Part 2.1: Maintenance Functions – PM

Calem Enterprise Training

Summer 2022

Austin, Texas

CONFIDENTIAL

What are the goals - PM

Goals
I know how to setup PM
I know how to create a time schedule for PM Plans
I know how to create a PM Plan
I know how to create a PM Round and Round Stops
I know how to create a PM for Round or Inspection
I know how to create a PM by meter readings/triggers
I know how to generate WO to test PMs
I know how to populate PM module via excel files

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Preventive Maintenance

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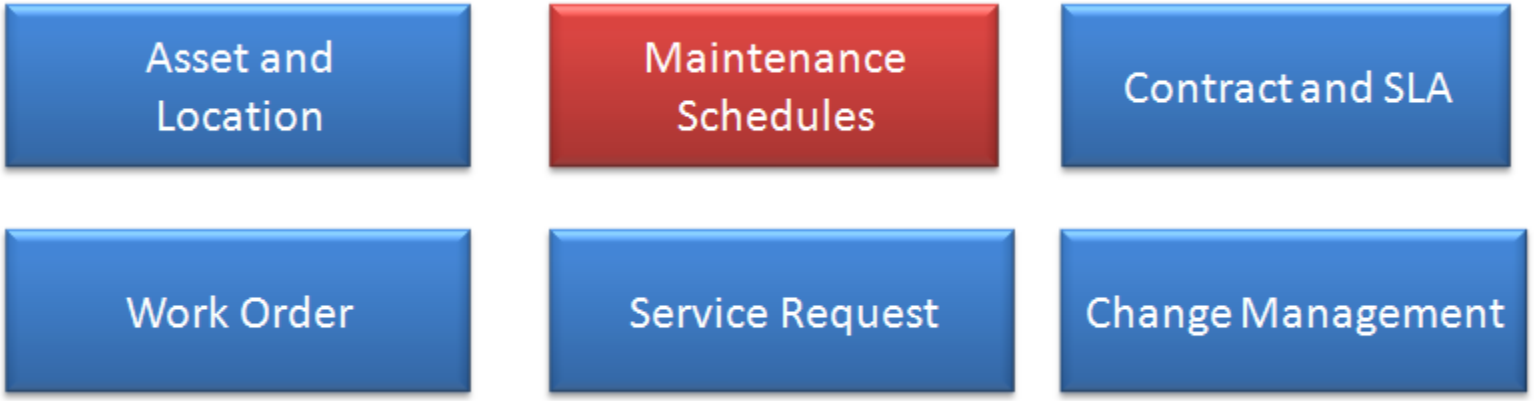

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Product – Preventive Maintenance (PM)

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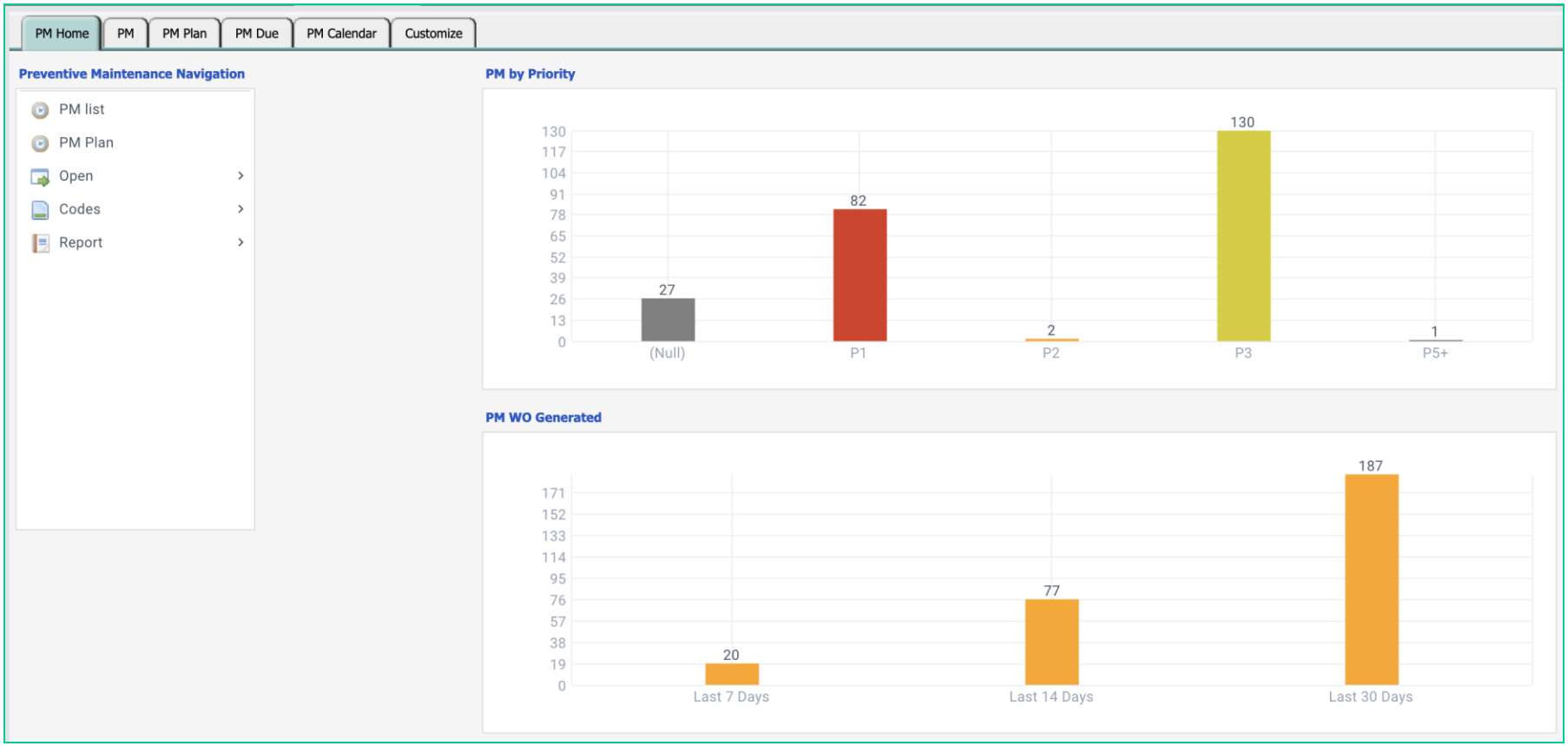
- Work Orders are generated from PMs



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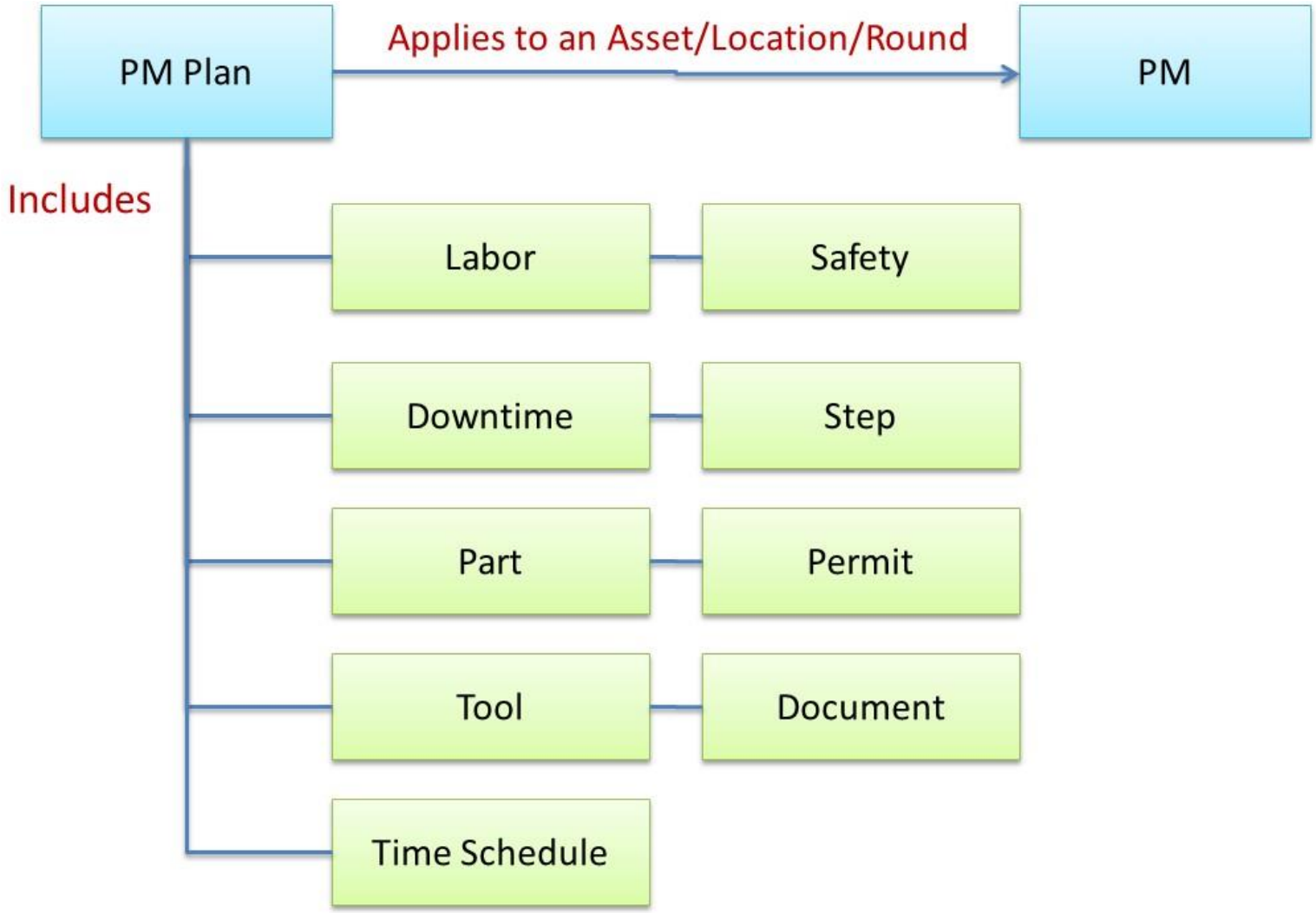
PM Module – PM Plan

- PM Plan is a job specification



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PM Module – Maintenance Schedules

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Schedules	PM Plan Attributes
By time	Fixed repeat schedule
By time and standing WO	Floating repeat schedule
By condition	Fixed meter readings
By condition and standing WO	Floating meter readings
By time and meter	Fixed repeat sched/meter
By time/meter and standing WO	Floating repeat sched/meter
No schedule	Meter trigger
No schedule	On-demand Template
No schedule	Boilerplate Safety/Steps

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PM Module – Create PM Plan (1)

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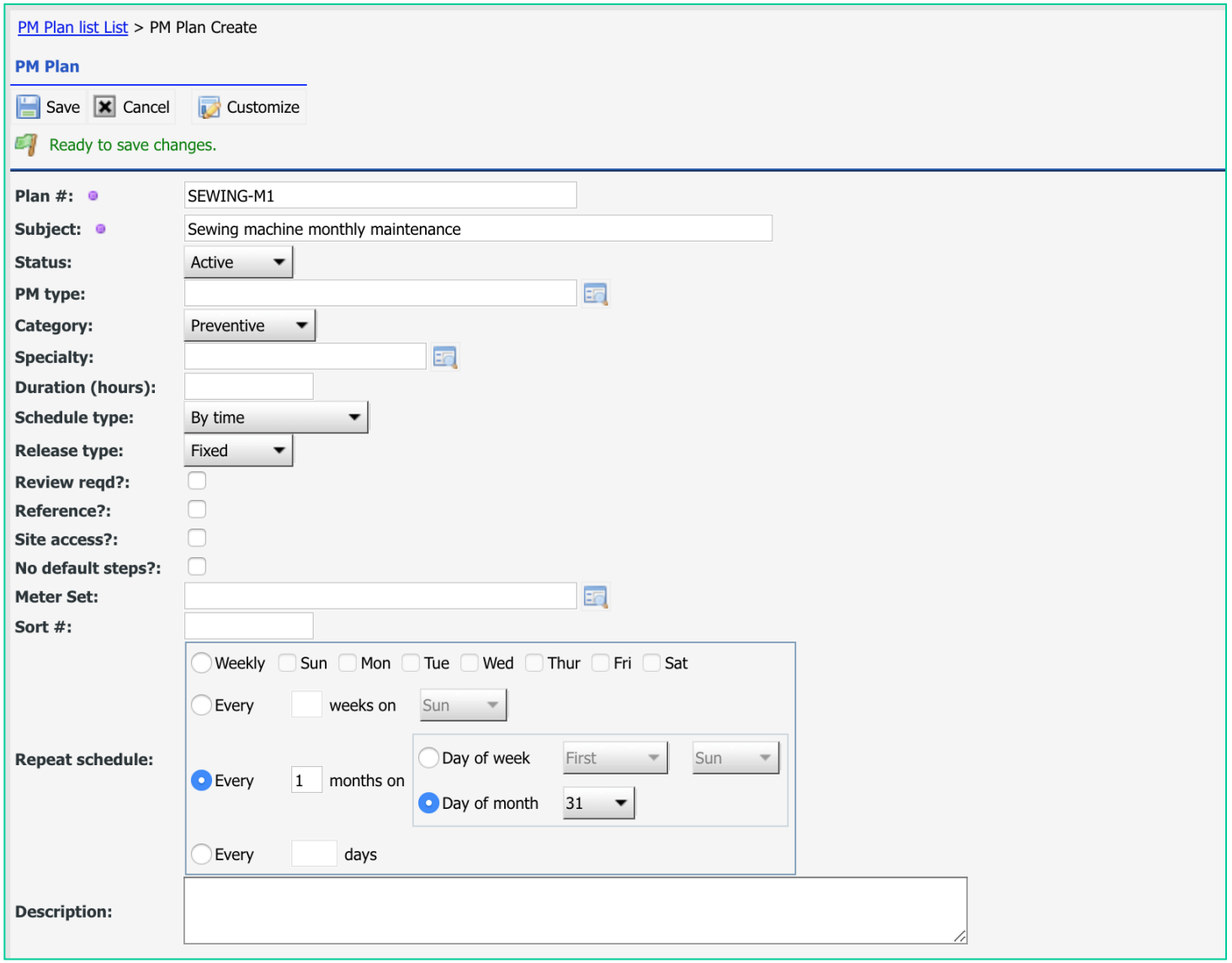

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PM Module – Create PM Plan (2)

- Plan #: the PM Plan number
- Subject: a short description
- Status: Active. An inactive PM Plan is ignored in work order generation
- PM Type: a type code. It's optional.
- Category: default is Preventive maintenance
- Specialty: a work order specialty code
- Duration (hours): estimated hours taken for perform this PM Plan
- Schedule type: default is by time. It can be by meter, or by time and meter.
- Release type: fixed for release by time regardless of work order completion status. "Floating" release type will not generate work orders till previous work orders from this PM are completed.
- Review required: acceptance of completed work order is required before a work order can be closed.
- Reference: a PM plan of reference cannot be used directly in PMs. They can be cloned and used in PMs.

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PM Module – Create PM Plan (3)

- Site access: PM Plan can be site specific if checked. Use “PM | Open | PM Plan Site” to assign sites that can use this PM Plan if checked.
- No default steps: do not copy boilerplate steps (see http://www.calemeam.com/calemcustomers-2/boiler-plate-steps-in-pm-plan)
- Meter set: if the PM Plan is a meter collection job (see http://www.calemeam.com/calemcustomers-2/meter-reading-rounds)
- Sort #: a custom sort field for sorting PM Plans
- Repeat schedule: the frequency of repeat of this PM Plan. This repeat schedule will be used in the PMs of the PM Plan unless overwritten in PMs.
- Description: A long description of the PM Plan.

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PM Module – PM Plan Form

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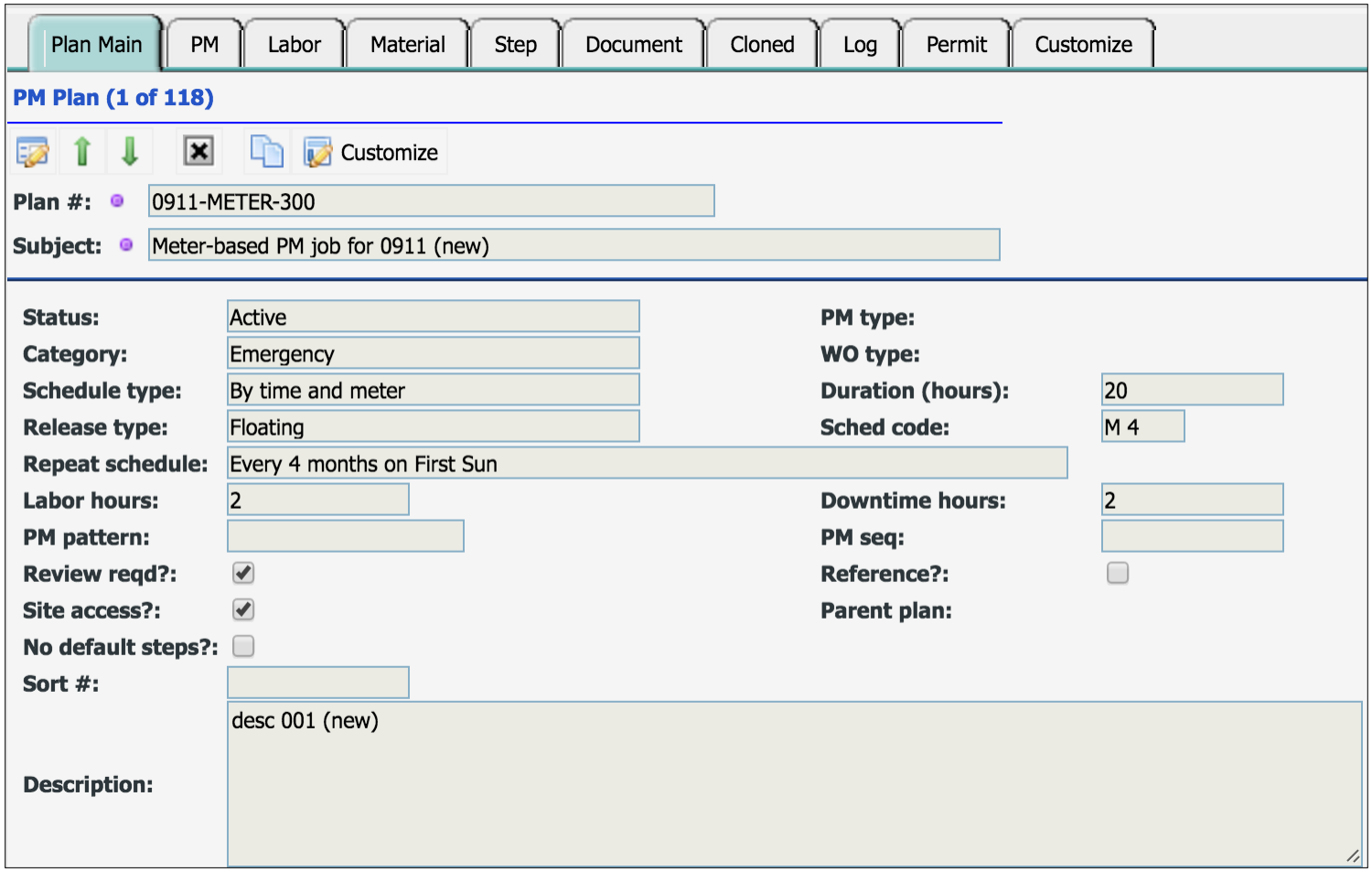

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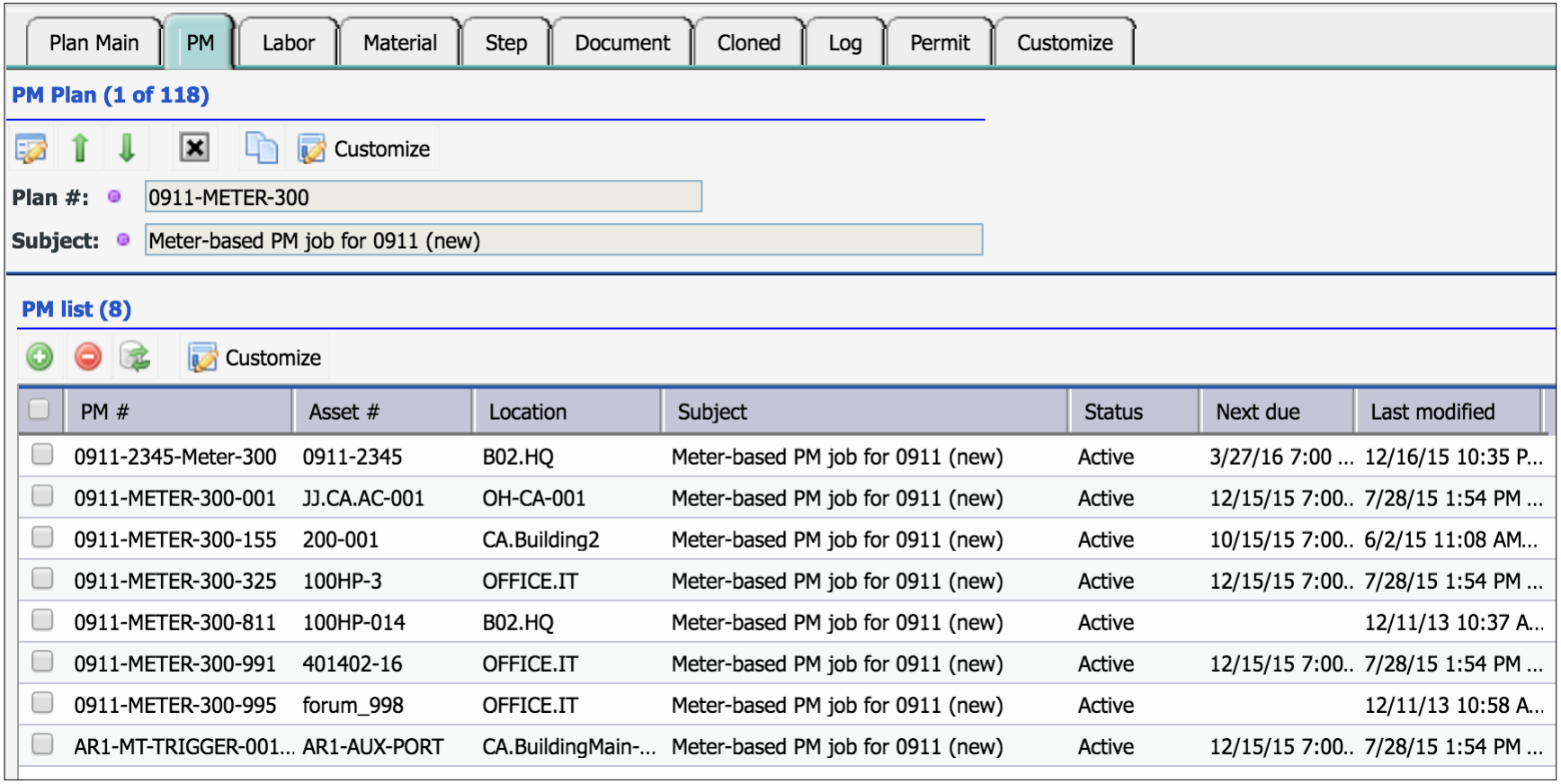
PM Plan – PMs

PMs using the PM Plan



PM #	Asset #	Location	Subject	Status	Next due	Last modified
0911-2345-Meter-300	0911-2345	B02.HQ	Meter-based PM job for 0911 (new)	Active	3/27/16 7:00 ...	12/16/15 10:35 P...
0911-METER-300-001	JJ.CA.AC-001	OH-CA-001	Meter-based PM job for 0911 (new)	Active	12/15/15 7:00..	7/28/15 1:54 PM ...
0911-METER-300-155	200-001	CA.Building2	Meter-based PM job for 0911 (new)	Active	10/15/15 7:00..	6/2/15 11:08 AM...
0911-METER-300-325	100HP-3	OFFICE.IT	Meter-based PM job for 0911 (new)	Active	12/15/15 7:00..	7/28/15 1:54 PM ...
0911-METER-300-811	100HP-014	B02.HQ	Meter-based PM job for 0911 (new)	Active		12/11/13 10:37 A...
0911-METER-300-991	401402-16	OFFICE.IT	Meter-based PM job for 0911 (new)	Active	12/15/15 7:00..	7/28/15 1:54 PM ...
0911-METER-300-995	forum_998	OFFICE.IT	Meter-based PM job for 0911 (new)	Active		12/11/13 10:58 A...
AR1-MT-TRIGGER-001...	AR1-AUX-PORT	CA.BuildingMain-...	Meter-based PM job for 0911 (new)	Active	12/15/15 7:00..	7/28/15 1:54 PM ...

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PM Plan – Labor and Downtime

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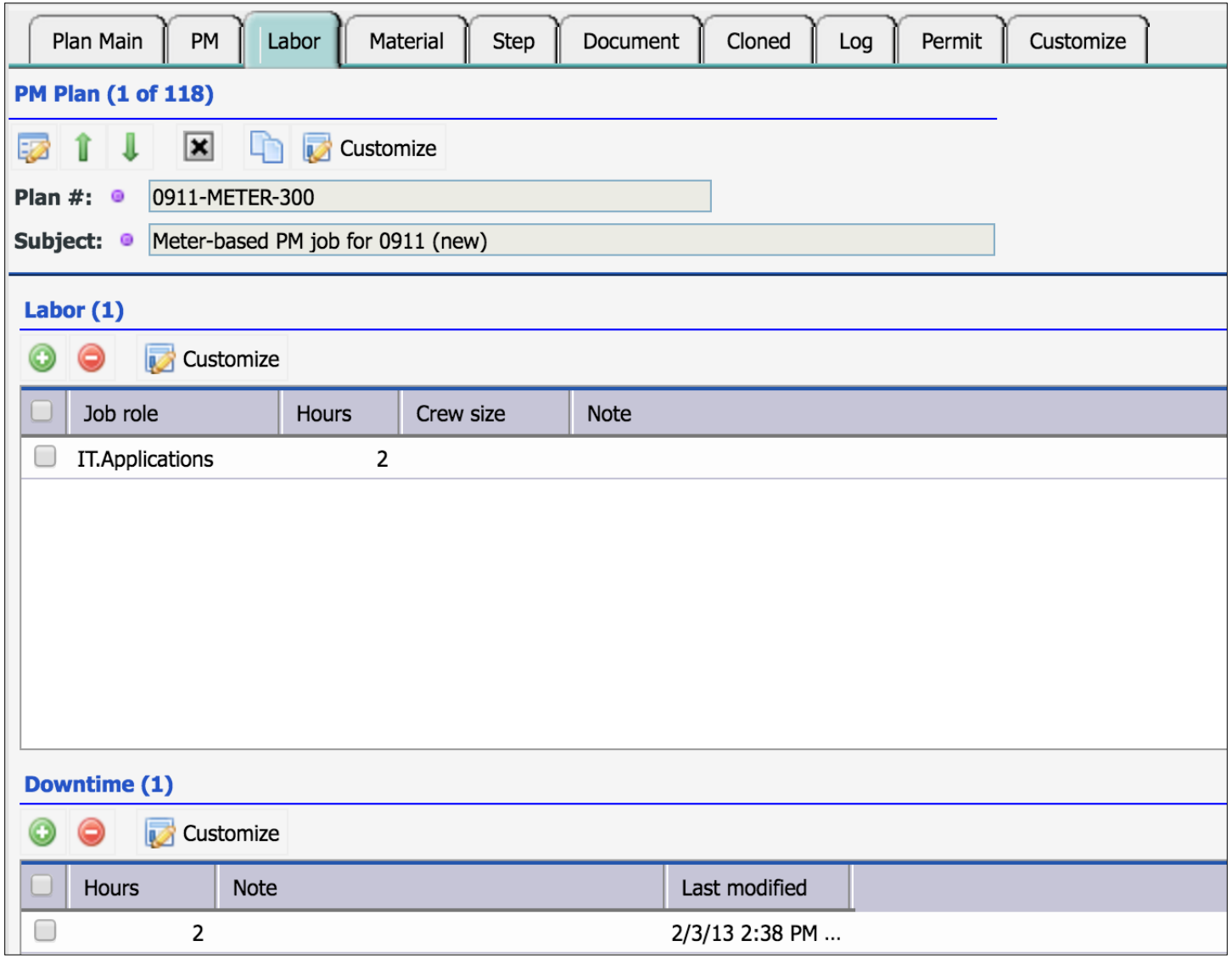

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PM Plan – Part & Tool

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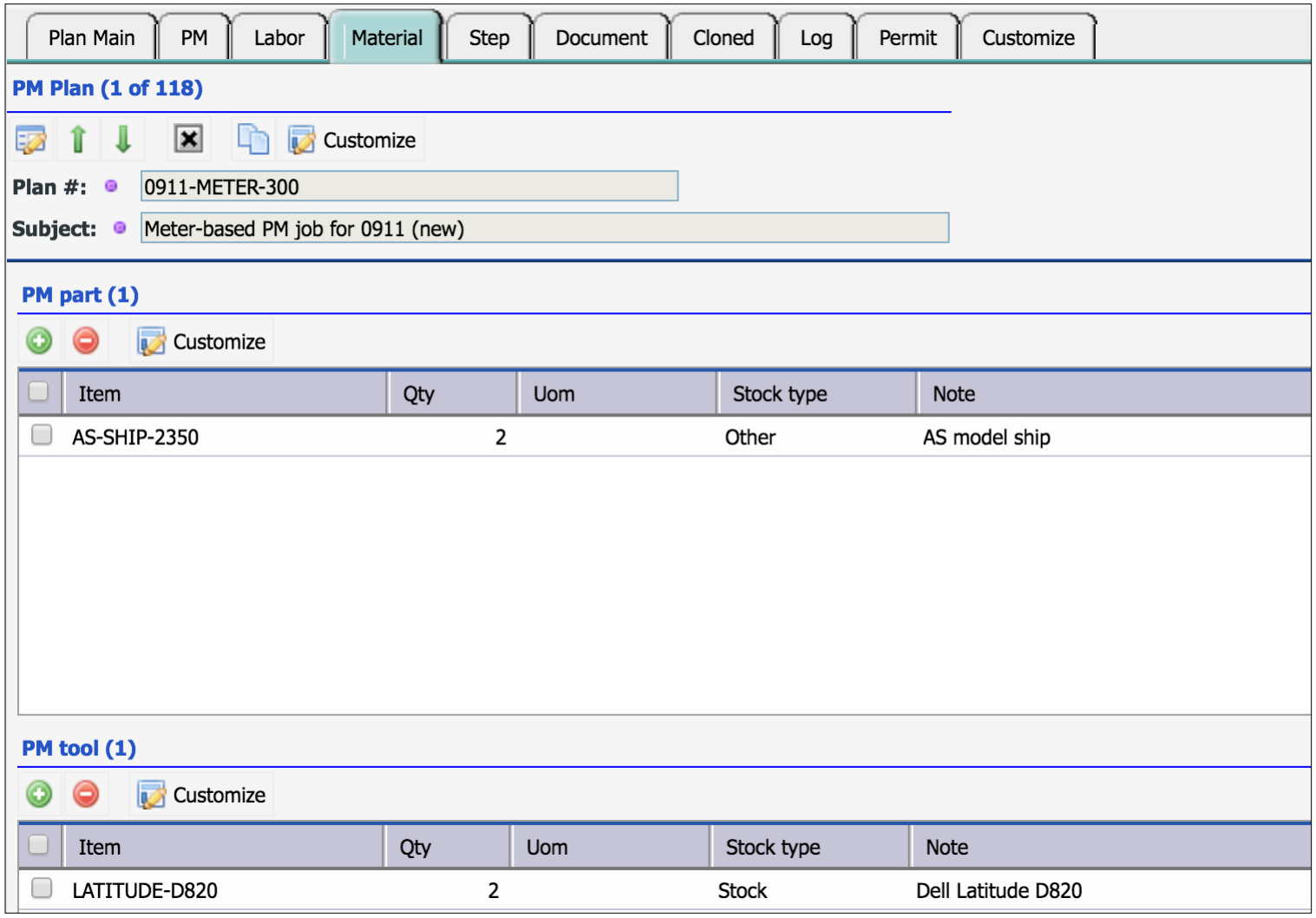

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PM Plan – Safety & Step

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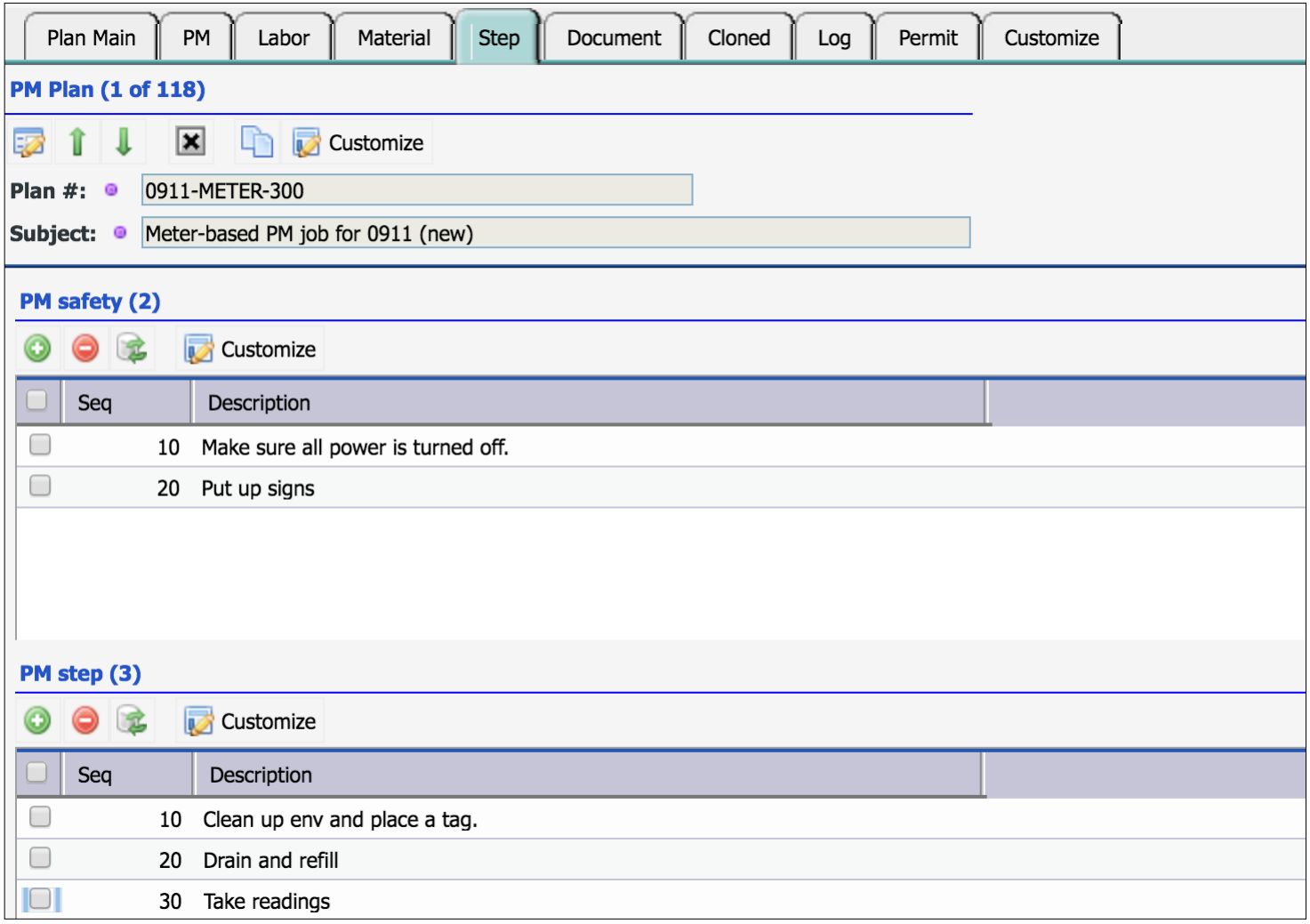

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PM Plan – Document & Comment

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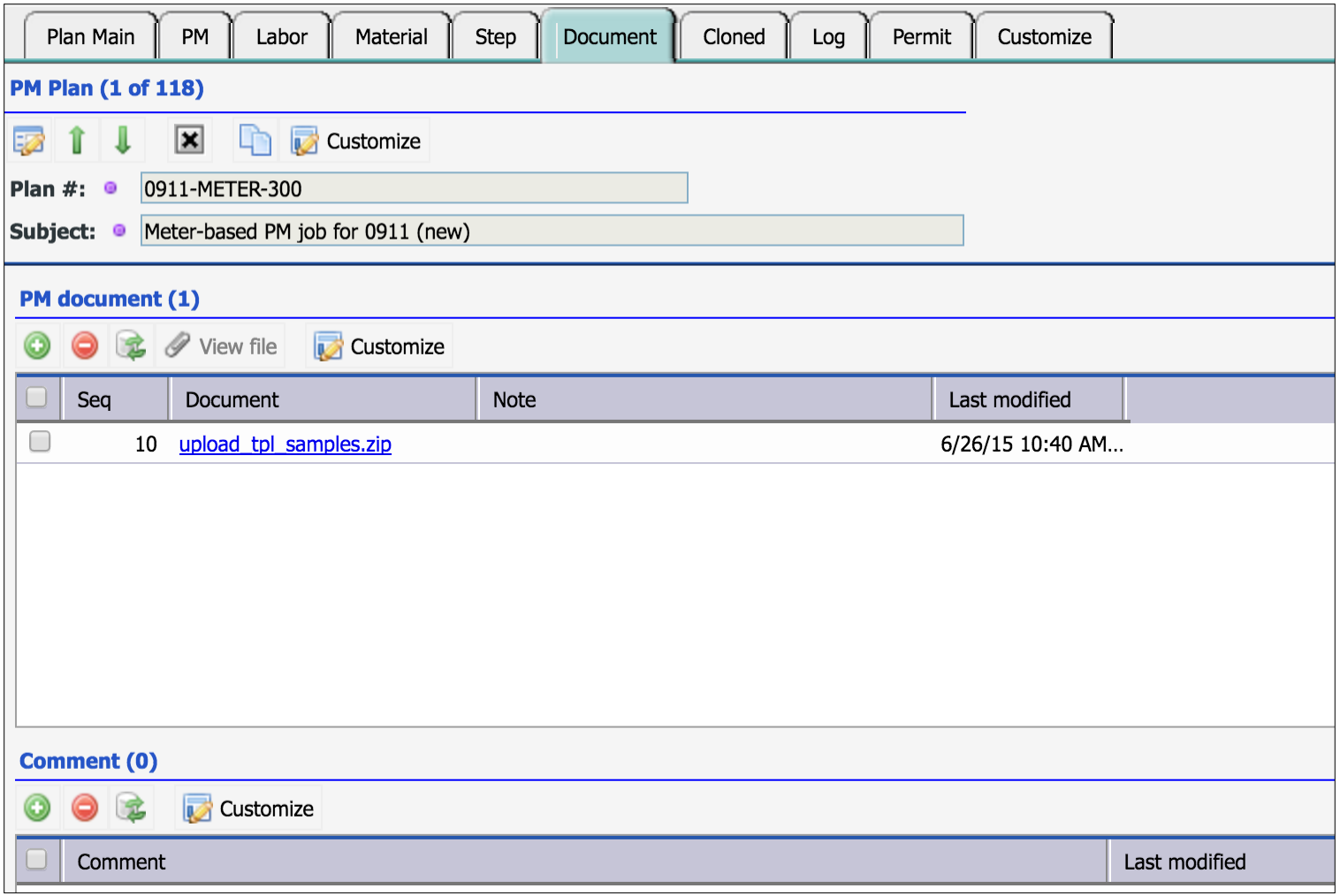

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PM Plan – Permits

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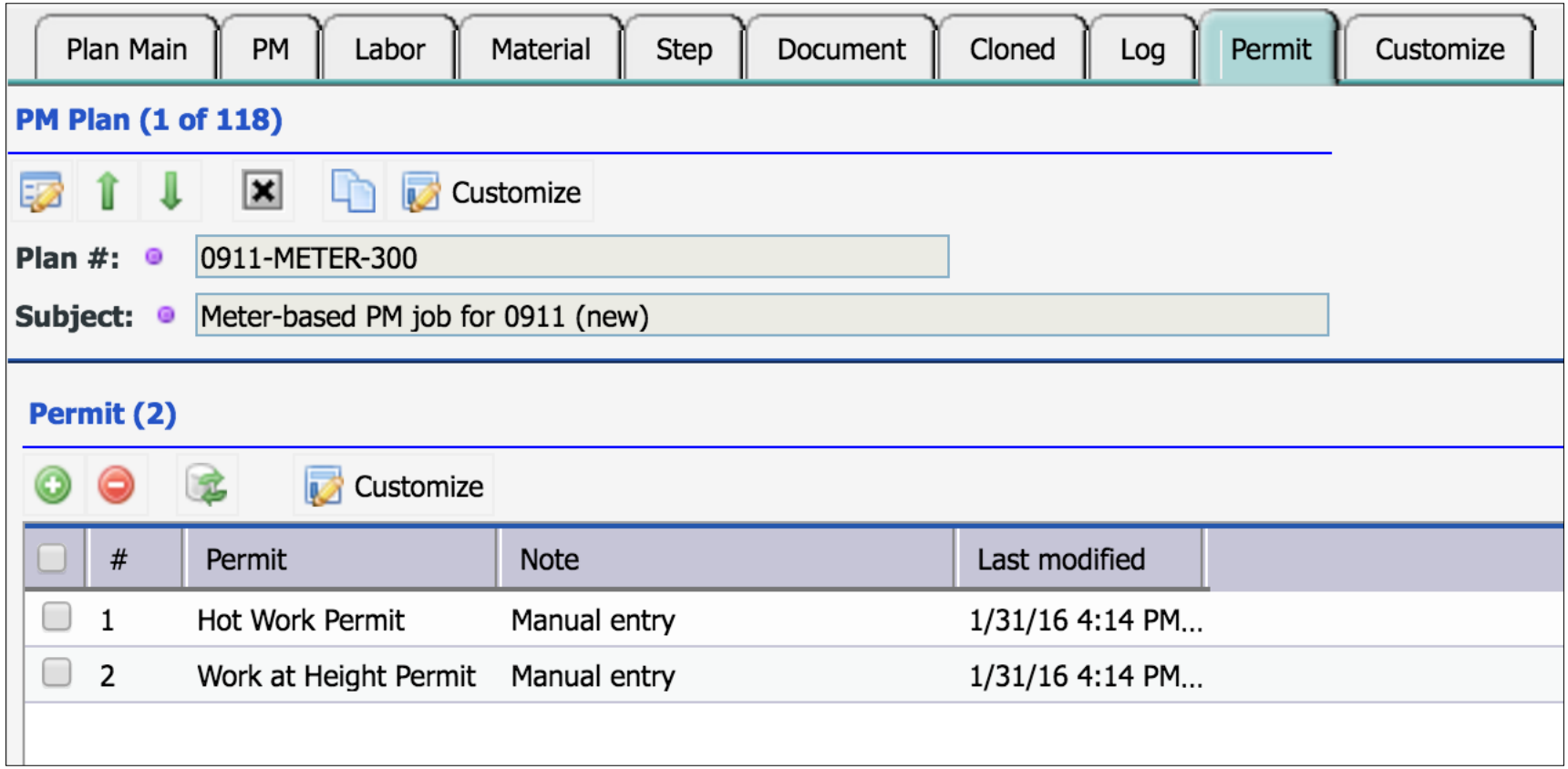

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PM Module – PM Round

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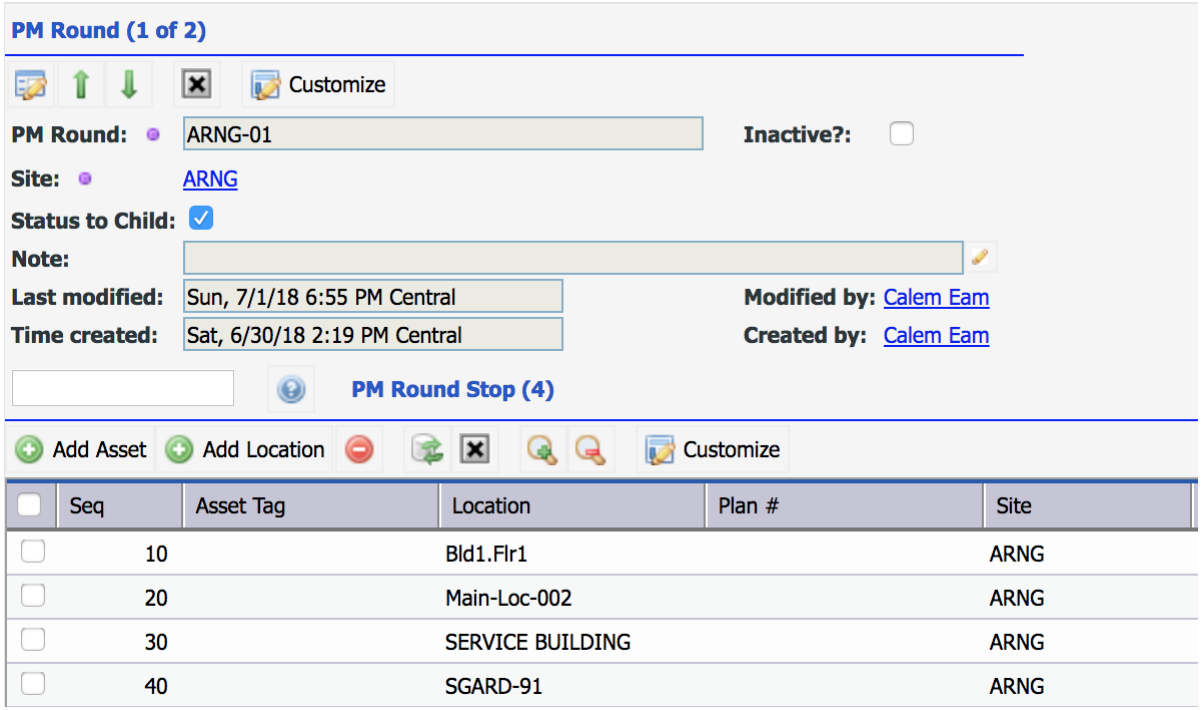

- Use PM Round to perform PMs for multiple assets/locations
- Each asset or location represents a round stop to perform PM
- Each asset/location will be generated as a child work order for the PM

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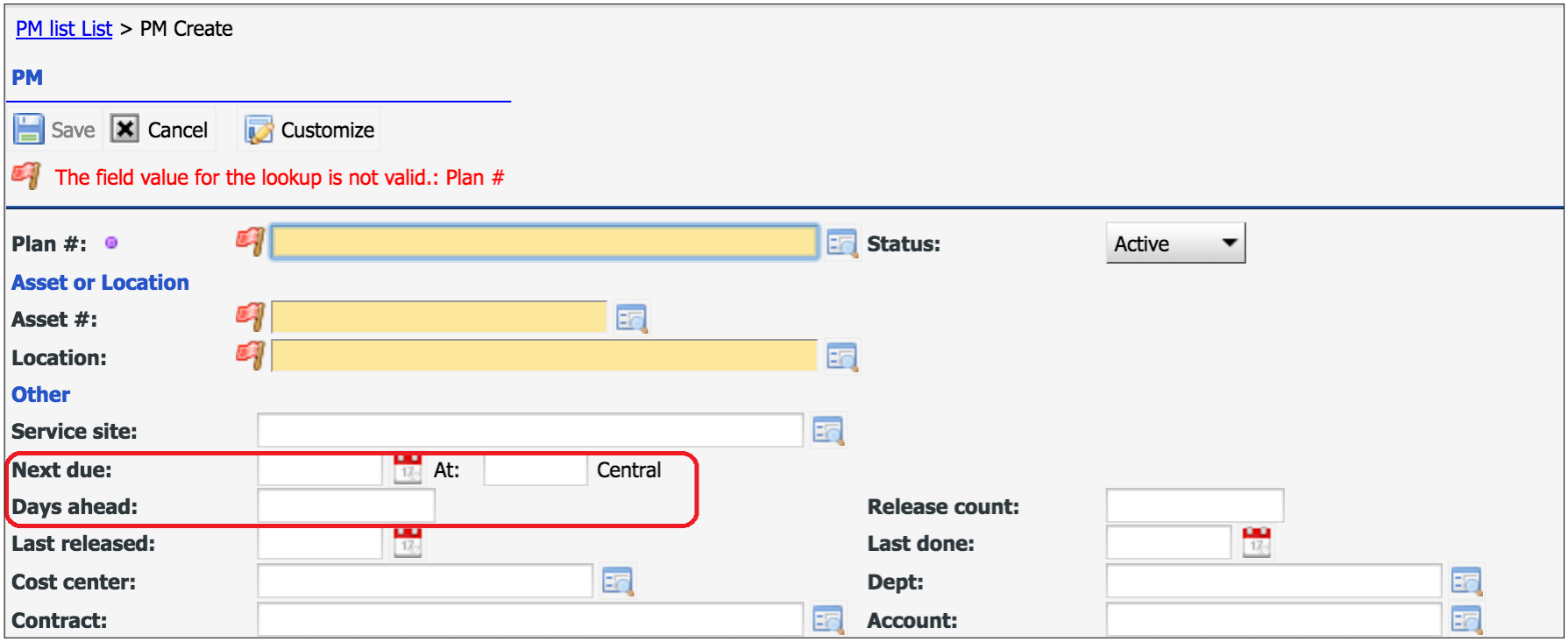
PM Module – Create PM (1)

PM is the application of a PM Plan to an Asset/Location

- PM = PM Plan + Asset/Location + PM Round (Optional)
- Set “PM Plan”, an “Asset” or a “Location”
- Set “Next due” to generate WO from the PM
- Set “Days Ahead” to generate WO ahead of due time. Default is 7 days.



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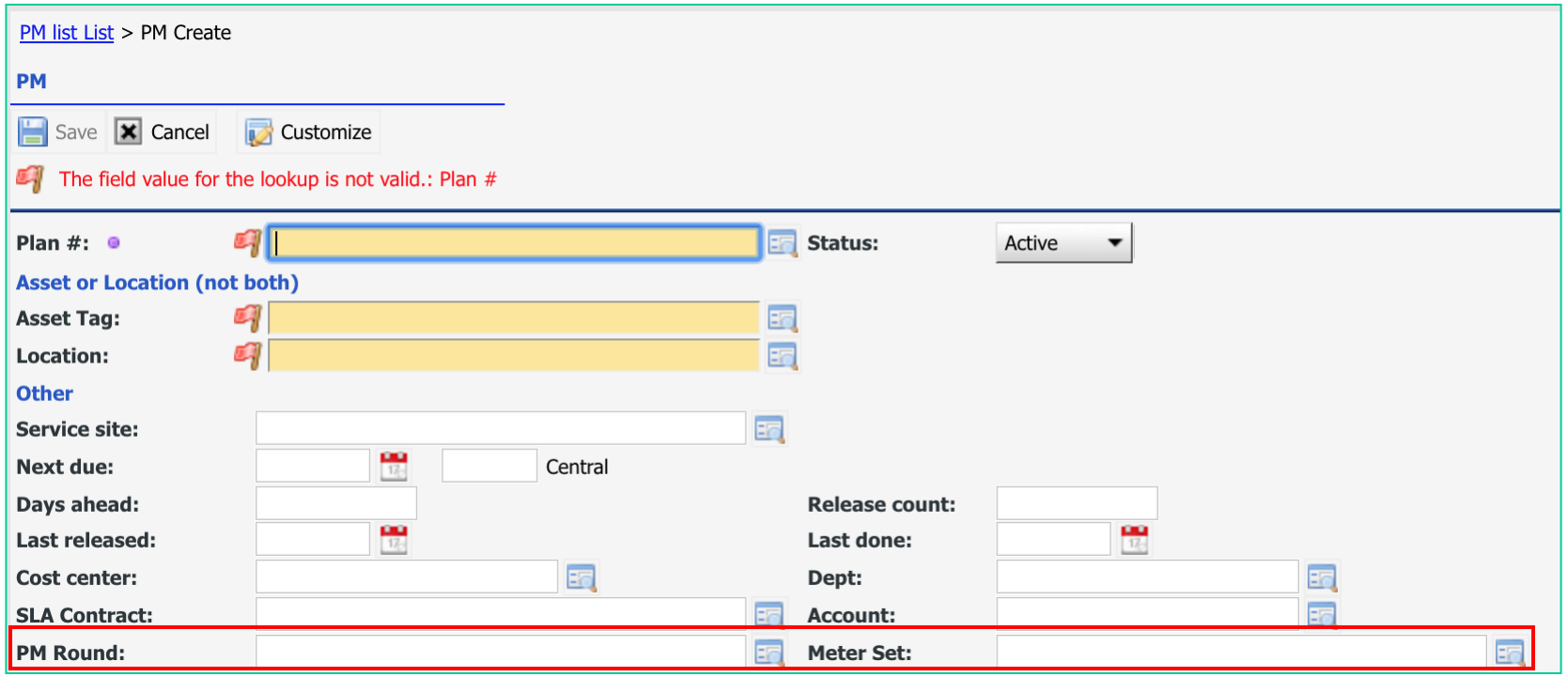
PM Module – Create PM (2)

- Set PM Round to do maintenance for a set of assets | locations.
- Set Meter Set for taking readings of a set of meters.
- Set SLA contract for PMs to be controlled by contract's validity



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PM Module – Create PM (3)

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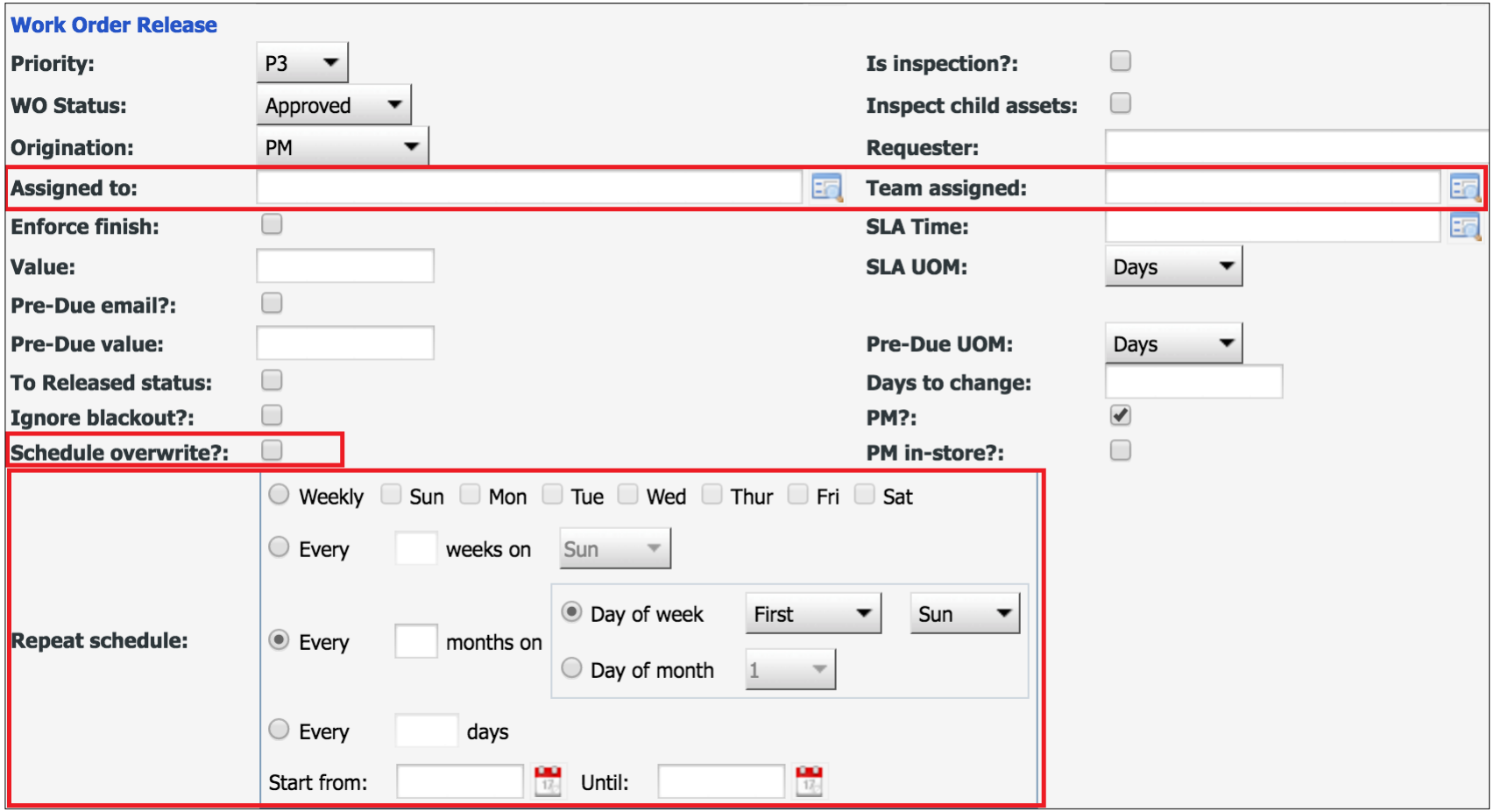
- Set Work Order Release Info: Status, Assignment
- Overwrite schedule in PM Plan only when necessary



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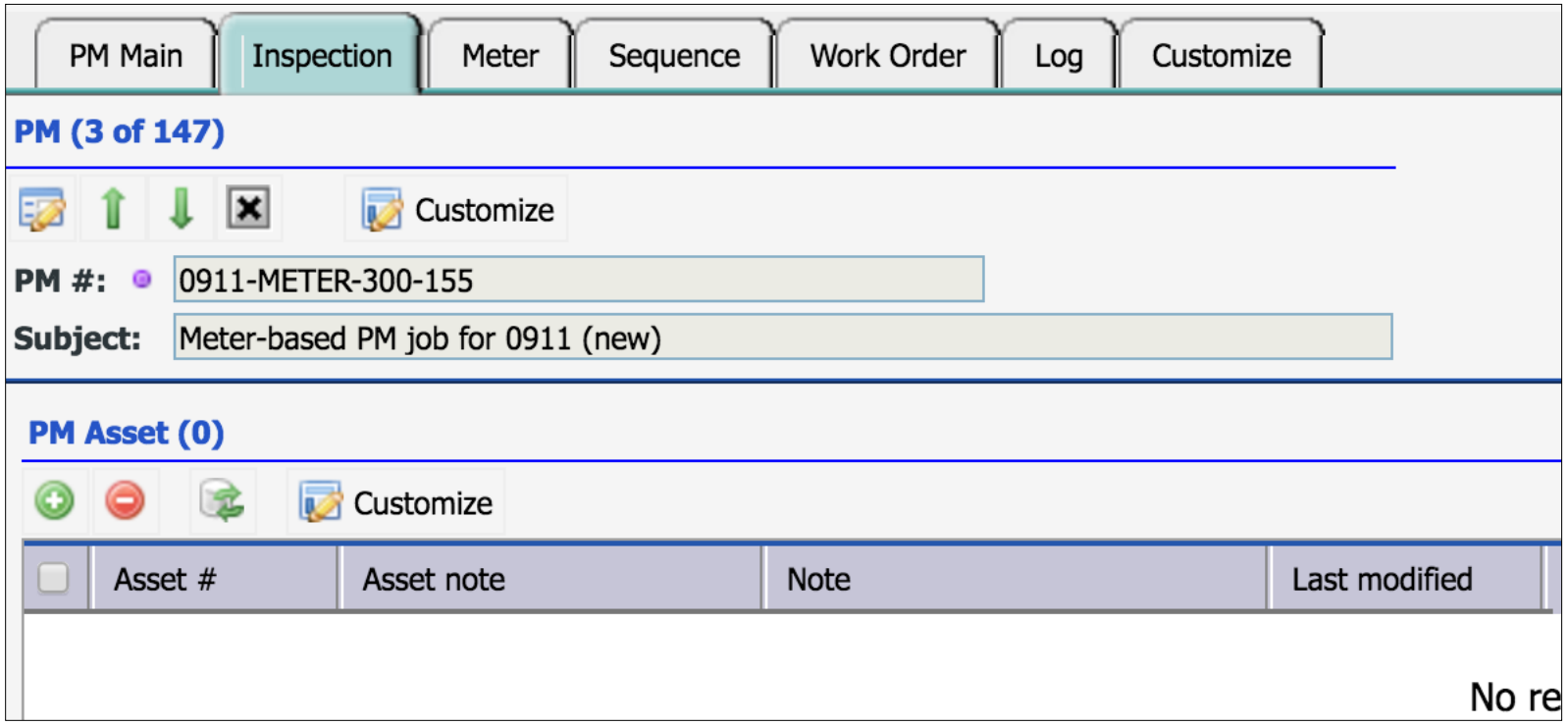
PM Form - Inspection

- You may add more assets to the inspection list
- A single PM work order with in its inspection list
- WO cost will be tracked at the PM asset or location



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PM Round vs Inspection

PM Round	PM Inspection
A PM WO and Child PM WO for each round stop	A PM WO with assets in inspection list
Round stop can be locations	Inspection lists with assets
Child PM WO an be assigned to users	Multiple users can be assigned to a WO
Costs are reported to round stop location/asset	Costs are reported to PM asset or location

- See http://www.calemeam.com/calemcustomers-2/when-to-use-pm-inspection-and-rounds

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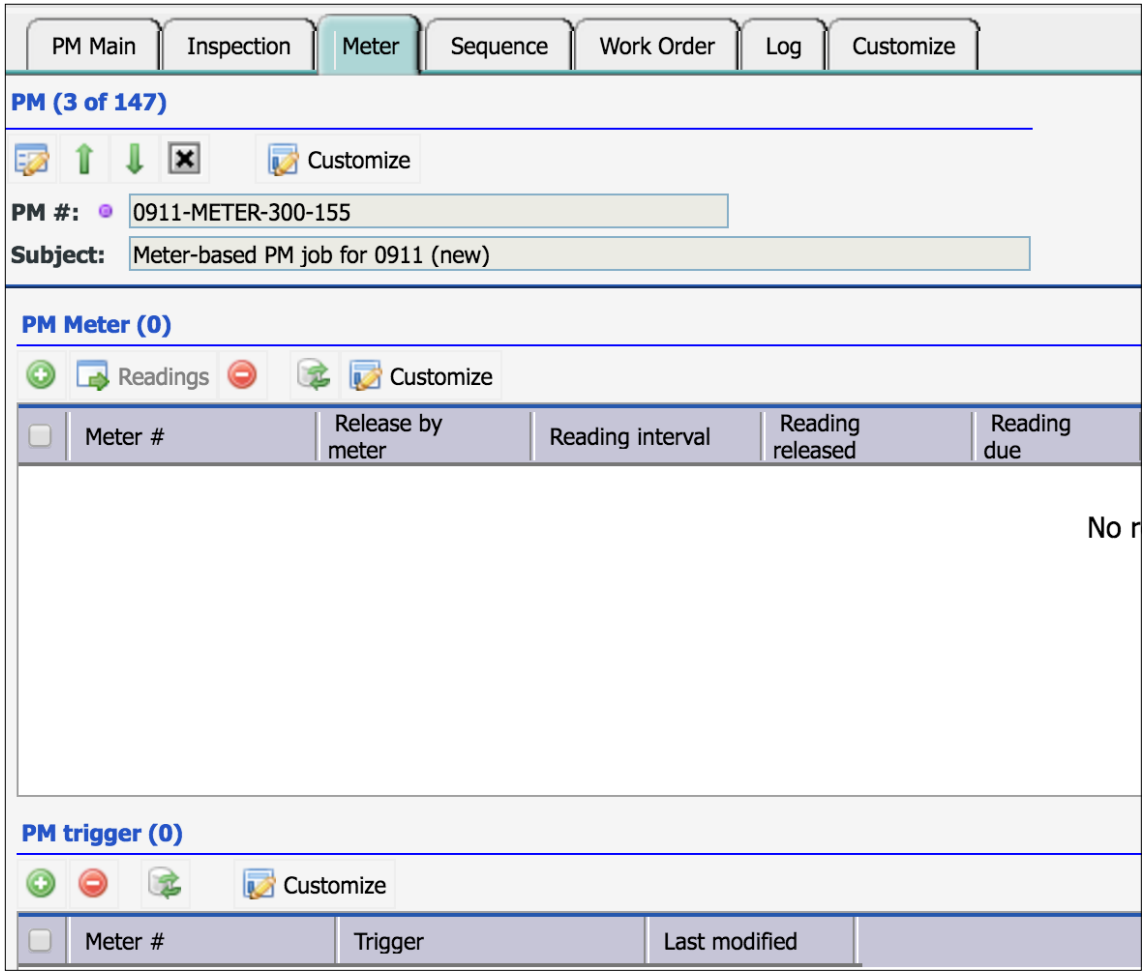
PM Form - Meter

- Release by meter reading interval
- Release by meter triggers



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PM Form - Sequence

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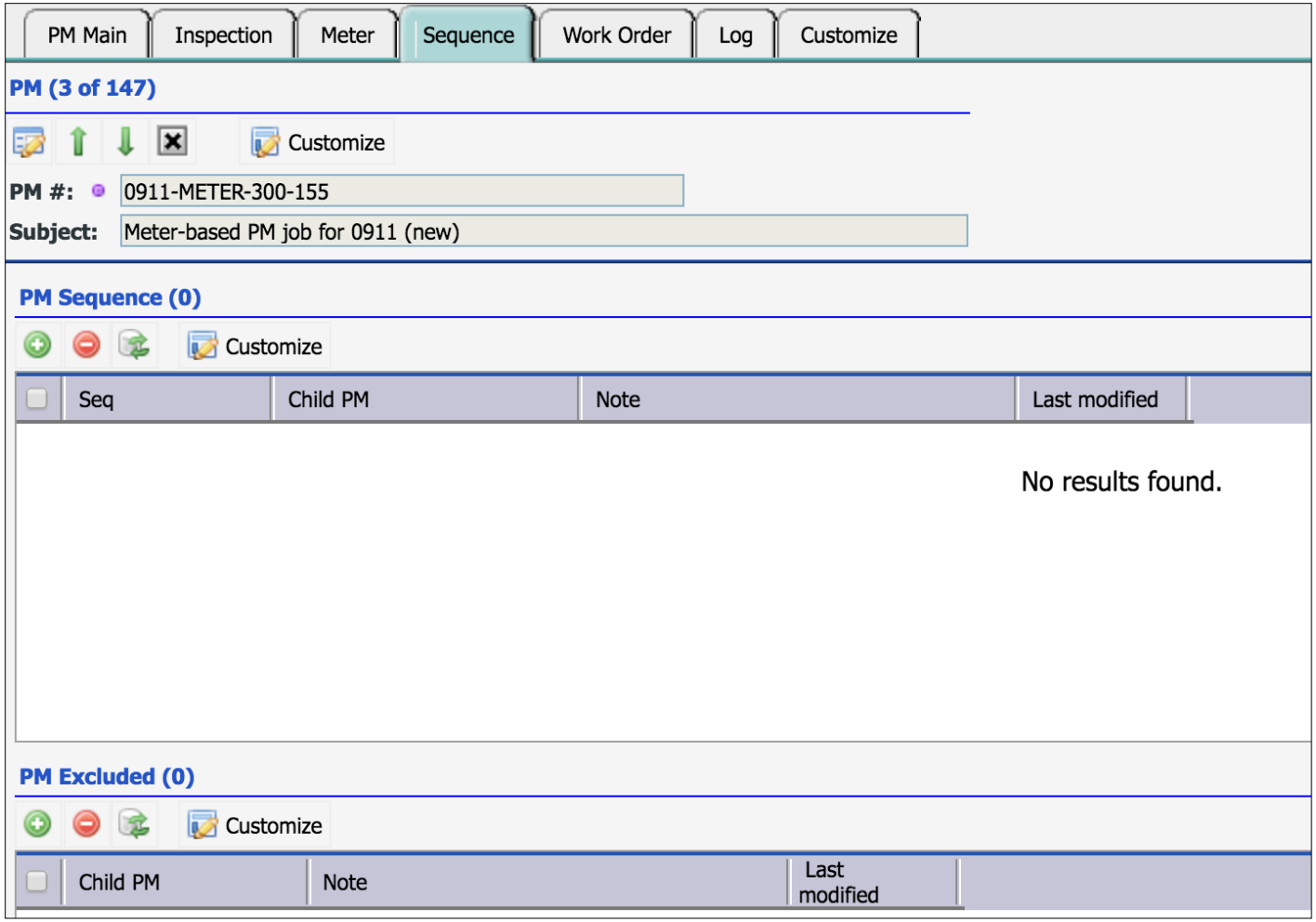
- Release other PMs with the PM
- Exclude other PMs when this PM is released



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PM Form – Work Orders

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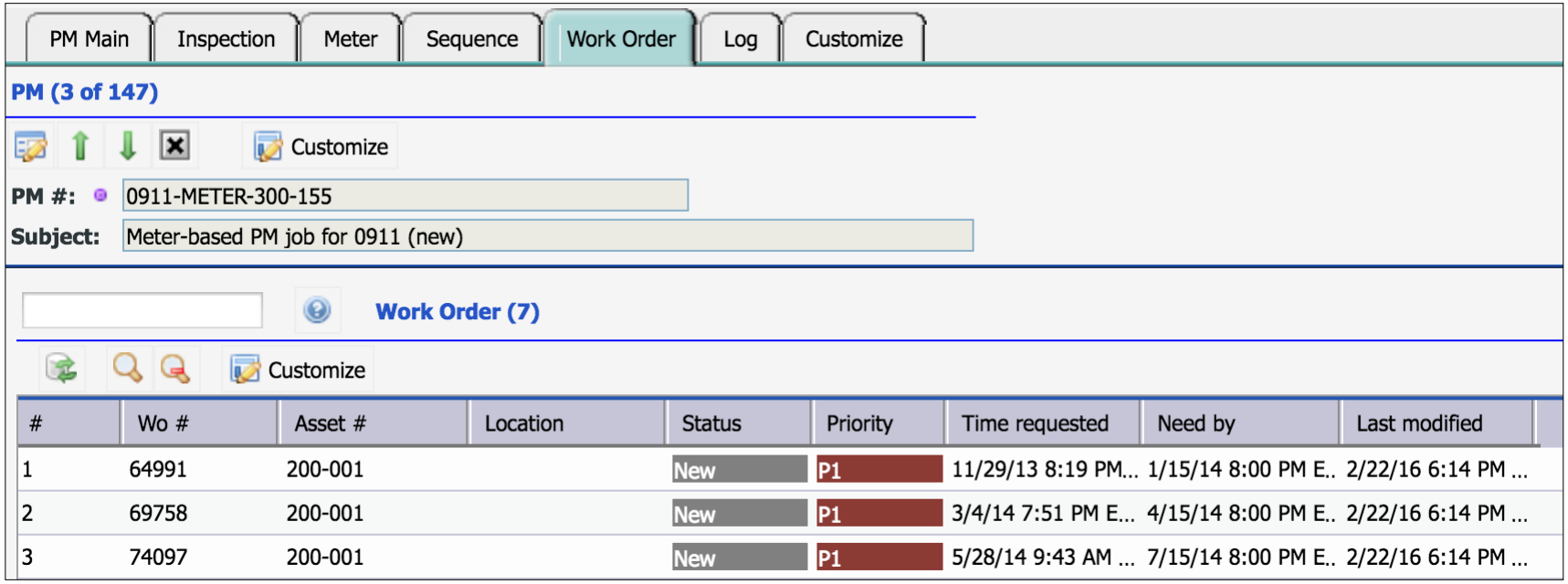
Work Orders generated from the PM



#	Wo #	Asset #	Location	Status	Priority	Time requested	Need by	Last modified
1	64991	200-001		New	P1	11/29/13 8:19 PM...	1/15/14 8:00 PM E..	2/22/16 6:14 PM ...
2	69758	200-001		New	P1	3/4/14 7:51 PM E...	4/15/14 8:00 PM E..	2/22/16 6:14 PM ...
3	74097	200-001		New	P1	5/28/14 9:43 AM ...	7/15/14 8:00 PM E..	2/22/16 6:14 PM ...

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PM Form – Logs

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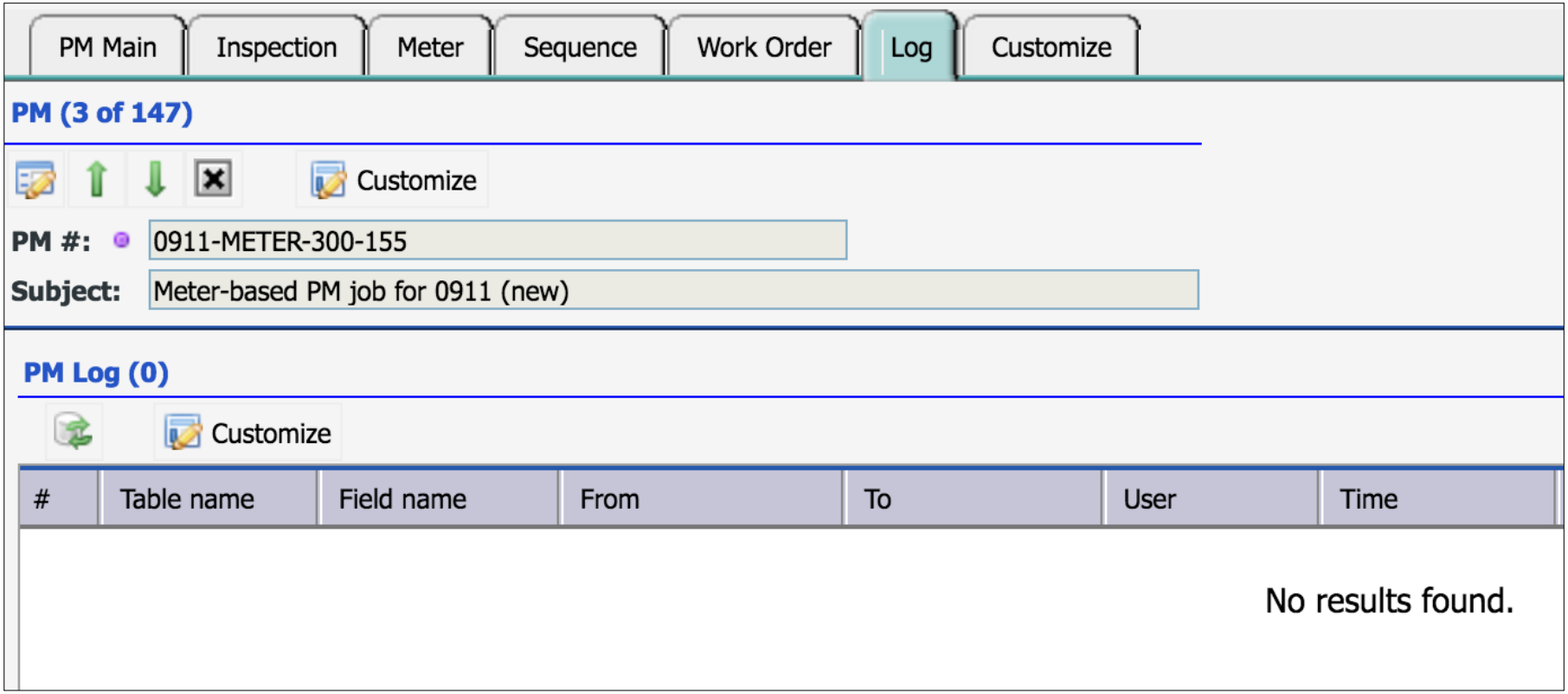
Audit Log of PM



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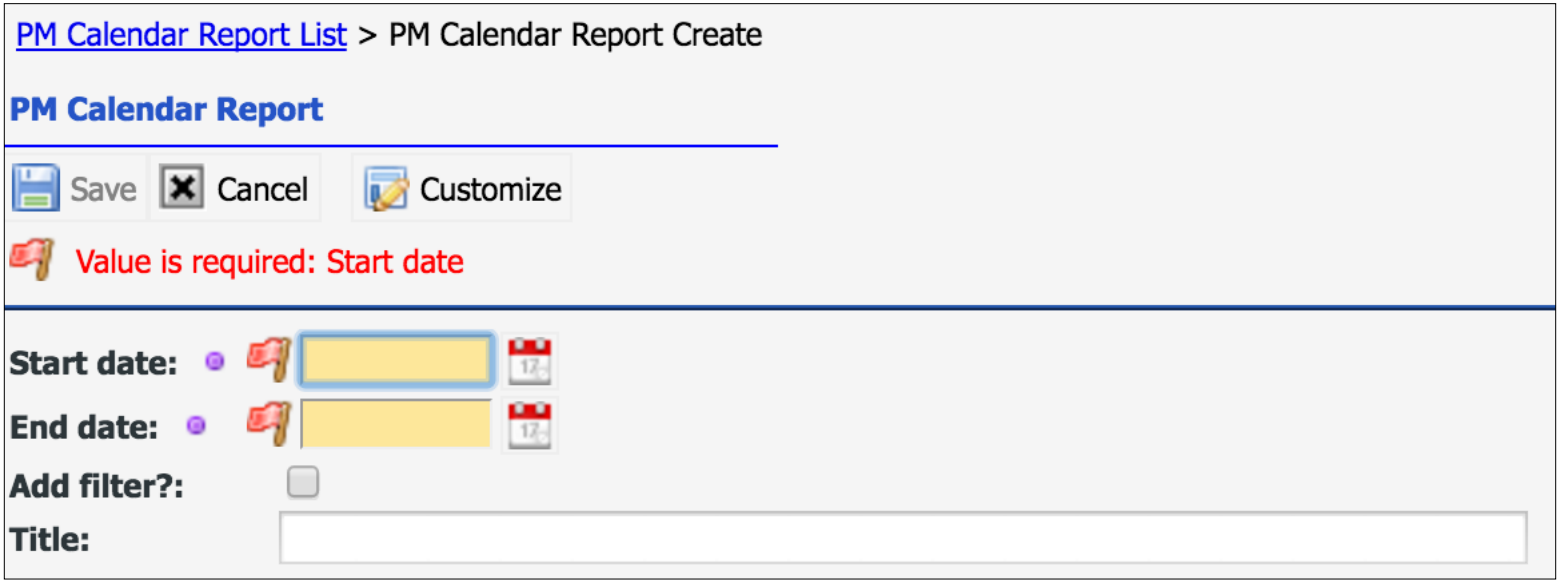
PM Calendar

Get PM Calendar for a time period



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PM Calendar – Monthly

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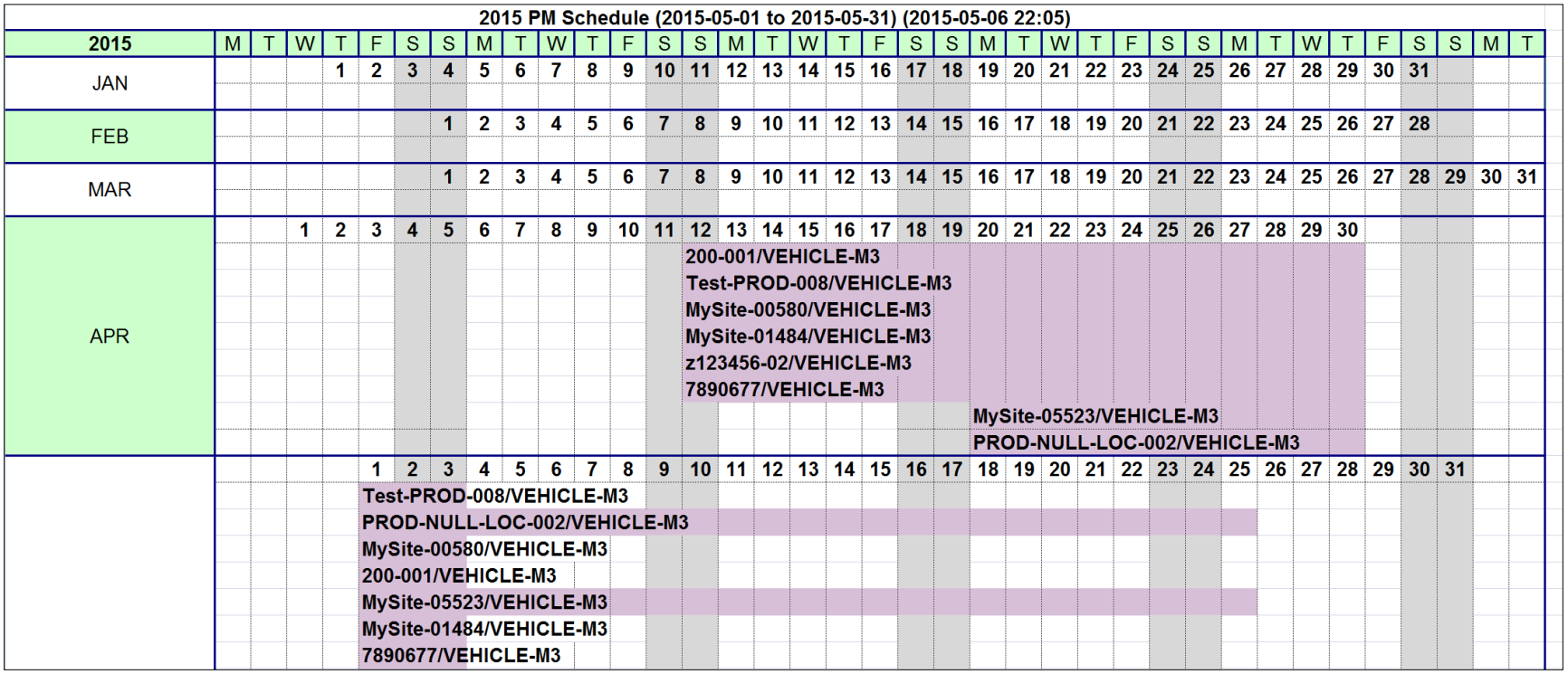
PM Calendar Excel File

- Generated from PMs based on repeat schedules
- Start date and duration



2015 PM Schedule (2015-05-01 to 2015-05-31) (2015-05-06 22:05)

2015	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T
JAN				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
FEB							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				
MAR							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
APR			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30						
														200-001/VEHICLE-M3																								
														Test-PROD-008/VEHICLE-M3																								
														MySite-00580/VEHICLE-M3																								
														MySite-01484/VEHICLE-M3																								
														z123456-02/VEHICLE-M3																								
														7890677/VEHICLE-M3																								
																						MySite-05523/VEHICLE-M3																
																						PROD-NULL-LOC-002/VEHICLE-M3																
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
					Test-PROD-008/VEHICLE-M3																																			
					PROD-NULL-LOC-002/VEHICLE-M3																																			
					MySite-00580/VEHICLE-M3																																			
					200-001/VEHICLE-M3																																			
					MySite-05523/VEHICLE-M3																																			
					MySite-01484/VEHICLE-M3																																			
					7890677/VEHICLE-M3																																			

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PM Calendar – Annual

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2015	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
FloatingPM					100HP-006							
FloatingPM					100HP-007							
FloatingPM					SHIP-TEST-001							
NHI-Testing					100HP-005							
CG-001					DELL-SVR-0004							
CG-001					SHIP-TEST-001							
CG-F01					DELL-SVR-0004							
FLOAT-001					100HP-013							
FLOAT-001					DELL-SVR-0004							
WKLY-CG-001					100HP-008							
BiMonthlyPM					Sensor-001							
FIXED-001					DELL-SVR-0004							
Bi-Weekly_zc					100HP-015							
Bi-Weekly_zc					45678							
Bi-Weekly_zc					FARADAY							
Bi-Weekly_zc					HBE-TEST-002							
Bi-Weekly_zc					MySite-01400							
WKLY-BEARING-REP					100HP-3							
WKLY-BEARING-REP					401402-16							
WKLY-PM					233-455-901							
WKLY-PM					401402-17							
VEHICLE-M3				200-001								
VEHICLE-M3				7890677								

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PM Module – Upload PM/PM Plan

- Data Upload Part 3: PM
  - http://www.calemeam.com/calemcustomers-2/data-upload-part-3-preventive-maintenance
- Review PM Plan schedules in JSON
  - Option to upload with JSON schedules
  - Option to upload without JSON schedules for manual setup

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PM Module – Hands-On Lab

- Create a PM Plan
  - Set a repeat schedule of every three months on first Monday
  - Add Labor, Downtime, Part, and Tool
  - Add Safety and Step, Doc, and Permit
- Create a PM Round
- Creating a PM
  - Set initial due time
  - Set a PM to generate 30 days before its due time
  - Launch server process to manually generate work orders to verify
- PM Calendar Generation for the year

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Next Module – Contract & SLA

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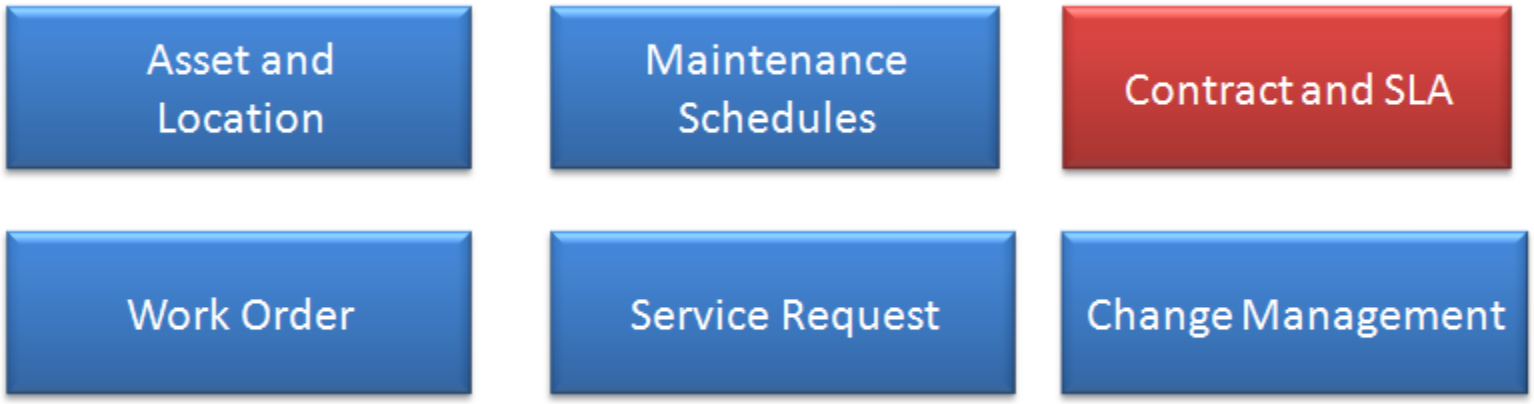

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