

MIDAS UPDATE

MIDAS Users Group

Marion, MA
August 20, 2015

Presented by:
Mike Richard



TELEDYNE TEST SERVICES
Everywhereyoulook™

- Utility members who plan to participate in a formal MIDAS Owners Group (show of hands)
- Formation of a formal MIDAS Owners Group
 - Utility suggestions on logistics
 - Financial considerations
 - Scheduling considerations
 - Feasibility considerations
 - Goals
 - Products
 - Software
 - Documentation
 - Support
 - Training
 - Services
 - Implementation (initial phase)
 - MOV Calculation support (ongoing phase)

- Process standardization
 - Exelon versus FENOC
- Methods standardization
 - BWROG DCM
 - EPRI Butterfly
 - JOG Classification
- Margin standardization
 - Min Requirements
 - Max Limitations (contributing terms)
 - Error Combinations
 - Essential margins versus non-essential
- Terminology standardization
- Report(s) standardization
- Documentation standardization (V&V)
- Integration of new ASME requirements

- Process standardization
 - Exelon versus FENOC
- Pre-Test Setup Window standardization
 - Short report versus long report
 - Content and terminology (proposed work)
- Post-Test Analysis standardization
 - Short report versus long report
 - Marker points used for calculations/trending
 - Criteria and terminology (work done)
- Trending standardization
 - Current As-Found to previous As-Left
 - Current As-Left to current As-Found
 - Others?
- Auxiliary features standardization
 - Rotor and Limit Switch settings
 - Lift/Lead settings
- Documentation standardization (V&V)

- MIDAS Margin Review using spreadsheets
 - Exelon versus FENOC
 - FENOC versus PGN (Duke)
 - FENOC versus SNC
- MIDAS Software Classification (Class 1?)
 - Review industry classification procedures
 - Prepare common response
 - Prepare common documentation
- MIDAS Technical Issues
 - BWROG DCM
 - EPRI PPM
 - STD Voltage Drop
- MIDAS Redirector
 - New Features

- Defines final setup windows in MIDAS
- MIDASTEST is used to implement setup window
- No changes are allowed to the setup window in MIDASTEST

Pre-Test Setup for M0-2-12-015 WO# C0222222

Close Control Scheme: TORQUE Safety Function: CLOSE

Setup Setup (cont'd) As-Found As-Left Previous Test

Reason For Diagnostic Test GL96-05 PVT

Recommended Diagnostic Test System Quiklook

Test Criteria Selection Basis Thrust & Torque

Recommended Device to Acquire Thrust QSS

Recommended Device to Acquire Torque QSS

Running Load Criteria Selection Basis Thrust Torque Handwheel

Packing Adjustment Method [select one]

N/A

Wrench Tight

Maximum Packing Gland Torque and Expected Running Load Range

Maximum Allowable Running Current 28.00

Maximum CLOSE Stroke Time 32 seconds

Maximum OPEN Stroke Time 31 seconds

Maximum Handwheel Run Torque 66.00 ft-lbs

Exit Rich Enos 1/13/11 16:06:15 NOT APPROVED 1/13/11 16:06:15 Cancel

- Defines initial setup window in MIDAS.
- FETEST can be used to alter setup window.
- Any changes in FETEST must be resolved in MIDAS

Pre-Test Setup for TEST-GL-01 WO# 0609857

Close Control Scheme: Torque Safety Function: CLOSE

Setup Scheduled Work Previous Test

Thrust Window Torque Window Spring Pack

Thrust Parameters	CLOSE		OPEN	
	Design	Test	Design	Test
EE (%)	0.082	0.1170	0.082	0.1170
TSR (%)	0.05	0.050	0	0.000
RDLr (%)	0.14	0.140	/	
RDLb (%)	0.03	0.030		
SLDr (%)	0	0.000		
SLDb (%)	0.05	0.050		
SPRb (%)	0	0.000		
FSE (lbs)	0	0.0	0	0.0
Packing (lbs)	1000	1000	1000	1000

Limiting Parameters	CLOSE	OPEN
Valve	15377	15040
Seismic	0	0
Actuator TH	22680	22680
Actuator TQ / SF	28004	28004
Motor TQ / SF	31853	37138
*Spring Pack TQ/SF	14766	14766
*EPRI (Gate Only)	N/A	N/A

*Not Included in Mechanical Limit

Normal Position is OPEN

Measured Parameters:

Thrust Derived from:

Calibrator Location:

CLOSE THRUST SCALE

15377 — MECHANICAL LIMIT
 13642 — UPPER LIMIT
 13642 — MAX CST (for Thrust Only, Mechanical Limit with Motor)
 6888 — LOWER LIMIT
 5147 — RAW REQUIRED (5147)
 0

Exit Rich Enos 6/19/09 13:09 Dave Thrall 6/19/09 14:07 Cancel

Any changes in FETEST must be resolved in MIDAS

As-Left Margin Assumptions for 1B21F0019

Exit

Current PVT			Calculated PVT	
Schedule	Risk	Interval	Max Interval	Margin
Outage	L	8.00 (years)	10 (years)	18.1 %

Safety Function: CLOSE Close Control: Torque

Thrust		Torque	
Design		Test	
Thrust Measurement Device	QSS	QSS	
Packing Load (C)	1000	1185	(lbs)
Packing Load (O)	1000	1160	(lbs)
Rate of Loading Random	0.1400	0	(dec)
Rate of Loading Bias	0.0600	0.15	(dec)
Stem Lube Degradation Random	0.100	0	(dec)
Stem Lube Degradation Bias	0.0000	0.1	(dec)
Spring Pack Relaxation Bias	0.0000	0	(dec)
Thrust Reading Error (C)	0.0510	0.052	(dec) @C14
		0.052	(dec) @C16
Thrust Full Scale Error (C)	0.0	0	(lbs) @C14
		0	(lbs) @C16
Thrust Reading Error (O)	0.0510	0.044	(dec) @09
Thrust Full Scale Error (O)	0.0	0	(lbs) @09
Torque Correction Factor	1.0000	1	
Stem COF (C)	0.1500	0.073	
Stem COF (O)	0.1500	0.106	
Unwedging Stem COF	0.2000	0.106	

Test of Record: 200497776 05/10/13 6

- New Peerless motor curves
 - Rev 3 curves added
 - Rev 2 curves retained but noted as obsolete
- New User Interface and associated report
- Comparison of MPR spreadsheet to MIDAS for V&V test cases leaves unanswered questions.
- Globe Valves use extra gate valve wedging steps, history and resolution. Is this resolved?
- TST and UNW Iteration problems
 - Optional TST/UNW iteration suggestion
- Functional Actuator Capability (FAC) Iteration
 - Rising stem with default profile
 - Rising stem with User Input Stem Thrust profile
 - Quarter turn with User Input Stem Torque profile
 - Optional FAC iteration suggestion
 - Scaling User Input Stem Thrust or Torque profiles

Peerless Rev 3 motors added to Peerless Rev 2 motors
Peerless Rev 2 motors renamed as Obsolete

Motor Curve Lookup for BWROG-13s

Degraded Voltage is CALCULATED from MCC

Torque	Manufacturer	Curve	Origin	Frame	FLA	LRA	CRT	HP
15	PEERLESS	K11854	BWROG-R3	56	4.8	28	16.5	0
15	PEERLESS	K5010	OBSOLETE	56	4.7	29.4	18.4	1
15	PEERLESS	K11301	PGN-BNP	56	0	0	0	0
15	RELIANCE	4034	BWROG-R2	56	4.7	30	23.5	1
25	PEERLESS	K11858	BWROG-R3	56	7	42.75	15	0
25	PEERLESS	K5499	OBSOLETE	56	7	42	28	1.8
25	PEERLESS	K11302	PGN-BNP	56	0	0	0	0
25	RELIANCE	4027	BWROG-R2	56	7.4	47.5	35	1.8
40	PEERLESS	K11842	BWROG-R3	202	10.8	81.5	34.5	0
40	PEERLESS	K5050	OBSOLETE	202	0	51	39	0
40	RELIANCE	1643	BWROG-R2	186	10.6	64.3	48	0
60	PEERLESS	K11851	BWROG-R3	224	17.3	95	20	0
60	PEERLESS	K11114	OBSOLETE	224	18	122	70	4.3
60	RELIANCE	1516	BWROG-R2	187	16.4	100	78	0
80	PEERLESS	K11852	BWROG-R3	224	22.2	107	46	0
80	PEERLESS	K4053	OBSOLETE	224	0	130	98	5.8
80	RELIANCE	1644	BWROG-R2	215	22.2	145	98	0

AC/DC: AC DC

Voltage: 250

DC Method: BWROG

RPM: 1900

60 PEERLESS K11851
Current Selection

OK Cancel

MIDAS BWROG DCM: New User Interface



BWROG DC Methodology for Benchmark-19 [Print] [Exit]

General Information | Valve Information | Detailed Results | Warnings

Parameters

	CLOSE	OPEN	CLOSE REF	OPEN REF
Valve Type	GLOBE		821	
Load Profile Method	Input Stem Thrust		821	
User Defined Stem Thrust	[Edit Close] [Edit Open]			
Differential Pressure (psi)	0	0	N/A	821
Bonnet Pressure at Full Open (psig)	0	0	N/A	821
Flow Rate (gpm)	0		821	
Fluid Density (lbs/ft ³)	0.000		821	
Length of Upstream Piping (pipe diameters)	0		821	
Additional Stroke Time	1.0	1.0	N/A	821
Partial Stroke Percentage	1.000	1.000	N/A	821
Optional TST/UNW iteration suggestion (ft-lbs)	0.00	0.00	N/A	N/A
Functional Actuator Capability				
Optional FAC iteration suggestion (lbs)	0	0	N/A	N/A
Use FAC for position controlled strokes?	<input checked="" type="radio"/> Yes <input type="radio"/> No		N/A	
Use Gate wedging steps for Globe FAC?	<input checked="" type="radio"/> Yes <input type="radio"/> No		N/A	
Calculated Values				
Degraded Voltage at Motor (VDC)	123.6	123.6		
Instantaneous Actuator Torque (ft-lbs)	147.4	147.4		
Functional Actuator Capability (ft-lbs)	113	117.1		
Predicted Stroke Time (sec)	26.65	26.65		
Baseline Stroke Time (sec)	26.34	26.34		
Isolation Stroke Time (sec)	26.65			

MIDAS BWROG DCM: Globe valve additional steps

BWROG DC Methodology for Benchmark-19

Print Exit

General Information Valve Information **Detailed Results** Warnings

Combined Plot

Close Open

Stroke	Position	Stem Thrust	Avg Stem Thrust	Avg Stem Torque	Worm Speed	Gearbox Eff	Avg Motor
0%	0.00	268	0	0.00	0	0.000	0.00
0%	0.00	268	268	2.39	0	0.350	0.06
0%	0.00	268	268	2.39	1182	0.337	0.06
0%	0.00	268	268	2.39	1181	0.337	0.06
0%	0.00	268	268	2.39	1181	0.337	0.06
0%	0.00	268	268	2.39	1181	0.337	0.06
0%	0.00	268	268	2.39	1181	0.337	0.06
0%	0.00	268	268	2.39	1181	0.337	0.06
0%	0.00	268	268	2.39	1181	0.337	0.06
0%	0.00	268	268	2.39	1181	0.337	0.06
0%	0.00	268	268	2.39	1181	0.337	0.06
0%	0.00	268	268	2.39	1181	0.337	0.06
1%	0.02	268	268	2.39	1181	0.337	0.06
2%	0.04	268	268	2.39	1181	0.337	0.06
3%	0.06	268	268	2.39	1181	0.337	0.06
4%	0.07	268	268	2.39	1181	0.337	0.06
5%	0.09	268	268	2.39	1181	0.337	0.06
6%	0.11	268	268	2.39	1181	0.337	0.06
7%	0.13	268	268	2.39	1181	0.337	0.06
8%	0.15	268	268	2.39	1181	0.337	0.06
9%	0.17	268	268	2.39	1181	0.337	0.06
10%	0.19	268	268	2.39	1181	0.337	0.06
12%	0.22	268	268	2.39	1181	0.337	0.06
14%	0.26	268	268	2.39	1181	0.337	0.06
16%	0.30	268	268	2.39	1181	0.337	0.06

Double-Click on a column for graphical representation

Step 7 -- Calculate Maximum Allowable Thrust at Torque Switch Trip (Closing Strokes Only)

For closing strokes, calculate the maximum allowable thrust at torque switch trip, $T_{TST-max}$, as follows.

7.1. Determine the terminal voltage (V_T) and the available motor torque using the following iterative approach.

7.1.1. Using the motor performance data in Table 2-3 for the appropriate motor, determine the motor current corresponding to the nominal motor torque, \mathcal{G}_{nom} . Use interpolation in Table 2-3, as needed. Initially set the motor current, I (amps), to this value.

7.1.2. Calculate the motor voltage, V_T (volts), using the following equation.

$$\text{Equation 2-22: } V_T = V_{mcc} - (I)(R_{cable} + R_{tol})$$

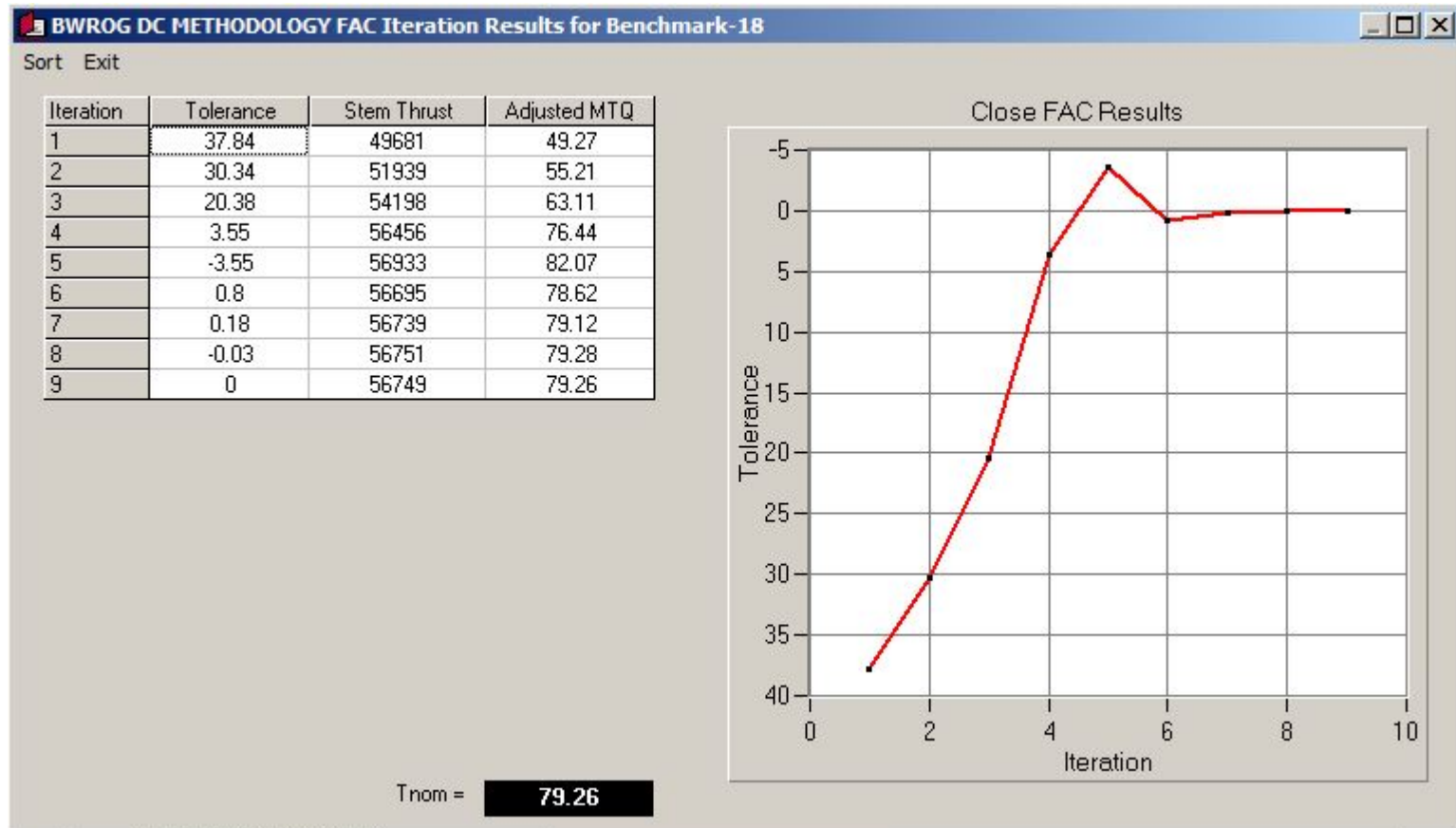
- Problem
 - Iteration started using nominal motor torque
 - Lookup motor current using nominal motor torque
 - Calculate motor voltage < 0. Iteration stops.
- Solution
 - Iteration started using nominal motor torque adjusted for degraded voltage. Repeat process.
 - Optional TST/UNW iteration suggestion

Step 6 -- Calculate Functional Actuator Capability and Margin

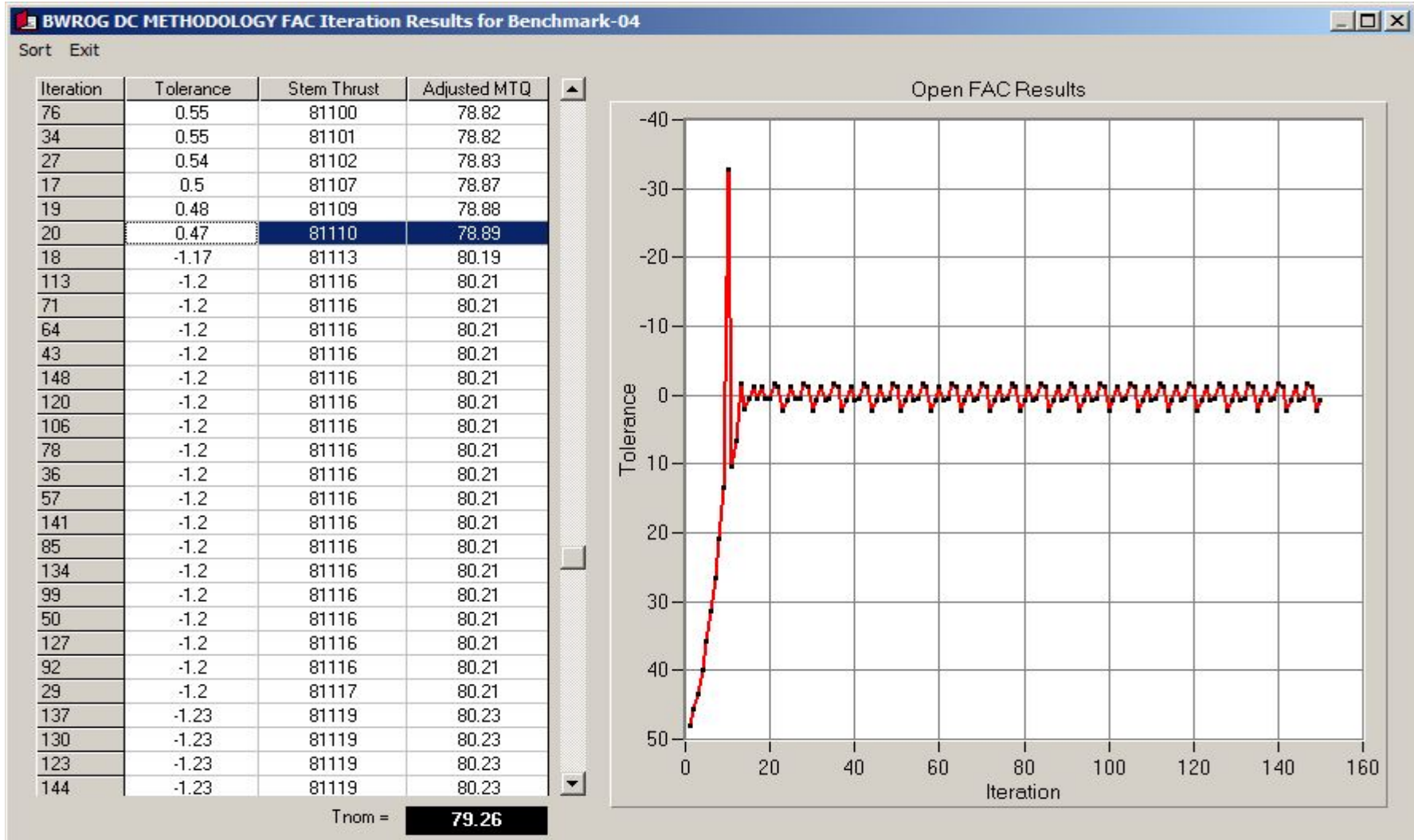
Calculate the functional actuator capability, AC_{func} , and margin, M_{func} , as follows.

- 6.1. Set the required thrust, F_R , equal to 90% of the minimum instantaneous actuator capability for the stroke.
 - 6.2. Repeat Steps 2.4, 2.5 and 3 to implement the DC motor performance method for this required thrust. Determine the maximum adjusted motor torque, \mathcal{G}' , for the stroke.
 - 6.3. If \mathcal{G}' is less than \mathcal{G}_{nom} , then increase F_R and repeat step 6.2. If \mathcal{G}' is more than \mathcal{G}_{nom} , then decrease F_R and repeat step 6.2.
 - 6.4. Repeat step 6.3 until \mathcal{G}' equals \mathcal{G}_{nom} . The functional actuator capability (AC_{func}) is the value of F_R for which \mathcal{G}' equals \mathcal{G}_{nom} .
- Problems
 - Iteration sometimes diverges
 - Iteration sometimes oscillates
 - How to scale user input thrust/torque profiles
 - Solution
 - Optional FAC iteration suggestion
 - Provide graphical representation of iteration process
 - Holding endpoints constant for profile scaling

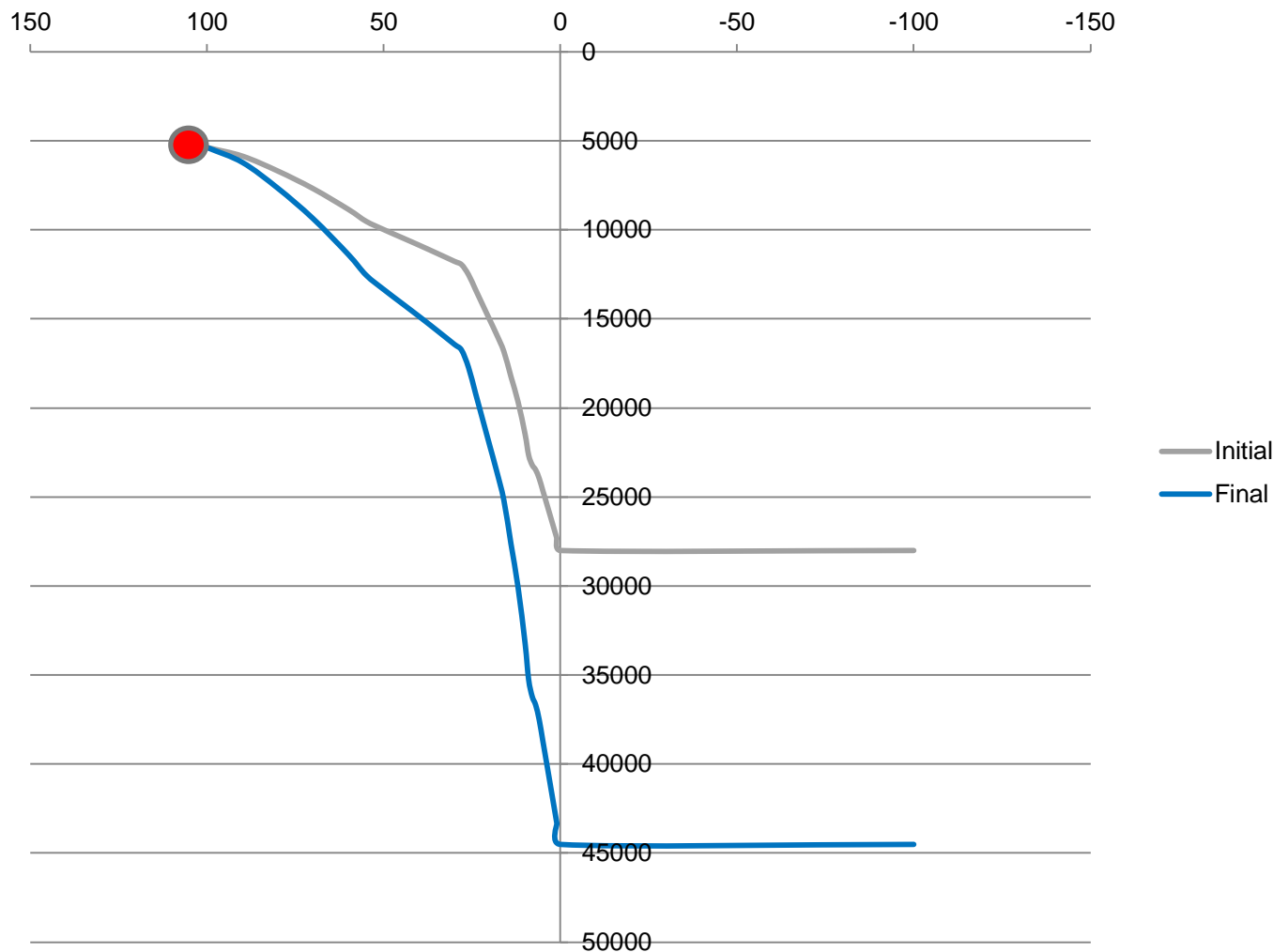
FAC Iteration Case #1 – Simple convergence



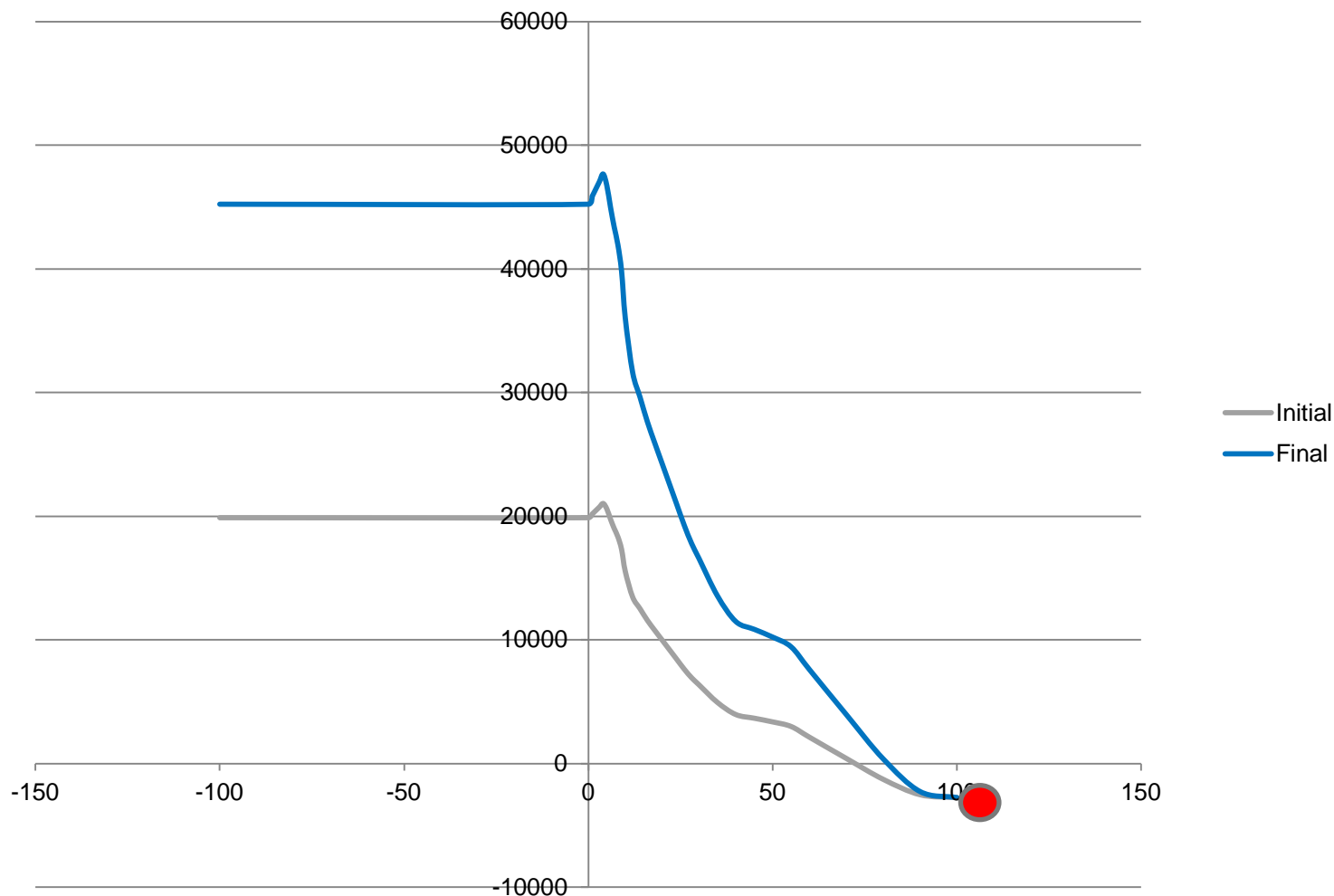
FAC Iteration Case #2 – Oscillating convergence



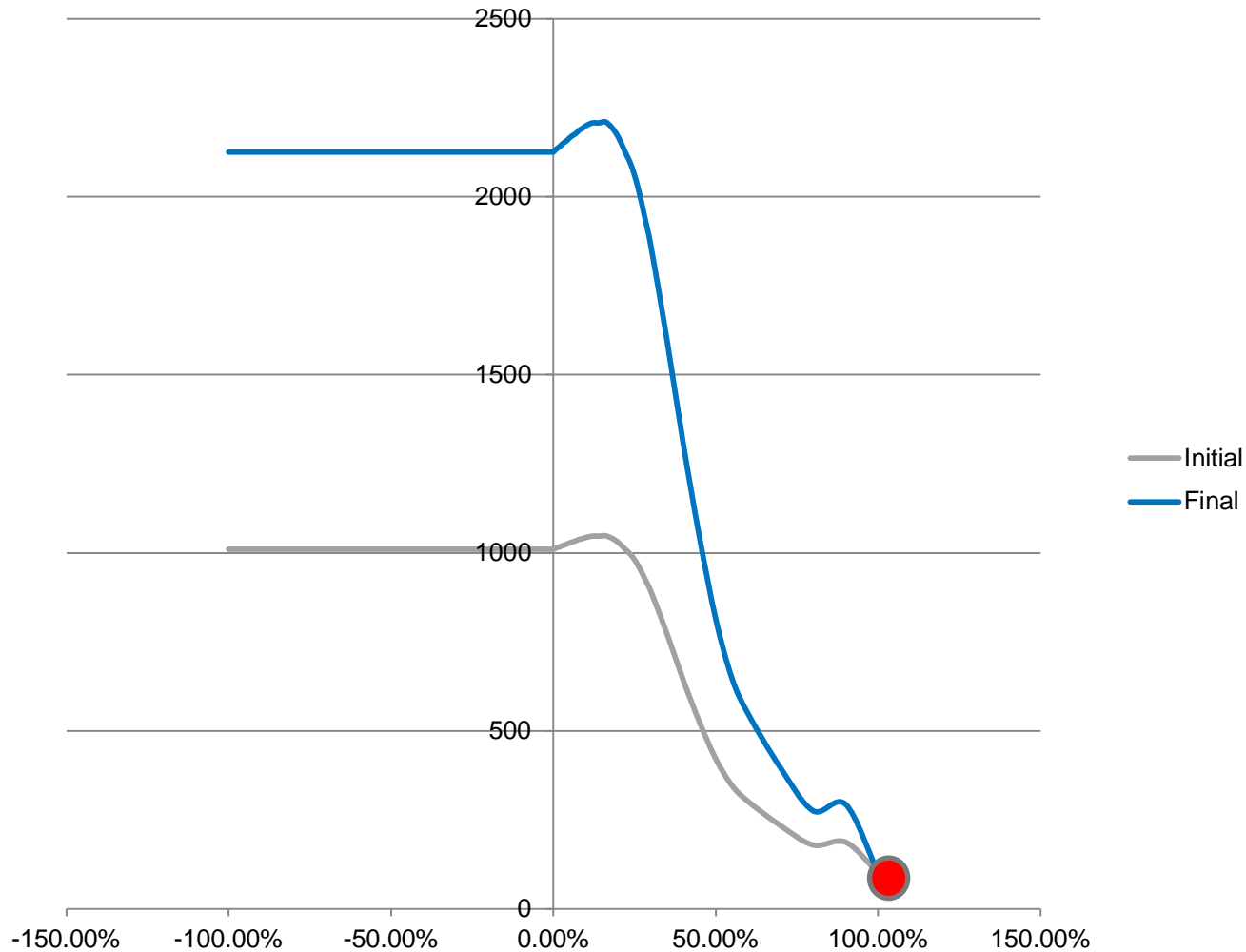
Test Case BWROG-08 Close Thrust Profile – Use Default



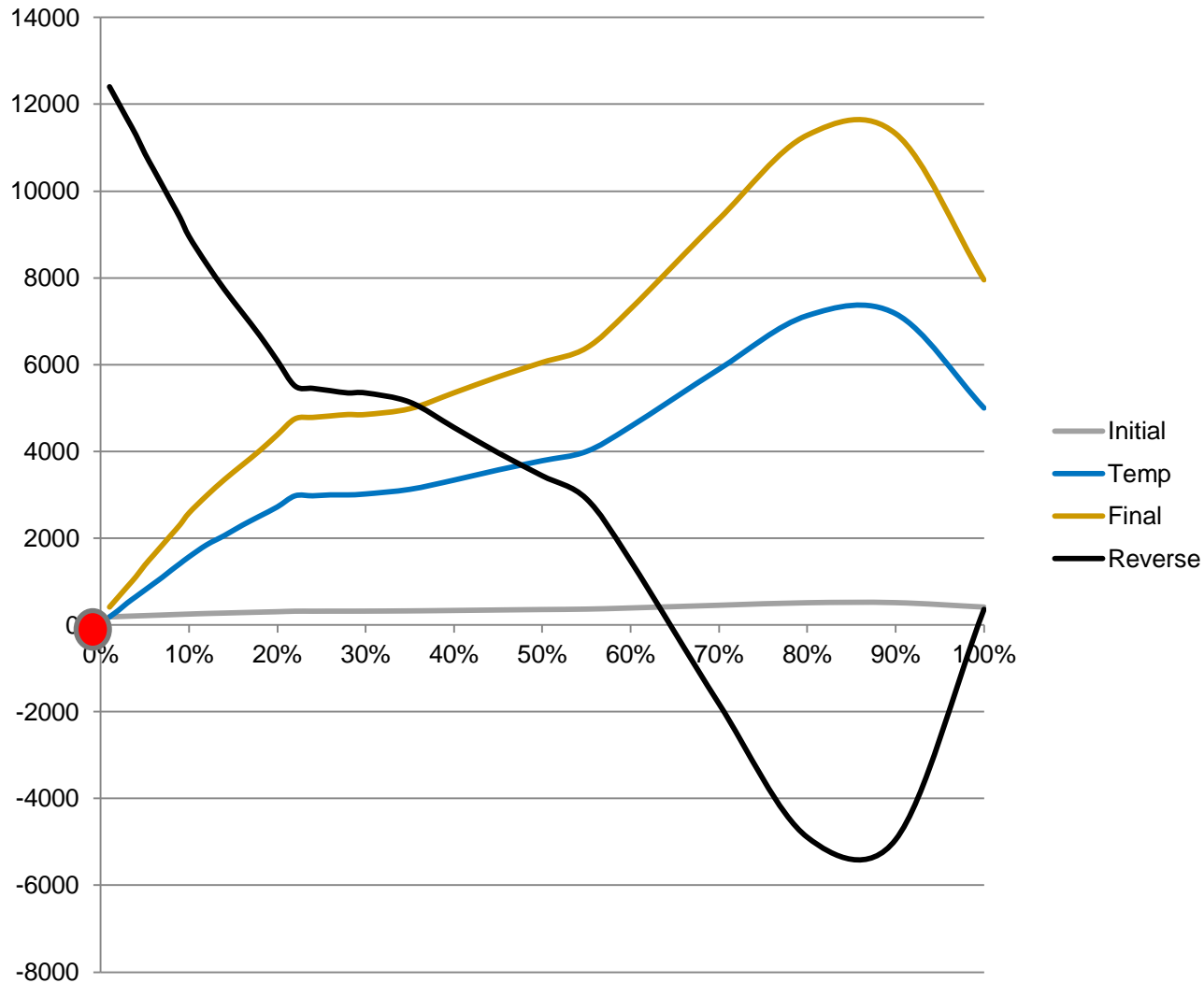
Test Case BWROG-08 Open Thrust Profile – Use Default



Test Case BWROG-21 Open Torque Profile – User Input



Plant Specific Open Torque Profile – User Input



MIDAS BWROG DCM: FAC Iteration example Special



BWROG DC Methodology [Print] [Exit]

General Information | Valve Information | Detailed Results | Warnings

Parameters

Valve Type: **BUTTERFLY1**

Load Profile Method: **Input Stem Torque** (dropdown menu)

User Defined Stem Torque: [Edit Close] [Edit Open]

	CLOSE	OPEN	CLOSE REF	OPEN REF
Differential Pressure (psi)	1.0	1.0	96	96
Bonnet Pressure at Full Open (psig)	0	0	N/A	N/A
Flow Rate (gpm)	6560		96	
Fluid Density (lbs/ft ³)	0.000		N/A	
Length of Upstream Piping (pipe diameters)	0		N/A	
Additional Stroke Time	1.0	1.0	N/A	N/A
Partial Stroke Percentage	1.000	1.000	N/A	N/A

Functional Actuator Capability

Optional FAC suggestion (lbs): [0] [-4000]

Use FAC for position controlled strokes? Yes No

	CLOSE SAFETY	OPEN NON-SAFETY	CLOSE SAFETY	OPEN NON-SAFETY
Degraded Voltage at Motor (VDC)	180	250	(Results in terms of stem torque)	
Instantaneous Actuator Torque (ft-lbs)	492.1	713	8857.8	12834.0
Functional Actuator Capability (ft-lbs)	476.2	441.8	8571.6	7952.4
Predicted Stroke Time (sec)	32.26	22.83		
Baseline Stroke Time (sec)	21.72	21.73		
Isolation Stroke Time (sec)	32.26			



BWROG/DC METHODOLOGY RESULTS
 BWROG-13s (V&V-1)
 DC MOTOR OPERATED GL96-05 GLOBE VALVE
 PEERLESS 60 ft-lbs , Curve = K11851

BWROG-13s V&V - Rev. 4

General Information

Valve Type
 Gate Valve Disc Type
 Load profile method
 Flow type
 Fluid (blowdown only)

Valve and Actuator Information

Stem diameter at stem nut, D_{stem} (inches)
 Stem diameter at packing, D_{stem} (inches)
 Valve mean seat diameter, D_{msd} (inches)
 Valve Seat ring inner diameter, D_{sr} (inches)
 Globe valve stroke length, D (inches)
 Globe valve flow coefficient, C_v (gpm/psi^{1/2})
 Packing load, F_{pack} (lbs)
 Required thrust (including water inertia), F_R (lbs)
 Required thrust due to water inertia, F_{wI} (lbs)
 Actuator overall ratio, OAR
 Motor gear set ratio, MGSR
 Actuator rated torque, T_{rate}
 Stem factor, SF (ft-lbs/lb)
 Overhauling stem factor, SF_o (ft-lbs/lb)
 Voltage at MCC, V_{mcc} (volts)
 Cable resistance, R_{cable} (ohms)
 Thermal overload resistance, R_{ol} (ohms)
 Nominal voltage, V_{nom} (volts)
 Motor Type: PEERLESS, Curve = K11851
 Valve stem lead, lead (inches)
 Pullout efficiency, O_p
 Run efficiency, O_r
 Nominal motor speed (rpm), S_{nom}

	Close	Open	References
Valve Type	GLOBE	GLOBE	[821]
Gate Valve Disc Type	N/A	N/A	[N/A]
Load profile method	Use Default	Use Default	[821]
Flow type	N/A	N/A	[N/A]
Fluid (blowdown only)	N/A	N/A	[N/A] [N/A]
Stem diameter at stem nut, D_{stem} (inches)	2.125	2.125	[821]
Stem diameter at packing, D_{stem} (inches)	2.125	2.125	[821]
Valve mean seat diameter, D_{msd} (inches)	5.734	5.734	[821]
Valve Seat ring inner diameter, D_{sr} (inches)	5.734	5.734	[821]
Globe valve stroke length, D (inches)	3.187	3.187	[821]
Globe valve flow coefficient, C_v (gpm/psi ^{1/2})	435	435	[821]
Packing load, F_{pack} (lbs)	1922	1922	[N/A] [821]
Required thrust (including water inertia), F_R (lbs)	1922	37508	Output
Required thrust due to water inertia, F_{wI} (lbs)	N/A	N/A	Output
Actuator overall ratio, OAR	76.99	76.99	[821]
Motor gear set ratio, MGSR	0.429	0.429	Output
Actuator rated torque, T_{rate}	1800	1800	Output
Stem factor, SF (ft-lbs/lb)	0.014	0.014	[821] [N/A]
Overhauling stem factor, SF_o (ft-lbs/lb)	0.00064	0.00064	Output
Voltage at MCC, V_{mcc} (volts)	210	210	[N/A] [821]
Cable resistance, R_{cable} (ohms)	0.026	0.026	Output
Thermal overload resistance, R_{ol} (ohms)	0.1441	0.1441	Output
Nominal voltage, V_{nom} (volts)	250	250	[7]
Motor Type: PEERLESS, Curve = K11851	60 ft-lb, 250 VDC	60 ft-lb, 250 VDC	[3] [7]
Valve stem lead, lead (inches)	0.5	0.5	[821]
Pullout efficiency, O_p	0.4	0.4	Output
Run efficiency, O_r	0.5	0.5	Output
Nominal motor speed (rpm), S_{nom}	1900	1900	[821]

- Methodology in MIDAS based on EPRI Report
 - TR-106563-V2, Revision 0, “Application Guide for Motor Operated Valves in Nuclear Power Plants (Revision of EPRI/NMAC NP-7501), Volume 2: Butterfly Valves, Final Report, October 1998
- EPRI Application Guide has been replaced by a new document which removed all equations, charts and supporting material in lieu of using EPRI PPM software
 - TR-1013463, Revision 2, “Nuclear Maintenance Applications Guide for Motor Operated Valves in Nuclear Power Plants, Volume 2: Butterfly Valves, Final Report, December 2006
- Comparison of MIDAS to EPRI PPM leaves unanswered questions. How to resolve this?

Problem: Discrepancies in definition of motor reactance
Exelon model excludes temperature effects
FENOC model includes temperature effects

(b) Motor Impedance (Z_{motor})

$$Z_{\text{motor}} = \frac{V_{\text{rated}}}{\sqrt{3} \times \text{LRA} \times \left(1 - \text{CL}\% \frac{(T_{\text{amb}} - T_{\text{rate}})}{155 \text{ } ^\circ\text{C}}\right)}$$

Where:

LRA = Rated Motor Locked Rotor Amps
 V_{rated} = Rated Motor Voltage
 T_{amb} = Maximum Motor Ambient Operating Temperature ($^\circ\text{C}$)
 T_{rate} = Motor Rated Operating Temperature ($^\circ\text{C}$)
CL% = % Current Loss from 25°C to 180°C

(c) Motor Resistance (R_{motor})

$$R_{\text{motor}} = Z_{\text{motor}} \times \text{Cos}\phi$$

Where:

$\text{Cos}\phi$ = Motor Power Factor (PF) @ LRA (See Table 4-4)
 ϕ = Motor Phase Angle @ LRA

(d) Motor Reactance (X_{motor})

$$X_{\text{motor}} = Z_{\text{motor}} \times \text{Sin}\phi$$

$$\text{sin}\phi = \sqrt{1 - \text{cos}^2\phi}$$

Where:

SIN ϕ = Motor Reactive Power Factor @ LRA

Exelon MOV Program (2014.185)

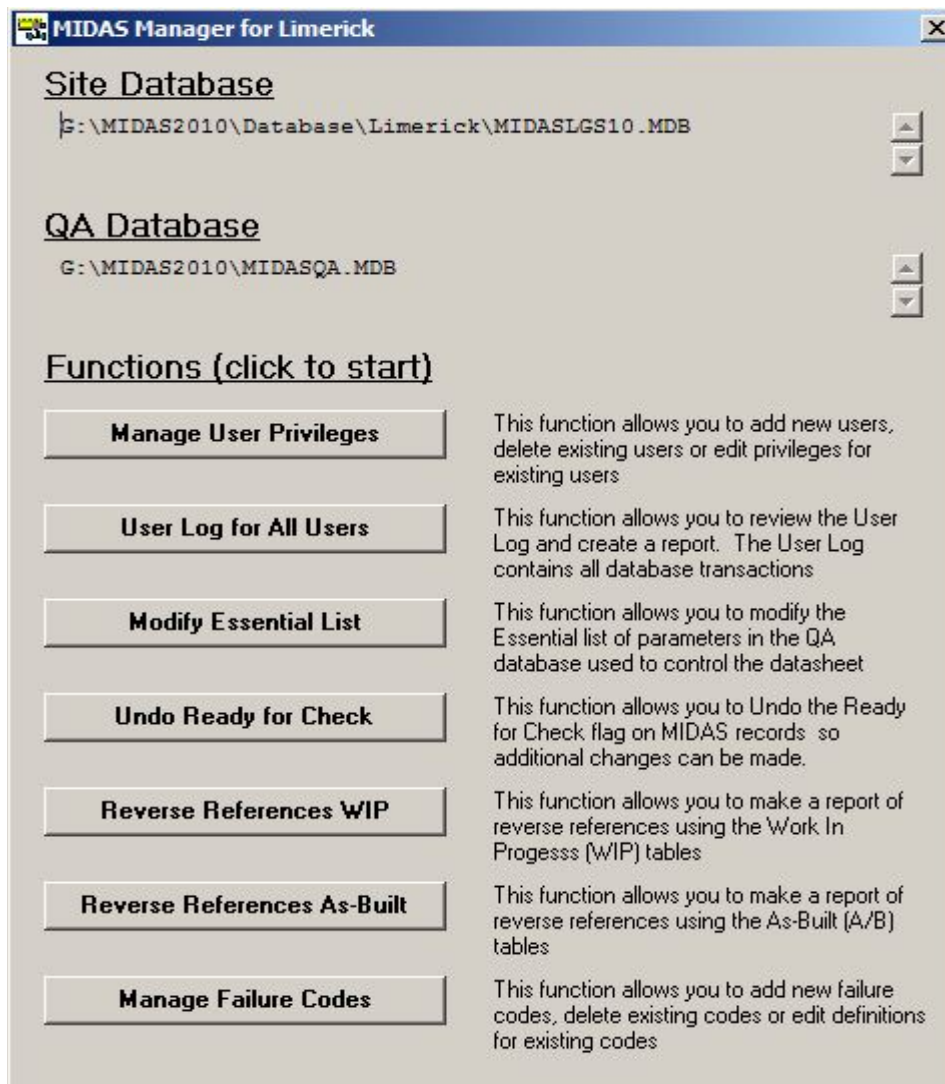
MIDAS

- Limerick
- Peach Bottom
- Braidwood
- Byron
- Dresden
- LaSalle
- Quad Cities
- Clinton
- Three Mile Island
- Oyster Creek
- Calvert Cliffs

new

MIDATEST

- Limerick
- Peach Bottom
- Braidwood
- Byron
- Dresden
- LaSalle
- Quad Cities
- Clinton
- Three Mile Island
- Oyster Creek
- Calvert Cliffs



The screenshot shows the 'MIDAS Manager for Limerick' application window. It features a 'Site Database' section with the path 'G:\MIDAS2010\Database\Limerick\MIDASLGS10.MDB' and a 'QA Database' section with the path 'G:\MIDAS2010\MIDASQA.MDB'. Below these are several function buttons with descriptions:

Function	Description
Manage User Privileges	This function allows you to add new users, delete existing users or edit privileges for existing users
User Log for All Users	This function allows you to review the User Log and create a report. The User Log contains all database transactions
Modify Essential List	This function allows you to modify the Essential list of parameters in the QA database used to control the datasheet
Undo Ready for Check	This function allows you to Undo the Ready for Check flag on MIDAS records so additional changes can be made.
Reverse References WIP	This function allows you to make a report of reverse references using the Work In Progress (WIP) tables
Reverse References As-Built	This function allows you to make a report of reverse references using the As-Built (A/B) tables
Manage Failure Codes	This function allows you to add new failure codes, delete existing codes or edit definitions for existing codes

User Profiles for Limerick

List of Users

Name	Network User ID	Hits
Dave Thrall	dthrall	0
Eric Solla	esolla	0
Rich Enos	renos	0
TED NECKOWICZ	U999TSN	2
TELEDYNE	Owner	4
TELEDYNE	Michael Richard	4

User Log for Dave Thrall User Log for All Users

Privileges for Dave Thrall

Design Software

- Save Edits Copy To As-Built Check Edits
- Add References Edit History Update Test Data
- Add Valves

Test Software

<u>Workorder</u>	<u>Sensitivity</u>	<u>Pre-Test</u>	<u>Post Test</u>	<u>Trending</u>	<u>Switches</u>
<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Edit
<input checked="" type="checkbox"/> Add	<input checked="" type="checkbox"/> Signoff	<input checked="" type="checkbox"/> Signoff	<input checked="" type="checkbox"/> Signoff	<input checked="" type="checkbox"/> Signoff	<input checked="" type="checkbox"/> Signoff
<input checked="" type="checkbox"/> Delete					
	<u>Misc</u>		<u>Failure</u>		
	<input checked="" type="checkbox"/> Edit Test History		<input checked="" type="checkbox"/> Edit		
			<input checked="" type="checkbox"/> Delete		

Edit User Add User Delete User Cancel

MIDAS Redirector – User Log for All Users



Sort Print Exit

↑

Use Date	User Name	Compute	Description
04/23/14 23:17:22	TELEDYNE	MOVJR1	Number of differences detected = 8
05/28/11 22:01:21	TELEDYNE	MOVJR1	MIDAS 2011.101 installed on MOVJR1 Test Prepared By: TELEDYNE on 05/28/11 22:01:21
05/16/11 07:59:02	Jim Mitman	CCCMSTX	It appears that you have added historical information
05/06/11 11:35:57	Jim Mitman	CCCMSTX	It appears that you have added historical information
05/05/11 15:55:52	Jim Mitman	CCCMSTX	It appears that you have added historical information

Exit

To Sort Columns: Drag arrow to columns above. Double click Arrow for Ascending vs Descending
To Show Row Details: Double click on rows above

Select User Log for All Users

All Entries (13)

Last N entries where N =

Functionality =

Today Only

Specify Dates

From

To

Valve Name =

OK Cancel

MIDAS Redirector – Modify Essential List

Essential List Data

Print

Input Data Output Data Test Data

Parameter	Dir	Original Value	New Value
Valve Type		YES	YES
Gate Valve Disc Type		YES	YES
Globe Valve Sub-Type		YES	YES
Globe Valve Flow Direction		YES	YES
Valve Vendor		YES	YES
Valve Size		YES	YES
Valve Seat Diameter		YES	YES
Valve Disc Bore Area (Rockwell)		YES	YES
Valve Seat Contact Width (Rockwell)		YES	YES
Gate Valve Wedge Half-Angle		YES	YES
Calculation Method (close)	(C)	NO	NO
Calculation Method (open)	(O)	NO	NO
EPRI PPM Thrust (close)	(C)	NO	NO
EPRI PPM Thrust (open)	(O)	NO	NO
Valve Factor (close)	(C)	YES	YES
Valve Factor (open)	(O)	YES	YES
Non-Safety Related Valve Factor		YES	YES
HELB Related Valve Factor		YES	YES
Gate Valve Condition Load		YES	YES
Butterfly Valve DSE Torque (ft-lbs)		YES	YES

G:\MIDAS2010\MIDASQA.MDB

OK Cancel

MIDAS Redirector – Undo Ready for Check



Ready For Check Valves in Limerick [X]

Exit

Double-Click on the desired row to RESET the Ready for Check status

Valve	Rev	Mod Type	MDCR	Mod Reason	Prepared By	Prep Date
HV-013-207	2	2	None	Thermal overload	Jim Mitman	04/23/11 19:17:32
HV-013-211	2	2	None	Thermal overload	Jim Mitman	04/23/11 19:30:30
HV-046-227	2	2	None	Thermal overloads	Jim Mitman	04/23/11 19:10:20
HV-049-1F008	3	2	None	Valve factor, JOG eval	Jim Mitman	04/23/11 18:12:22
HV-049-2F008	2	2	None	Revised JOG, VF to 1.4 closed	Jim Mitman	04/23/11 18:12:55
HV-055-1F001	2	2	None	Thst error, spring pack, JOG	Jim Mitman	04/24/11 17:02:28
HV-055-1F003	2	2	None	JOG evaluation, valve factor to 1.4 CI	Jim Mitman	04/23/11 18:11:56
HV-055-2F001	4	2	None	JOG, thrust error, open VF	Jim Mitman	04/24/11 16:59:01
HV-055-2F002	2	2	None	Thermal overload	Jim Mitman	04/23/11 19:23:15
HV-055-2F003	1	2	None	JOG eval, Close VF to 1.4	Jim Mitman	04/23/11 18:17:38

MIDAS Redirector – Reverse References WIP



All References for WIP Tables

Find Sort Hits Print Exit

Index	P	Document #	Rev #	Date	Title	Hits
1	A	NE-119 /			PECo Specification - superceded by T&RM	
2	ALL	N/A			Limatorque Engineering Reference (SDOC)	
3	ALL	N/A			Component Record List (CRL)	
4	ALL	N/A			Liberty Technologies VOTES Manual	
5	ALL	N/A			PECo Specification - superceded by T&RM	
6	ALL	N/A			PECo Database	
7	ALL	N/A			MOV/Motor	
8	ALL	N/A			MIDAS/MIDACALC	
9	ALL	N/A			Rockwell Valve Thrust/Torque Methodology	
10	ALL	N/A			Reference Not Applicable	
11	ALL	N/A			Limatorque Thrust Extension Report	
12	ALL	N/A			MOV Risk Attributes	
13	ALL	N/A			Exelon T&RM for Rising Stem Motor Operated Valve Thrust and Torque and Set-Up Window Determination Methodology	2499
14	ALL	N/A			Exelon T&RM for Quarter Turn Butterfly Valve Sizing and Set-up Window Determination	

Double-Click on the desired row to search for reverse references

MIDAS Redirector – Reverse References WIP (Single)



Reverse Reference List for WIP Tables

Print Exit

Summary Report

Detail Report

Category	Document #	Rev #	Date	Title
13 ALL N/A	ER-AA-302-1001			Exelon T&RM for Rising Stem Motor Operated Valve Thrust and Torque and Set-Up Window Determination Methodology

Valves = 357	Description	Hits
FV-DO-101A	3" ROCKWELL GLOBE2, SMB-000-2 (96-05)	10
FV-DO-101B	3" ROCKWELL GLOBE2, SMB-000-2 (96-05)	9
FV-DO-102A	3" ROCKWELL GLOBE2, SMB-000-2 (96-05)	7
FV-DO-102B	3" ROCKWELL GLOBE2, SMB-000-2 (96-05)	7
FV-DO-201A	3" ROCKWELL GLOBE2, SMB-000-2 (96-05)	8
FV-DO-201B	3" ROCKWELL GLOBE2, SMB-000-2 (96-05)	10
FV-DO-202A	3" ROCKWELL GLOBE2, SMB-000-2 (96-05)	5
FV-DO-202B	3" ROCKWELL GLOBE2, SMB-000-2 (96-05)	7
HV-001-104	2" ROCKWELL GLOBE2, SMB-000-2 (BOP)	4

Parameters for FV-DO-101A	Location	Value
Stuffing Box Load (close)	Valve	75
Stuffing Box Load (open)	Valve	75
Valve Packing Torque (close)	Valve	25
Valve Packing Torque (open)	Valve	25
Stem COF for Handwheel Analysis	Valve	0.1
Torque Switch Repeatability	System	0.1
Rate Of Loading Bias	System	0.3
Engineering Safety Factor (close)	System	0.05
Engineering Safety Factor (open)	System	0.05

MIDAS Redirector – Reverse References WIP (All)



All References for WIP Tables Find Sort Hits Print Exit

Index	Plant	Category	Document #	Rev #	Date	Title	Hits
293	LGS	N/A	P119-129-2			Valve Motor Operator Capability Form	4
294	LGS	N/A	P119-133-2			Valve Motor Operator Capability Form	4
295	LGS	N/A	P119-143-2			Valve Motor Operator Capability Form	6
296	LGS	N/A	P119-166-1			Valve Motor Operator Capability Form	2
297	LGS	N/A	P119-167-1			Valve Motor Operator Capability Form	2
298	LGS	N/A	P-144-00123			Valve Motor Operator Capability Form	8
299	LGS	N/A	P-144-00147			Valve Motor Operator Capability Form	2
300	LGS	N/A	P-144-00148			Valve Motor Operator Capability Form	2
301	LGS	N/A	P-144-00149			Valve Motor Operator Capability Form	3
302	LGS	N/A	P-144-00150			Valve Motor Operator Capability Form	3
303	LGS	N/A	P-144-00151			Valve Motor Operator Capability Form	
304	LGS	N/A	P-144-00152			Valve Motor Operator Capability Form	
305	LGS	N/A	P-144-00153			Valve Motor Operator Capability Form	
306	LGS	N/A	P-144-00154			Valve Motor Operator Capability Form	
307	LGS	N/A	P-144-00155			Valve Motor Operator Capability Form	
308	LGS	N/A	P-144-00156			Valve Motor Operator Capability Form	
309	LGS	N/A	P-144-00157			Valve Motor Operator Capability Form	
310	LGS	N/A	P144-00063			Valve Motor Operator Capability Form	

MIDAS Redirector – Reverse References WIP (All)



All References Report for WIP Tables

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Export to PDF

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MIDAS FOR Limerick - ALL REFERENCES FOR WIP TABLES
G:\MIDAS2010\Database\Limerick\MIDASLGS10.MDB

Index	Plant	Category	Document Number	Rev No	Date	Title	Hits
1	ALL	N/A	NE-119 / ER-LG-302-1000			PECo Specification - superceded by T&RM	6448
2	ALL	N/A	L-200-VC-4			Limiterque Engineering Reference (SDOC)	1970
3	ALL	N/A	PIMS			Component Record List (CRL)	8658
4	ALL	N/A	VTS100-UM-00			Liberty Technologies VOTES Manual	0
5	ALL	N/A	NE-145 / ER-LG-302-1000			PECo Specification - superceded by T&RM	3170
6	ALL	N/A	INDMS			PECo Database	1044
7	ALL	N/A	MOV/Motor			Nameplate Information for	2169
8	ALL	N/A	MIDAS/MIDACALC			MOV Thrust & Torque Calculation Software	5826
9	ALL	N/A	EWR A0734264			Rockwell Valve Thrust/Torque Methodology	1102
10	ALL	N/A	N/A			Reference Not Applicable	4174
11	ALL	N/A	EWR A0752625			Limiterque Thrust Extension Report	2
12	ALL	N/A	MOV Risk Attributes			Expert Panel for	621
13	ALL	N/A	ER-AA-302-1001			Exelon T&RM for Rising Stem Motor Operated Valve Thrust and Torque and Set-Up Window Determination Methodology	2499
14	ALL	N/A	ER-AA-302-1002			Exelon T&RM for Quarter Turn Butterfly Valve Sizing and Set-up Window Determination Methodology	226
15	ALL	N/A	ER-AA-302-1007			MOV Limitorque Capability Determination Methodology	2321
16	ALL	N/A	ER-AA-302			Motor Operated Valve Program Engineering Procedure	0
17	ALL	N/A	FIXED 17			Reserved Generic	0
18	ALL	N/A	FIXED 18			Reserved Generic	0
19	ALL	N/A	FIXED 19			Reserved Generic	0
20	ALL	N/A	FIXED 20			Reserved Generic	0
21	ALL	N/A	FIXED 21			Reserved Generic	0
22	ALL	N/A	FIXED 22			Reserved Generic	0
23	ALL	N/A	FIXED 23			Reserved Generic	0
24	ALL	N/A	FIXED 24			Reserved Generic	0
25	ALL	N/A	FIXED 25			Reserved Generic	0
26	ALL	N/A	FIXED 26			Reserved Generic	0
27	ALL	N/A	FIXED 27			Reserved Generic	0

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MIDAS Redirector – Reverse References WIP (Export)



Limerick_All_References_WIP.XLS [Compatibility Mode] - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Developer Acrobat

Clipboard Font Alignment Number Styles Cells Editing

	A	B	C	D	E	F
1	Index	Document	Rev	Date	Title	Hits
2	1	NE-119 / ER-LG-302-1000			PECo Specification - superceded by T&RM	6448
3	2	L-200-VC-4			Limatorque Engineering Reference (SDOC)	1970
4	3	PIMS			Component Record List (CRL)	8658
5	4	VTS100-UM-00			Liberty Technologies VOTES Manual	0
6	5	NE-145 / ER-LG-302-1000			PECo Specification - superceded by T&RM	3170
7	6	INDMS			PECo Database	1044
8	7	MOV/Motor			Nameplate Information for	2159
9	8	MIDAS/MIDACALC			MOV Thrust & Torque Calculation Software	5826
10	9	EWR A0734264			Rockwell Valve Thrust/Torque Methodology	1102
11	10	N/A			Reference Not Applicable	4174
12	11	EWR A0752625			Limatorque Thrust Extension Report	2
13	12	MOV Risk Attributes			Expert Panel for	621
14	13	ER-AA-302-1001			Exelon T&RM for Rising Stem Motor Operated Valve Thrust and Torque and Set-Up Window Determination Methodology	2499
15	14	ER-AA-302-1002			Exelon T&RM for Quarter Turn Butterfly Valve Sizing and Set-up Window Determination Methodology	226
16	15	ER-AA-302-1007			MOV Limatorque Capability Determination Methodology	2321

Ready Count: 6 100%

MIDAS Redirector – Manage Failure Codes



Failure History

Print

Item	Category	Short Description	Code
1	ACTUATOR	Worn or broken gears	11
2	ACTUATOR	Misalignment of handwheel declutch mechanism including damaged shaft or failure of tripper fingers	19
3	ACTUATOR	Worn or broken bearings	22
4	ACTUATOR	Improper actuator sizing	25
5	ACTUATOR	Incorrect metallic material for gears, keys or bolts	27
6	ACTUATOR	Incorrect reassembly or adjustment during maintenance or testing	31
7	ACTUATOR	Motor pinion key replacement per IE Notice	40M
8	ACTUATOR	Other actuator parts found worn or broken	40T
9	ACTUATOR	Tripper finger T-bracket installed per Part 21 Notification	40V
10	ACTUATOR	Clutch Lug Failure	N48
11	ACTUATOR	Clutch Tripper Failure	N49
12	ACTUATOR	HBC Gear Box Issue	N52
13	DIAGNOSTIC TEST ISSUE	Cyclic Loading	N63
14	DIAGNOSTIC TEST ISSUE	Excessive Running Load	N64
15	DIAGNOSTIC TEST ISSUE	Abnormal Thrust/Torque Profile	N65

Edit Add Cancel

MIDATEST – Failure Code Process



MIDAS Maintenance for Limerick All Units ALL VALVES

File Tables Tools Help

FV-DO-101A GLOBE2 SMB-000-2

GL 96-05

Design Rev: 1 Verified by: Greg Lee on 1/12/09 13:29

Failure History for FV-DO-101A

Item	Date	Type	Short Description
1	10/19/2006	Failure	Failure to open during ST
*	(Add)		

Failure History for FV-DO-101A Item 1

Date: 10/19/2006 Type: Failure Short Description: Failure to open during ST

Sub-Type: IFF Maintenance Rule: YES CCF: N/A Reference: IR546231

Detailed Description: Failed to open - cause unknown at this point -JFM1 10/20/2006

Causal Code

Item	Category	Short Description
54	N/A	Not Applicable
55	OTHER COMPONENT CONCERNS	Valve position indicator damaged, broken or missing
56	OTHER COMPONENT CONCERNS	Part replaced for design enhancement
57	OTHER COMPONENT CONCERNS	Other problems identified during maintenance or troubleshooting.
58	SPRING PACK	Hydraulic lock or grease migration
59	SPRING PACK	Spring pack gap or incorrect spring pack
60	SPRING PACK	Other spring pack problems
61	SPRING PACK	Replaced spring pack with either a grease relief or pretested model

OK Cancel

Any Questions?

THANK YOU



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