width	Height		
230020E	12.0	20.0	24.0	62	UUT-01a,b
230020E	12.0	20.0	24.0	62	UUT-02a,b



**UUT-01a,b and UUT-02a,b - DCL Test Report 45018-2301**



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

**Manufacturer:** Evoqua Water Technologies / Xylem

**Product Line:** RO/DI Main Control Panel

**Model Number:** 230020E

**Product Construction Summary:** Carbon Steel

**Options / Component Summary:** See Certified Subcomponents Table 2

**Note:** The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component and attachment system and force-resisting systems was maintained.

**UUT Properties**

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Units	Length	Width	Height	Front-Back	Side-Side	Vertical
62	UUT-01a,b and UUT-02a,b	12.0	20.0	24.0	N/A	N/A	N/A

**Seismic Test Parameters**

Building Code	Test Criteria	Component	Sds (g)	z/h	Ip	Aflx (g)	Arig (g)
CBC 2022	ICC-ES AC156	Horizontal	2.00	1.0	1.5	3.20	2.40
		Vertical	2.50	0.0		1.67	0.67

**Unit Mounting Description:**

UUT-01a,b and UUT-02a,b were both mounted to the DCL wall fixture with (4) 5/16" Grade 5 bolts, flat washers, 1.5" x 1.5" x 3/16" carbon steel plate washers, and channel nuts. The DCL wall frame fixture was rigidly mounted to the shake table for the UUT-01a and UUT-02a shake. For the isolated test (UUT-01b and UUT-02b), the DCL wall frame fixture was mounted to the shake table with (4) VMC Group MSSH isolators.

DATE: 10/13/2023



**Figure 1.** Photograph of UUT-01a and UUT-02a, rigid configuration



**Figure 2.** Photograph of UUT-01b and UUT-02b, isolated configuration