

The background of the slide is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance. The largest droplets are located in the top-left and bottom-right corners, while smaller ones are more numerous in the center and bottom areas.

# **WELL BUBBLER**

COMPRESSED AIR WELL LEVEL SENSOR

AND PUMP CONTROLLER

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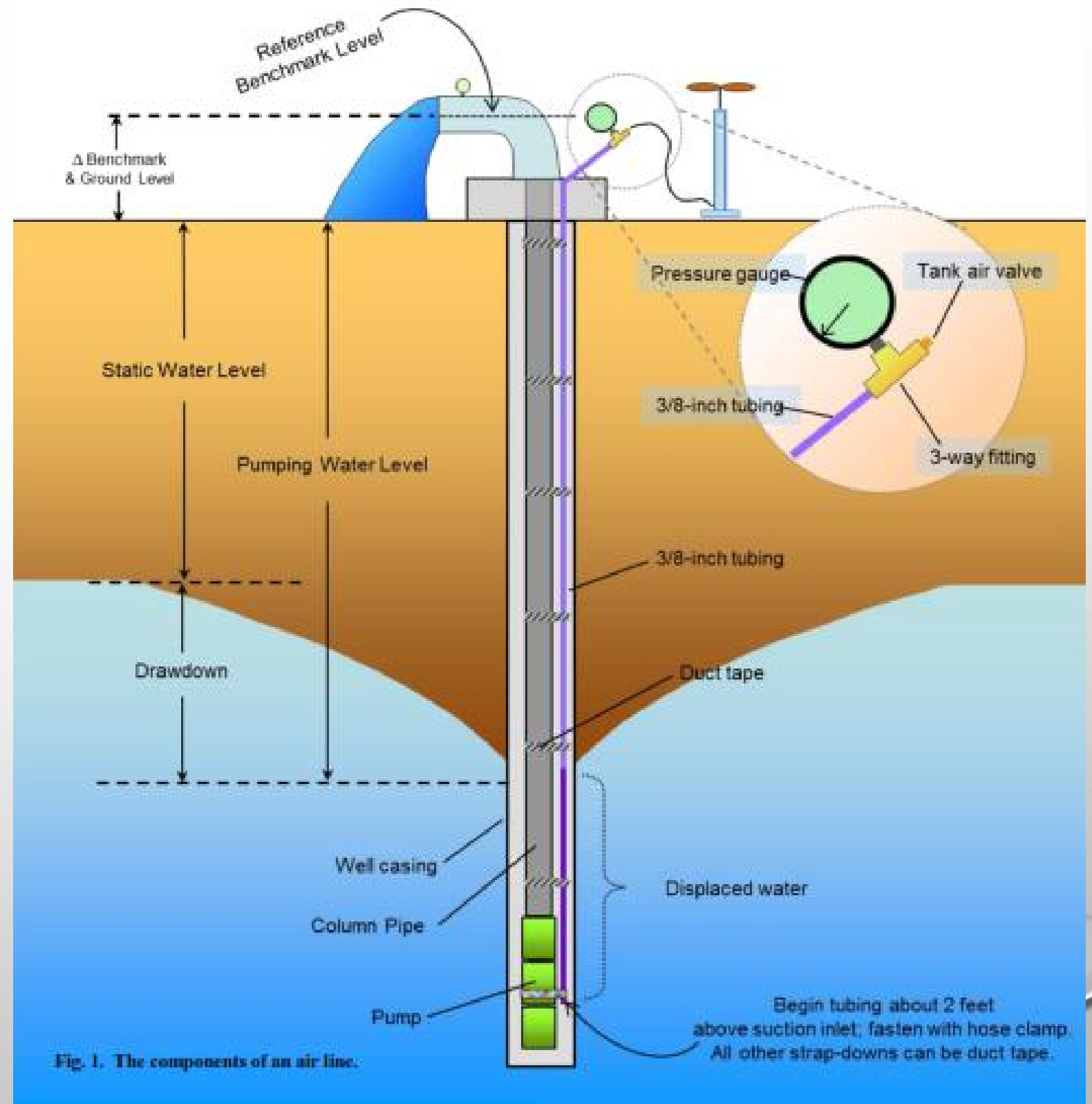
- HOW DOES IT WORK?
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# HOW DOES IT WORK?

THE WELL BUBBLER FORCES COMPRESSED AIR THROUGH A TUBE INSTALLED IN THE WELL TO ACCURATELY MEASURE THE STANDING AND PUMPING WELL LEVELS - THE SAME APPROACH USED BY WELL DRILLERS AND PUMP INSTALLERS.

THE WELL LEVEL IS AUTOMATICALLY CALCULATED FROM THE LENGTH OF THE TUBE AND THE AIR PRESSURE, AND IS SHOWN ON THE DISPLAY IN FEET.



# FEATURES

SECURE DATA LOGGER, FREE SOFTWARE - VIEW WELL LEVEL HISTORY, FLOW RATE & PRESSURE

BUILT-IN SOLAR POWER - NO WIRING, ASSEMBLY OR AC POWER NEEDED

LCD DISPLAY - VISIBLE IN BRIGHT SUNLIGHT, AND AT NIGHT

RELAY OUTPUT - STOP THE PUMP WHEN LEVEL IS LOW; 5A @ 480 VAC

TELEMETRY OUTPUT - 4 TO 20MA AND 0 TO 5VDC

USE WITH PRE-EXISTING, 1/4" DIAMETER AIR LINE

IMMUNE TO ENGINE & ELECTRICAL NOISE

PORTABLE, EASILY MOVED TO MEASURE & LOG MULTIPLE WELLS

# OTHER SENSOR TYPES

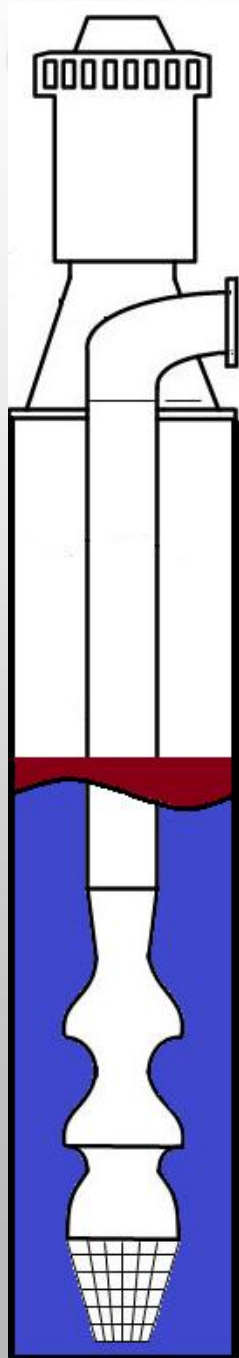
HYDROSTATIC / PRESSURE TYPE



ACOUSTIC



# TURBINE PUMPS: OILER



LUBRICATION OIL DRIPS INTO WELL

COLLECTS ON TOP OF WATER, CONGEALS

SENSOR HAS SMALL HOLES TO MEASURE PRESSURE

SENSOR CLOGS WITH OIL DURING INSTALLATION

BUBBLER TUBING NOT AFFECTED BY OIL



# TURBINE PUMPS: ENGINE NOISE, VIBRATION



ENGINE-DRIVEN GEAR HEAD

SEVERE NOISE AND VIBRATION

ACOUSTIC SENSOR ACCURACY AFFECTED

BUBBLER MOUNTED REMOTELY

BUBBLER NOT AFFECTED BY NOISE

# SUBMERSIBLE PUMPS: MOTOR WIRING



MOTOR WIRING TAPED TO DISCHARGE PIPE

OVER TIME, WIRING CAN COME LOOSE

SENSOR WIRE BECOMES TANGLED

SENSOR CANNOT BE REMOVED

PUMP MUST BE PULLED TO RETRIEVE SENSOR

BUBBLER TUBING USES TEAR-AWAY DESIGN



# SUBMERSIBLE PUMPS: VFD NOISE

VFD CREATES ELECTRICAL NOISE

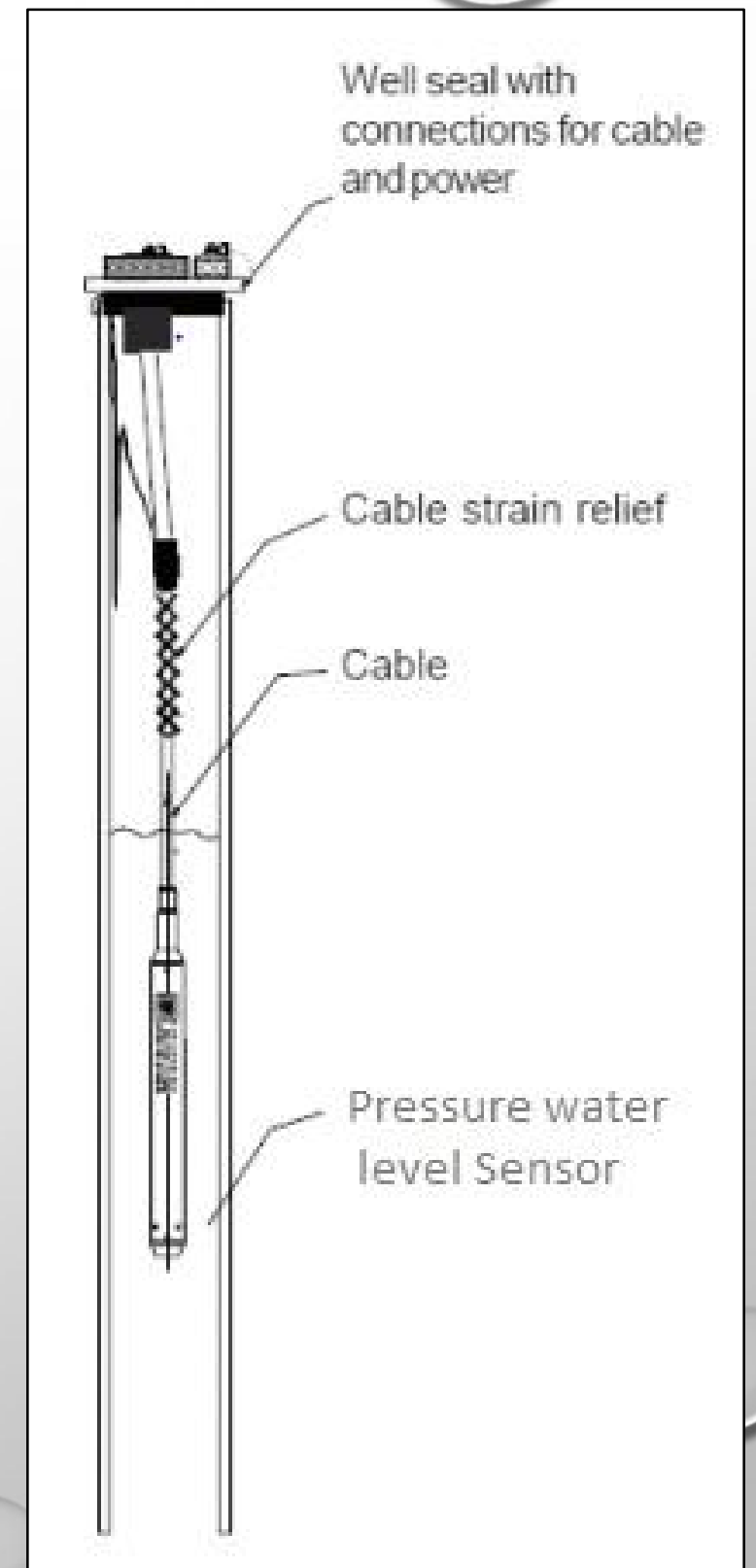
MOTOR WIRING IS LONG

SENSOR WIRE RUNS ALONG MOTOR WIRING

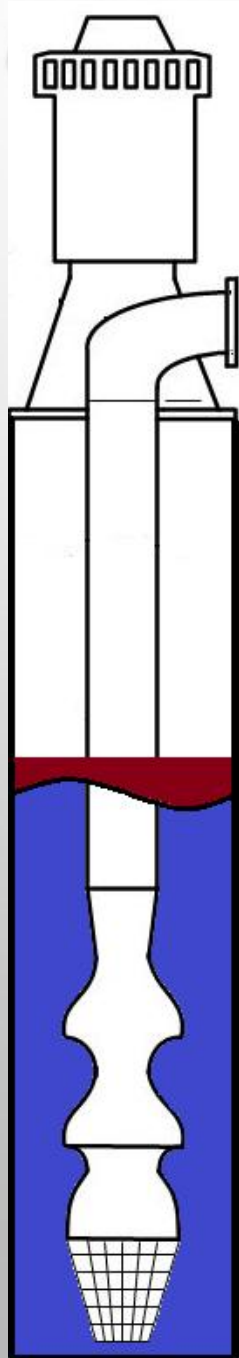
SENSOR PICKS UP VFD ELECTRICAL NOISE

PUMPING LEVEL CANNOT BE MEASURED

BUBBLER AIR LINE IMMUNE TO ELECTRICAL NOISE



# ALL PUMPS: INGESTION



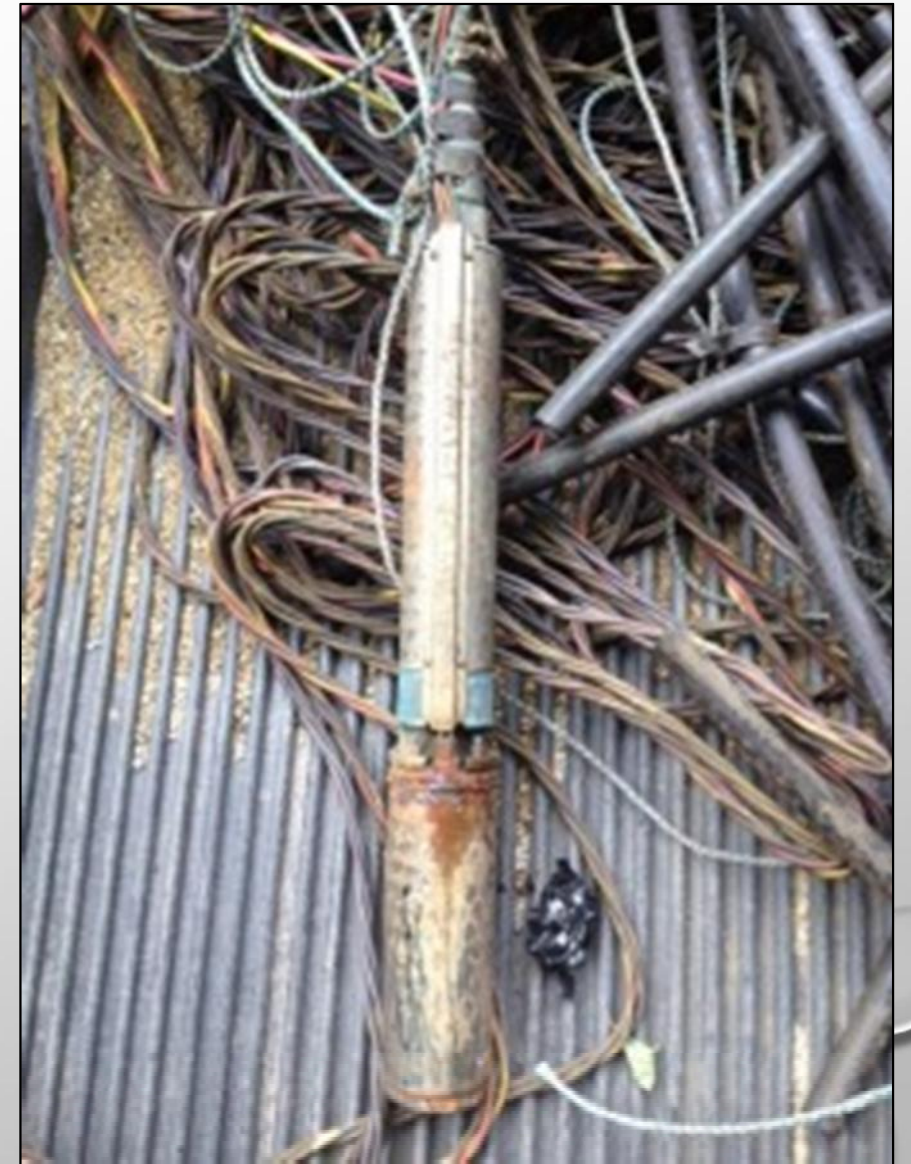
PUMP SET DEPTH UNKNOWN

SENSOR SET TOO DEEP

SENSOR AND WIRE INGESTED BY PUMP

PUMP DAMAGED

BUBBLER USES PLASTIC TUBING



# ALL PUMPS: WELL CAP ACCESS

WELL CAP HAS NO ACCESS TO CASING

EXISTING PORTS OBSTRUCTED

EXISTING PORTS TOO SMALL FOR SENSOR BODY

DISCHARGE PIPING IN THE WAY

BUBBLER WEIGHT BEADS ARE 3/8 INCH DIAMETER

BUBBLER TUBING HAS 1/2 INCH BEND RADIUS

AIR LINE ALREADY PRESENT



# ALL PUMPS: SPLASHING WATER

WATER LEVEL FALLS DURING PUMPING

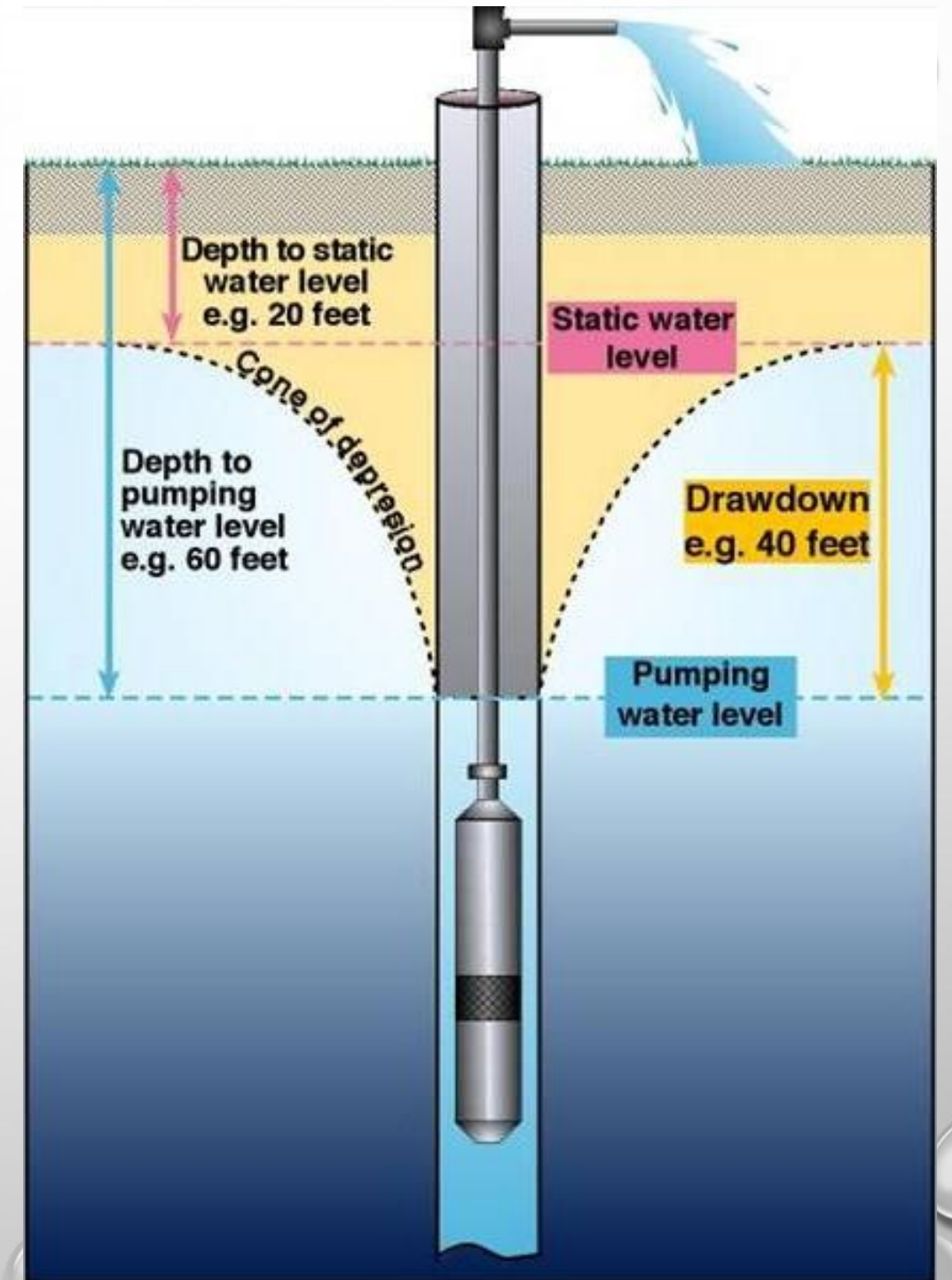
WELL RECHARGES THROUGH CASING PERFORATIONS

RECHARGE WATER CAUSES SPLASHING & NOISE

ACOUSTIC SENSOR INACCURATE WHEN PUMPING

UNABLE TO MEASURE PUMPING WATER LEVEL

BUBBLER IS NOT AFFECTED BY SPLASHING NOISE



# CURRENT INSTALLATIONS



# INSTALLING NEW AIR LINE

- 5/32" DIAMETER
- 300 PSI RATING
- 1/2" BEND RADIUS
- UP TO 1000 FT ROLLS
- 3/8" SOFT METAL "BEADS"
- TEAR-AWAY DESIGN



# SPECIFICATIONS

## MECHANICAL

14-GA STEEL ENCLOSURE, NEMA 12 AND IP65

EXTERNAL DIMENSIONS: 19 1/4" X 7 1/2" X 7" (W X D X H)

WEIGHT: 25 LBS

MOUNTING: STRUT CHANNEL, 1-5/8

AIR TUBE COMPATIBILITY: 1/4" OD, PUSH TO CONNECT

## ELECTRICAL

MAXIMUM OPERATING PRESSURE: 150 PSI

MEASUREMENT RANGE (SWL - PWL): 350 FT

ACCURACY: 0.25% OR 1 FOOT

INTEGRATED SOLAR POWER: MPPT, 10W, 12V, 14AH

SAMPLE RATE: 5 MIN MINIMUM, 15 MIN TYPICAL

TELEMETRY OUTPUT: 0-5 VDC, 4-20 MA

PUMP CONTROL RELAY: SPST, 5A @ 480VAC

# WEB-BASED REPORTING & ALERTS (2019)





# MORE INFORMATION

- [WWW.WELLBUBBLER.COM](http://WWW.WELLBUBBLER.COM)
- STOCKMANS AUTOMATION
  - [WWW.STOCKMANS.COM](http://WWW.STOCKMANS.COM)
  - (805) 242-8018
- WORLD AG EXPO 2019, TULARE CA