

MIDAS SUMMARY

MIDAS Users Group

Marion, MA
August 18, 2016

Presented by:
Mike Richard



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MIDAS Agenda Topics: Summary

1. Letter to Utilities
 2. Calculations versus Datasheets
 3. MIDAS V&V Documentation
 4. Spreadsheets from 2015
 5. MIDAS Standardization Topics
 6. MIDATEST Standardization Topics
 7. Miscellaneous Topics
 8. New Features – Toolbars in MIDAS and MIDATEST
- Graphical review of Exelon versus FENOC process
 - Graphical review of setting the Essential List of parameters

MIDAS Agenda Topic 1: Letter to Utilities

- Revise to include terminology for nuclear promise, knowledge transfer and knowledge retention
- Revise to clarify deliverables. There were some questions on whether database upgrade were included.
- Review fee structure. Exelon represents 10 or more sites. Consider discount for early bird participation. Consider other fees for delayed participation.
- Consider adding a section for MIDAS training to be offered at the TTS facility in Marion.
- Continue to discuss whether to include terminology for MIDAS compliance with ASME code.
- Who to address letter to? Need contact info.
- Issue letter in a timely manner

MIDAS Agenda Topic 2: Calculations versus Datasheets



- MOV calculation process prevent utilities from using MIDAS.
- Exelon considers MOV related calculations as datasheets. Former Constellation plants moved from calculations to datasheets
 - Datasheet printout from MIDAS submitted to records management
- Lengthy discussion of how to promote the datasheet process throughout the industry using the nuclear promise as a driving force
- “External” data feeding MIDAS will still require the calculation process (i.e MCC voltages or system pressures)
- “Internal” data feeding MIDAS will only require the datasheet process. (i.e Measurement equipment and related errors, valve factors, etc)

MIDAS Agenda Topic 3: MIDAS V&V Documentation

I put all of the MIDAS paper SQA documentation for Exelon on a table in the meeting room for the group to see the organization and effort that has gone into these documents over the past 20 years. This presentation may not been realized when receiving a CD containing PDF's.

Item	Document	Rev	Title	Date
1	TTS-CC-117	7	MIDAS Software User's Manual: MOV Thrust / Torque Calculations	10/14/15
2	TTS-CC-117.1	7	Program MIDAS Software Verification & Validation Report	10/14/15
3	TTS-CC-127	3	MOV Software Limitorque Lookup Data Tables Verification & Validation Report	01/14/15
4	TTS-CC-128	4	MOV Software BWROG DC Methodology Module Verification & Validation Report	06/26/15
5	TTS-CC-129	2	MOV Software EPRI Butterfly Methodology Module Verification & Validation Report	06/18/15
6	TTS-CC-130	3	MOV Software JOG PV Methodology Module Verification & Validation Report	06/18/15
7	TTS-CC-137	4	MOV Software ComED AC Methodology Module Verification & Validation Report	01/14/15
8	TTS-CC-171	0	MOV Software MIDAS Interface Module Verification & Validation Report	06/18/15



MIDAS Agenda Topic 4: Spreadsheets from 2015

- In 2015, TTS prepared MIDAS V&V spreadsheets for comparison.
 - Exelon versus FENOC
 - FENOC versus PGN (Duke)
 - FENOC versus SNC
- Upon initial review in 2015, there appeared to be some unexplained differences in margin calculations.
- In 2016, TTS suggested investing some more time in these spreadsheets to resolve the unexplained differences.
- The group suggested to wait on this action items in lieu of other action items



MIDAS Agenda 5: MIDAS Standardization Topics

- Process standardization
 - Exelon versus FENOC
 - TTS selected the Exelon process where error related terms cannot be changed in MIDATEST
- Margin standardization (review one at a time)
 - Min Requirements
 - Max Limitations (contributing terms)
 - Error Combinations
 - Essential margins versus non-essential
- Terminology standardization. Briefly discussed
- Report(s) standardization. Removal of custom reports in lieu of datasheet report
- Documentation standardization. Investigate permission to distribute Exelon documents.

MIDAS Agenda 6: MIDAS-TEST Standardization

- Process standardization
 - Exelon versus FENOC
 - TTS selected the Exelon process where error related terms cannot be changed in MIDATEST
- Pre-Test Setup Window standardization
 - Brief review of report formats for Exelon and Comanche Peak
- Post-Test Analysis standardization
 - Brief review of report formats for Exelon and Comanche Peak
- Trending standardization
 - Brief review of feedback process in Exelon model
- Auxiliary features standardization
 - Rotor and Limit Switch settings
 - Lift/Lead settings

MIDAS Agenda 7: Miscellaneous Topics

- MIDAS Software Classification (Class A/B)
 - Review industry procedures
 - Prepare common response
- Nuclear Software Acceptance process
 - Review industry procedures
 - Prepare common response
- New MIDAS/MIDATEST Feature
 - Investigate communication between MIDAS and MIDATEST that allows for notification of changes while working on a particular valve
 - Changing design data while using MIDATEST
 - Changing test data while using MIDAS

MIDAS Agenda 8: New Features – Toolbars in MIDAS



MIDAS Calculations for All Valves 1RF18 All Valves

File Edits Tables References Tools Help

Print Refresh Graph Margin Import Export

1-8351A GLOBE SMB-00/10-AC

Valve Filter is Active JOG Complete

Valve	Actuator	Motor	System	Output
Parameter	Ess	Value	Reference	
Valve Type	Y	GLOBE	117	
Valve Globe Sub-Type		N/A	N/A	
Valve Manufacturer	Y	VELAN	117	
Valve Serial Number		12345	N/A	
Valve Material		N/A	N/A	
Valve Nominal Size (in)	Y	2	117	
Valve Drawing No.		E73-020	N/A	
Valve Drawing Revision No.		E	N/A	
Valve Family Number		GL1A	N/A	
Valve Pressure Class (lbs)		1500	N/A	
Orifice, Seat or Disc Diameter (in)	Y	1.875	9	
Valve Seat Material		N/A	N/A	
Valve Seat Sealing Load (lbs)		0	N/A	
Valve Thrust Inertia (lbs)		2136	N/A	
Close Thrust Limit for Unseating (lbs)		0	N/A	
Nominal Valve Factor (O)	Y	0.1	11	
Nominal Valve Factor (C)	Y	0.96	11	
N/A.				

Rev 13 Mike Richards 8/16/16 14:18 Mike Richard 8/16/16 15:57

MIDAS Agenda 8: New Features – Toolbars in Midatest



MIDAS MOV Test Analysis for All Valves 1RF18 All Valves

File Tables Tools Help

Print Refresh Trend Export MIDAS

1-8351A GLOBE SMB-00-10

Valve Filter is Active GL 96-05

Design Rev: 13 Verified by: Mike Richard on 8/16/16 15:57
 Testing Rev: 13 Verified by: Mike Richard on 8/16/16 15:57

FUNCTION	OPEN	Last Edit	SIGNOFF	Last Signoff	PRINT
Sensitivity Calculations		03/14/16 07:34	SIGNOFF NOT REQUIRED		
Control Circuit Changes		04/20/15 08:59		N/A	
Limit Switch Settings		02/11/16 07:21		N/A	
Pre-Test Setup		08/16/16 16:00		08/16/16 16:06	
Post-Test Evaluation REVIEW		05/05/16 11:24		N/A	
Trending Evaluation		04/07/16 15:05		N/A	

Add New Work Order

Work Order	Status	Test Date	Time Frame	Test of Record
5042081	Post-Test	4/20/16	1RF18	...
4481748	Complete	10/9/14	1RF17	...
3800203	Complete	10/8/11	1RF15	...

MIDAS Process: Exelon versus FENOC: FENOC

- Defines initial setup window in MIDAS.
- FETEST can be used to alter setup window.
- These features have been removed from the current version

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
ROLe (%)	0.14	0.140		
ROLe (%)	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 + Torque

Thrust Derived from: C-CLAMP

Calibrator Location: Unthreaded

CLOSE THRUST SCALE

15377 MECHANICAL LIMIT
 13642 UPPER LIMIT
 12500 TARGET THRUST
 13642 MAX CST (for Thrust Only, Mechanical Limit with Motor)
 8500
 6888 LOWER LIMIT
 1.3383
 5147 RAW REQUIRED (5147)
 0

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

Pre-Test Setup for 1-8351A WO# 5042081

Close Control Scheme: TORQUE Safety Function: CLOSE

Setup Scheduled Work Previous Test

Thrust Window Torque Window Spring Pack

Thrust Parameters	DESIGN	
	Close	Open
EE (%)	0.03	0.03
TSR (%)	0.05	
LSR (%)	0	
Aging (%)	0	0
SLDr (%)	0.1	0.1
SPRb (%)	0	
FSE (lbs)	0	0
Packing (lbs)	882.954	882.954

Limiting Parameters	CLOSE	OPEN
Valve	35871	35871
Seismic	23000	23000
Actuator TH	22680	22680
Actuator TQ / SF	21512	21512
Motor TQ / SF	15197	19579
*Spring Pack TQ/SF	18202	18202
*EPRI (Gate Only)	N/A	N/A

*Not Included in Mechanical Limit

Normal Position is OPEN

Measured Parameters: TH+TQ

Thrust Derived from: QSS

CLOSE THRUST SCALE

22680 MECHANICAL LIMIT
 20054 UPPER LIMIT
 15000.000 TARGET THRUST
 15261 MAX CST (for Thrust Only, Mechanical Limit with Motor)
 14500.000
 14286 LOWER LIMIT
 14100.472 RAW REQUIRED
 0

Mike Richard 8/16/16 16:00
 Mike Richard 8/16/16 16:06

MIDAS Process: Exelon versus FENOC: FENOC

Any changes in FETEST must be resolved in MIDAS
 This feature has been removed from the current version

As-Left Margin Assumptions for 1821F0019

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)
		0.052	(dec)
Thrust Full Scale Error (C)	0.0	0	(lbs)
		0	(lbs)
Thrust Reading Error (O)	0.0510	0.044	(dec)
Thrust Full Scale Error (O)	0.0	0	(lbs)
Torque Correction Factor	1.0000	1	
Stem CDF (C)	0.1500	0.073	
Stem CDF (O)	0.1500	0.106	
Unwedging Stem CDF	0.2000	0.106	

Test of Record 200497776 05/10/13 6

MIDAS Redirector



Exelon MOV Program (2014.185)

MIDAS

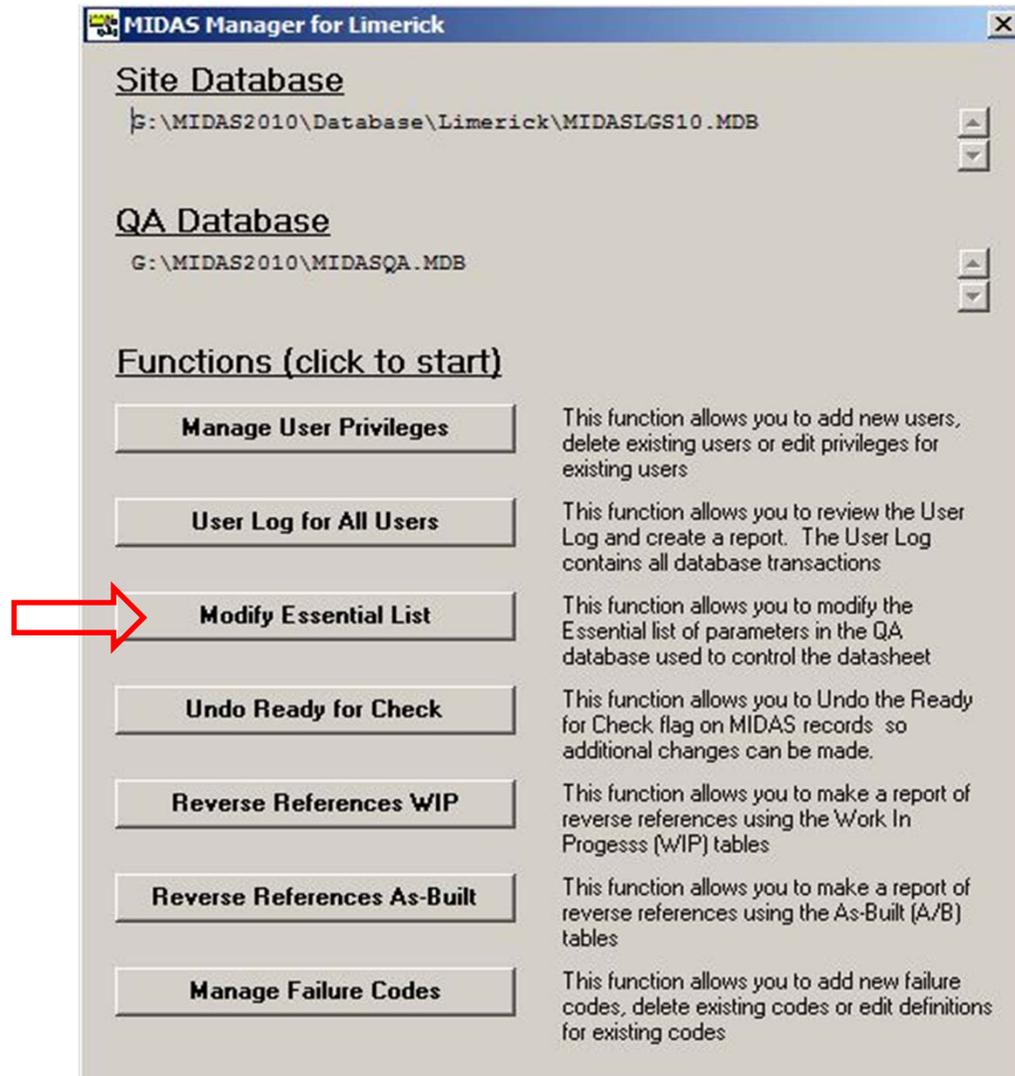
- Limerick
- Peach Bottom
- Braidwood
- Byron
- Dresden
- LaSalle
- Quad Cities
- Clinton
- Three Mile Island
- Oyster Creek
- Calvert Cliffs

new

MIDATEST

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

MIDAS Redirector – Main Form



MIDAS Manager for Limerick

Site Database
G:\MIDAS2010\Database\Limerick\MIDASLGS10.MDB

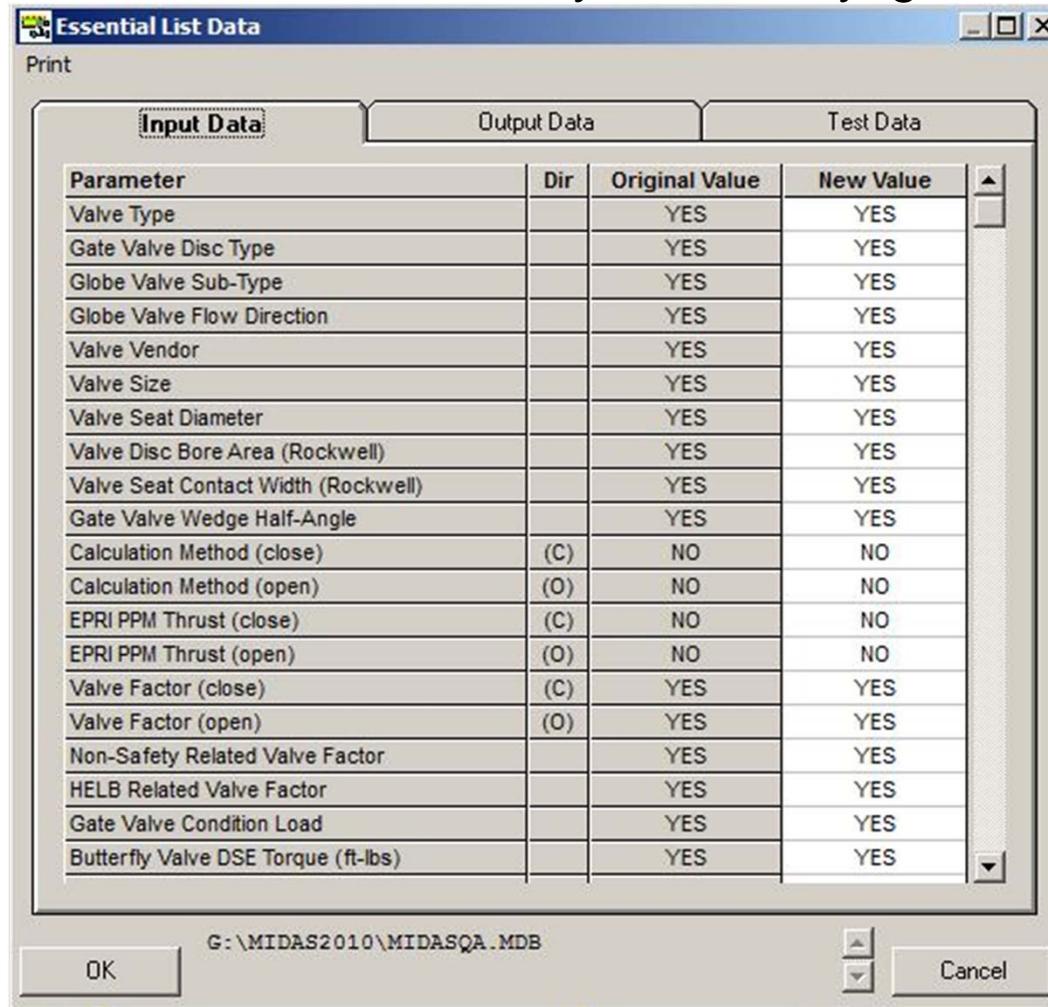
QA Database
G:\MIDAS2010\MIDASQA.MDB

Functions (click to start)

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

MIDAS Redirector – Modify Essential List

Essential List used to control items printed out on Datasheet Report / Essential. Determined by each utility, governs all sites



Any Questions?

THANK YOU



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