

HOW TO MAINTAIN AND PROLONG THE LIFE OF YOUR RAIN TANK

VIRTUAL FIELD STUDIES | WATERSHED MANAGEMENT GROUP

PRESENTER: MADELINE RYDER, *PROJECT MANAGER*



ACKNOWLEDGEMENTS

- ARIZONA DEPARTMENT OF FORESTRY AND FIRE MANAGEMENT



- US FOREST SERVICE, DEPARTMENT OF AGRICULTURE



[WATERSHEDMG.ORG/LEARN/CLASSES/FIELD-STUDIES](https://watershedmg.org/learn/classes/field-studies)

Virtual Field Studies Class: How to Maintain and Prolong the Life of Your Rain Tank

05/23/2020 - 10:00am to 12:00pm

Virtual Field Studies Class: How to Install a Laundry-to-Landscape Greywater System

05/27/2020 - 5:00pm to 7:00pm

Virtual Field Studies Class: Cultivating Native Edible Landscapes

06/02/2020 - 5:30pm to 7:00pm

WATERSHEDMG.ORG/ADVOCACY/STEWARD-IN-PLACE



Steward In Place: The Tippy Tap



Steward In Place: How to Create Garden Soil from Sheet Mulching



Steward In Place: Trevor on Arundo Donax



Steward In Place: Trevor on Buffelgrass



Steward In Place: Trevor on the Stinknet Plant



Steward In Place: Pruning right-of-way trees in your neighborhood



Steward In Place: Composting Toilet Maintenance



Steward In Place: A Look At Large-Scale Green Infrastructure with Joaquin



Steward In Place: Earth Day 2020 - Invasive Species



Steward In Place: A Day in the Life of a Composting Toilet User



Steward In Place: A Day In The Life: Restoration Team



Steward In Place: Bird Habitat

Water Harvesting Virtual Appointment

watershedmg.org/article/ask-water-harvesting-specialist-virtual-appointment

NEW!

- \$30 for 30 minutes.
- Make the most of your time at home and dive into some water harvesting projects with the help of WMG's water harvesting specialists!
- Speak with our staff to answer questions about designing, building, and maintaining water harvesting systems and native and edible landscapes.

TOPICS FOR TODAY'S COURSE

INTRODUCTION

TANK SYSTEMS OVERVIEW W/BEST PRACTICES

FOUNDATIONS

UV PROTECTION

LEAKS

CLOGS

CRITTER CONTROL

CLEANING

ADDITIONS

Q&A



Lincoln Perino

PLASTIC TANK COMPONENTS

GUTTERS AND DOWNSPOUTS / SCUPPERS

PRE-FILTRATION

INFLOWS

VENTS/LIDS

OVERFLOWS

IRRIGATION/HOSE CONNECTIONS



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COMMON PLASTIC TANK BRANDS

SNYDER



ROTOPLAS



BUSHMAN



COMMON PLASTIC TANK BRANDS

POLYMART



NORWESCO



RMI



Photos by Lincoln Perino

RECYCLED



GUTTERS AND DOWNSPOUTS

OFTEN METAL, BUT ALSO PLASTIC

SEAMED OR SEAMLESS

DIY OR CONTRACTED INSTALLATION

INSPECT FOR DEBRIS BEFORE EACH RAINY SEASON



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RAINHEADS WITH DEBRIS FILTERS

METAL - FABRICATED



Madeline Ryder

PLASTIC - "LEAF EATER"



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- REMOVABLE SCREEN FOR EASY CLEANING
- 2-4" GAP BETWEEN DOWNSPOUT AND SCREEN
- VISIBLE/ACCESSIBLE FOR CLEANING
- CAULKED AT PIPE CONNECTION

SCUPPERS

BUILT FOR PARAPET ROOFS

METAL, CERAMIC, ETC.

INSPECT/CLEAN ROOF BEFORE EACH RAINY
SEASON



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SCUPPER BOXES



SAYCO FABRICATED BOXES WITH DEBRIS FILTERS

- VISIBLE/ACCESSIBLE/INSPECT BEFORE RAINY SEASON
- REMOVABLE SCREEN FOR EASY CLEANING
- CAULKED AT PIPE CONNECTION



Photos by Lincoln Perino

TRADITIONAL SCUPPER BOXES (NO FILTER)

- INSPECT BEFORE RAINY SEASON



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BASKETS

- OFTEN SCREWED INTO PLACE WITH DIRECT DOWNSPOUT CONNECTION
- CHECK/CLEAN EVERY SEASON
- CONSIDER ALTERNATIVE DESIGNS



FIRST FLUSH

- WITH HOSE BIB, SCREW CAP OR BOTH
- VISIBLE AND EASILY ACCESSIBLE
- CHECK SEASONALLY
- EMPTY AFTER 2-3 RAIN EVENTS





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WET INFLOW

- INFLOW PIPE PLUMBED BELOW GROUND
- PIPE CARRIES STANDING WATER AFTER INITIAL RAIN EVENT
- RUBBER COUPLING FOR SETTLING

DRY INFLOW

- INFLOW PIPE PLUMBED ABOVE GROUND
- PIPE DOES NOT CARRY STANDING WATER
- RUBBER COUPLING FOR SETTLING
- PIPE STRAPPED EVERY 4 FEET



Photos by Madeline Ryder



LIDS AND VENTS

- SOME BRANDS CARRY VENTED LIDS
- THREADED PERSON-WAY FOR ACCESSIBILITY
- CAULK OR SEAL SEAM IMPERFECTIONS

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OVERFLOWS

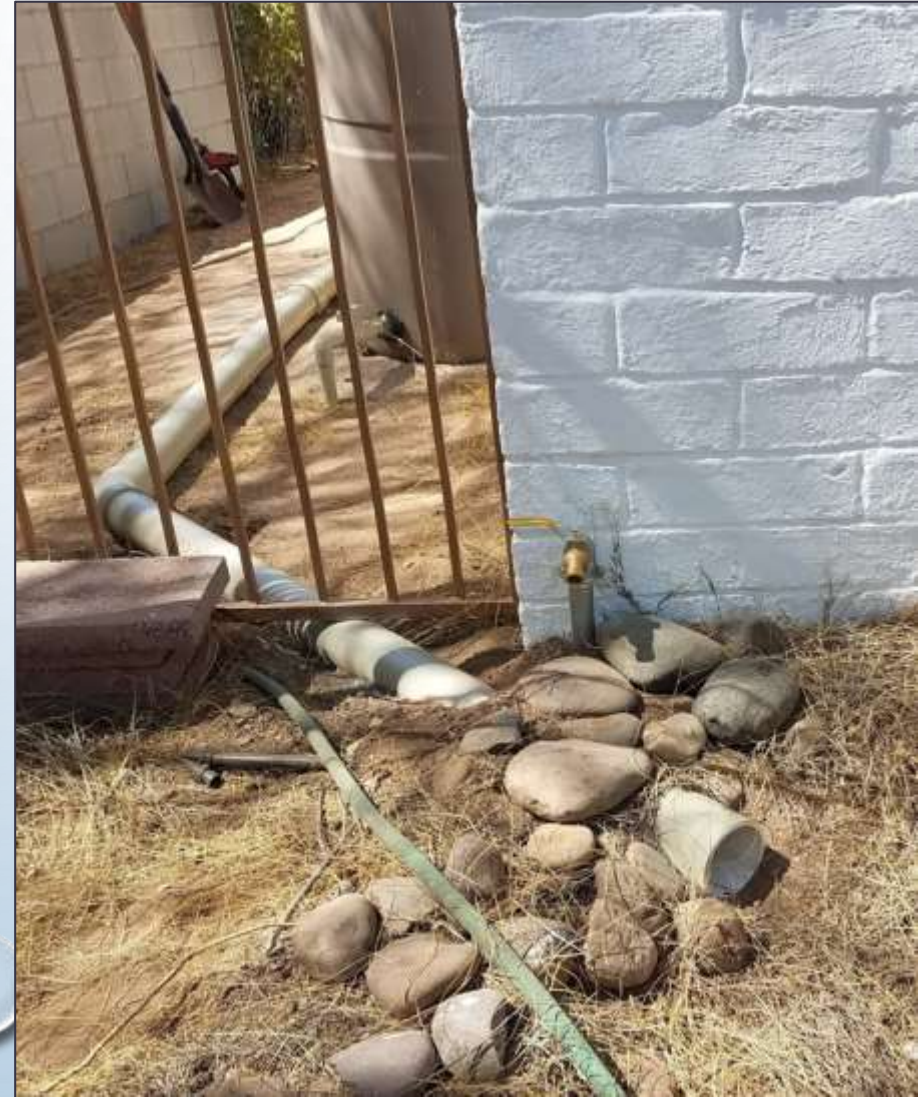
POP-UP



BACKWATER VALVE



OPEN







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Photos by Lincoln Perino



QUESTIONS?

FOUNDATIONS: SAND

- PROTECTIVE LAYER BETWEEN TANK AND ROCK, SHARP EDGES, DEBRIS
- BEST FOR COMPACTION/SETTLING
- EROSION POTENTIAL



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CEMENT/CONCRETE PAD

- NOT NECESSARY, BUT GOOD ALTERNATIVE TO SAND
- WATCH FOR CRACK FORMATION
- EROSION POTENTIAL



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BLOCK/PAVERS

- CHECK LEVEL EVERY YEAR OR SO
- EROSION POTENTIAL
- WATCH FOR UNEVEN EDGES/POINTS



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BARE SOIL

- NO BUFFER BETWEEN TANK AND SHARP EDGES
- HIGH EROSION POTENTIAL
- BURROWING AND ROOT GROWTH POTENTIAL





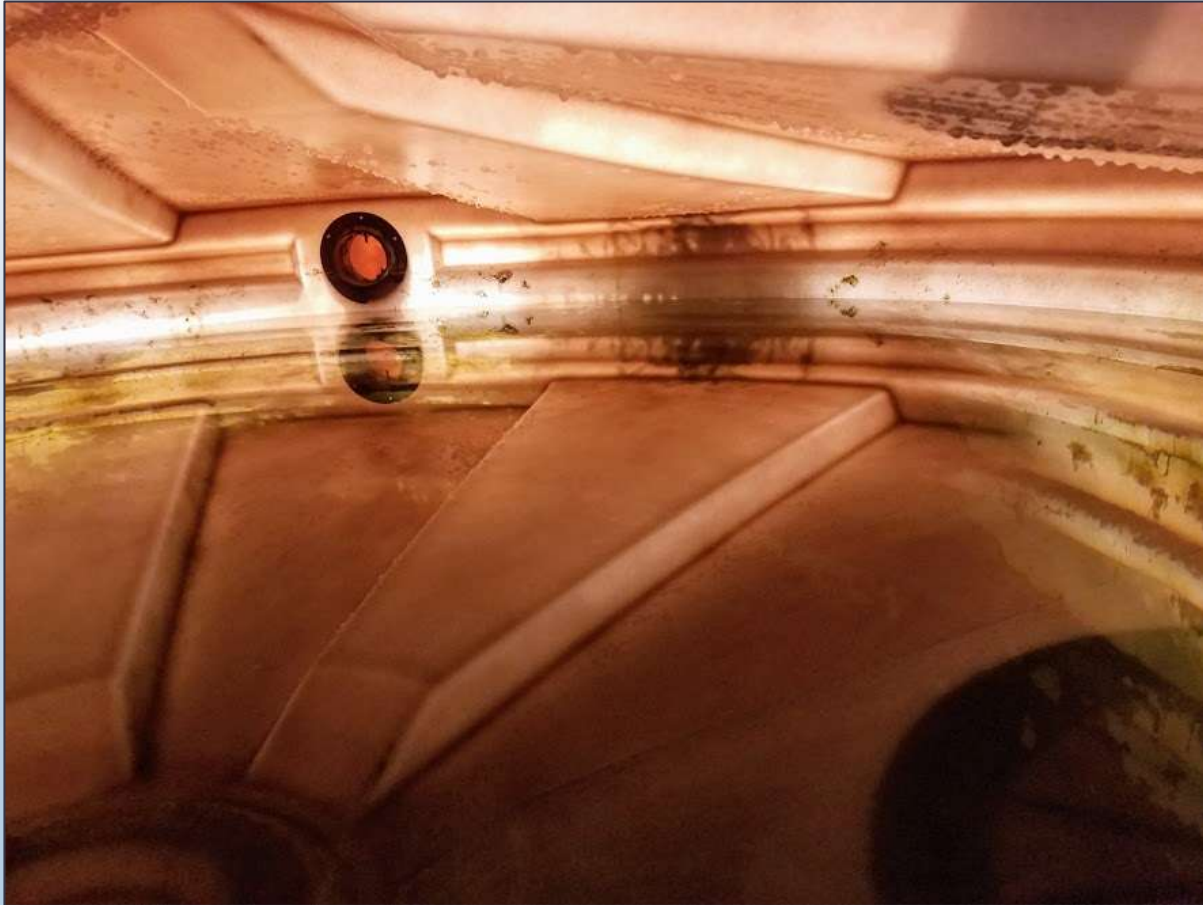
Madeline Ryder



UV PROTECTION

DEGRADATION OF PLASTICS IN TANK, PIPE

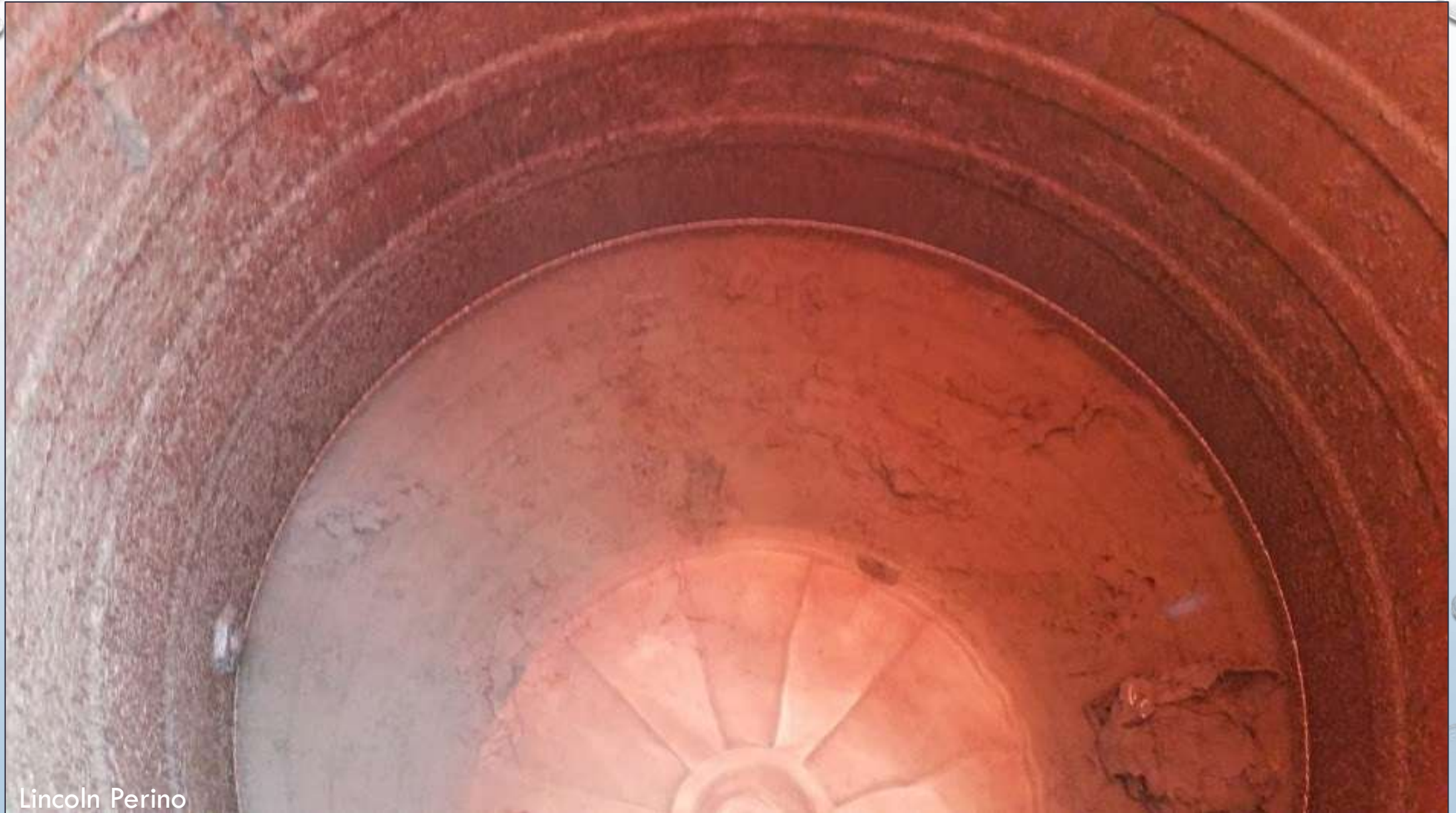
ALGAL GROWTH



ALGAE



ALGAE



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PAINTING

TANK: SAND LIGHTLY

2X COATS ELASTAMERIC

2X COATS HOUSE/SPRAY PAINT

PIPE: VINEGAR WIPE

HOUSE/SPRAY PAINT





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IDENTIFYING LEAKS

- DIRECT ID
- NO/LOW VOLUME
- WET SPOTS/PLANT GROWTH
- CHANNEL LOCK
- STRAP WRENCH
- BULKHEAD WRENCH (WMG ONLY)
- TEFLON TAPE
- PIPE THREAD COMPOUND (PIPE DOPE)



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HIGH CONNECTION LEAKS

TIGHTENING

RETAPING THREADED PARTS

REPLACING PARTS



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LOW CONNECTION LEAKS

TIGHTENING

RETAPING THREADED PARTS

PLUGS

EMPTYING TANK

REPLACING PARTS



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IDENTIFYING CLOGS

- DIRECT ID
- TANK VOLUME (HIGH OR LOW)
- WATER ELSEWHERE
- SAME TOOLS AS FOR LEAKS

PRE-TANK CLOGS

- EASILY ACCESSIBLE PRE-FILTRATION IS KEY!
- HIGH INFLOWS PRESERVE TANK WATER
- HAVE A MEANS OF DISCONNECTING THE TANK AND INFLOW



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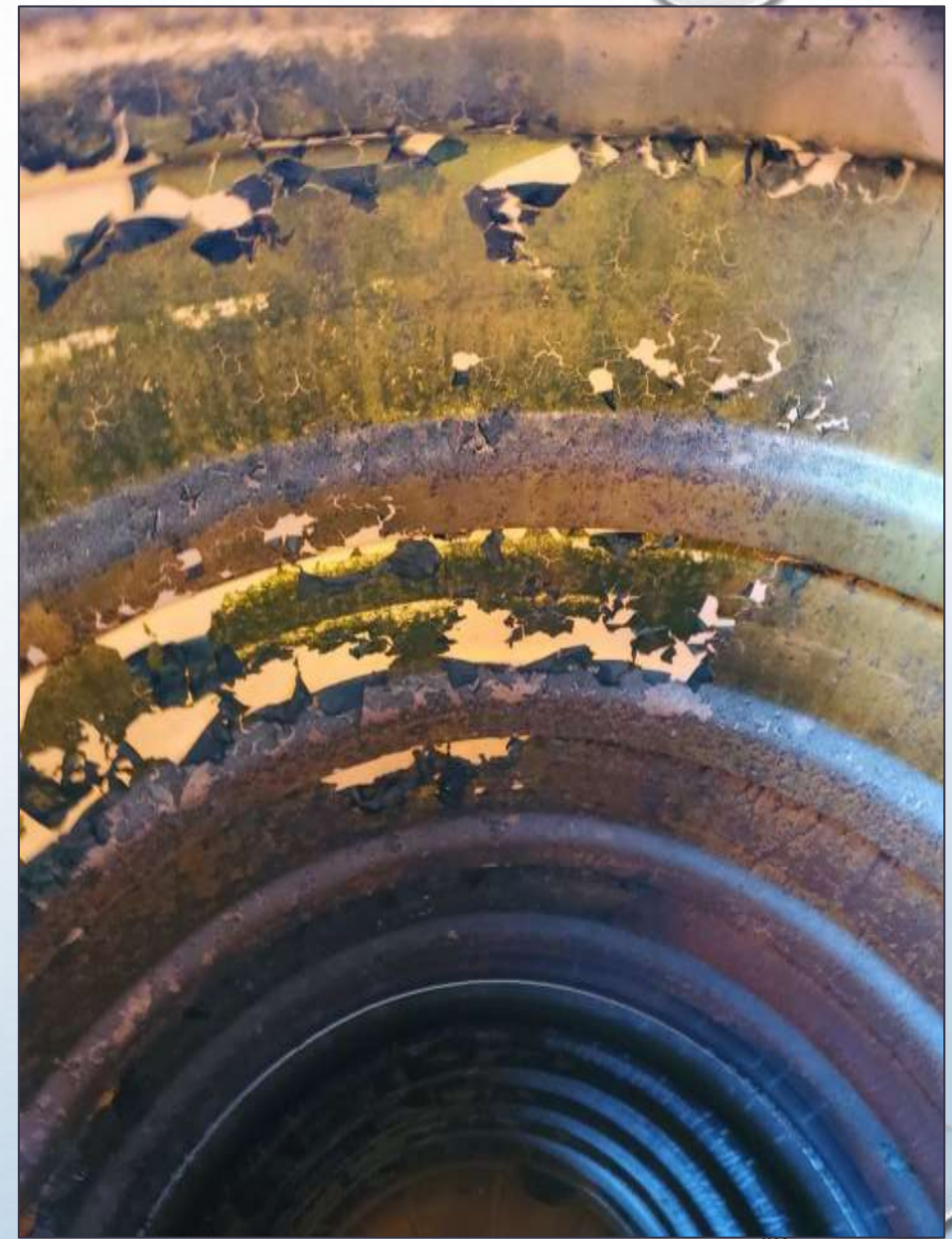


CLOGS AT TANK

- CHECK TANK INTERIOR FOR ALGAL BUILD UP
- CHECK LOW CONNECTIONS FOR FLOW
- IF POSSIBLE, PLAN TO CLEAN AFTER TANK EMPTIES

POST-TANK CLOGS

- CHECK THAT OVERFLOWS ARE NOT BURIED;
ROOT GROWTH, SEDIMENT, ANIMALS



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QUESTIONS?

MOSQUITOES

- CAN BREED IN/AROUND TANK; GUTTERS; WET DEBRIS
- NEED 1-2 WEEKS TO COMPLETE BREEDING CYCLE



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BURROWERS

- CAN AFFECT TANK STABILITY OVER TIME
- CHECK LOW VISIBILITY/ACCESSIBLE AREAS ANNUALLY
- ADD ROCK OR OTHER BARRIERS AROUND PERIMETER



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SEALING OPENINGS

- RAINHEAD → DRY, APPLY SILICONE/CAULK
- INFLOW/OVERFLOW PLUMBING → DRY, APPLY SIKAFLEX
- THREADED LID AND VENT → RETHREAD (POTENTIAL CROSS THREAD)
- SCREWED LID → RESCREW, APPLY SILICONE BETWEEN LID/TANK

- BULKHEADS → HAND TIGHTEN, APPLY SIKAFLEX



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CLEANING TANKS

SIGNS

- DIRECT ID OF SEDIMENT ACCUMULATION, ALGAL GROWTH, DEBRIS
- WATER BECOMES INACCESSIBLE AT HOSE BIB

METHOD

- EMPTY TANK (HOSE BIB, DUMP OR PUMP)
- POWER SPRAY/SCRUB AND DUMP OR PUMP
- USE DUMPED/EMPTIED WATER ON PLANTS

TANK ADDITIONS/ALTERATIONS

- PLAN FOR THE FUTURE DURING INITIAL INSTALLATION
- CONSIDER ROOF CALCULATIONS AND TANK VOLUME
 - ADD A TANK
 - ADD AN INFLOW
- 1,200 GAL PER INFLOW CUTOFF BETWEEN 3" AND 4" PIPE







CONNECTIONS

HIGH

- 3" OR 4" DIAMETER PIPE (SAME AS INFLOW DIAMETER)
- ALLOWS FOR SEQUENTIAL COLLECTION
- LESS WATER LOST FROM LEAKAGE

LOW

- 1" TO 4" DIAMETER PIPE (SAME OR SMALLER THAN INFLOW)
- ALLOWS FOR SYNCHRONOUS COLLECTION
- MORE LOSS FROM LEAKAGE

RUBBER COUPLINGS

- PROVIDE FLEXIBILITY WITH SETTLING
- ALLOW FOR MOVING TANK/PLUMBING WITHOUT DISASSEMBLY



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BALL VALVES

- ALLOWS FOR PRESERVING TANK WATER WHILE WORKING ON PLUMBING
- MANUAL ON/OFF FOR IRRIGATION



UNIONS

- BEST ON 2" OR SMALLER DIAMETER PIPE
- ALLOWS FOR DISCONNECTING PIPE ON EITHER SIDE OF UNION AND REATTACHING LATER



SUPPLIERS

- TANKS
 - BUSHMAN: ACE HARDWARE (22ND + KOLB)
 - POLYMART: OASIS, SARG
 - ROTOPLAS: DELIVERED TO TUCSON
 - SNYDER: EWING NORTH (SHAMROCK WAY)
- PLUMBING SUPPLIES
 - ACE HARDWARE
 - EWING NORTH
 - FERGUSON PLUMBING SUPPLY (KLEINDALE RD)
 - PLUMBLING SUPPLIERS INC.
 - SPRINKLER WORLD

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