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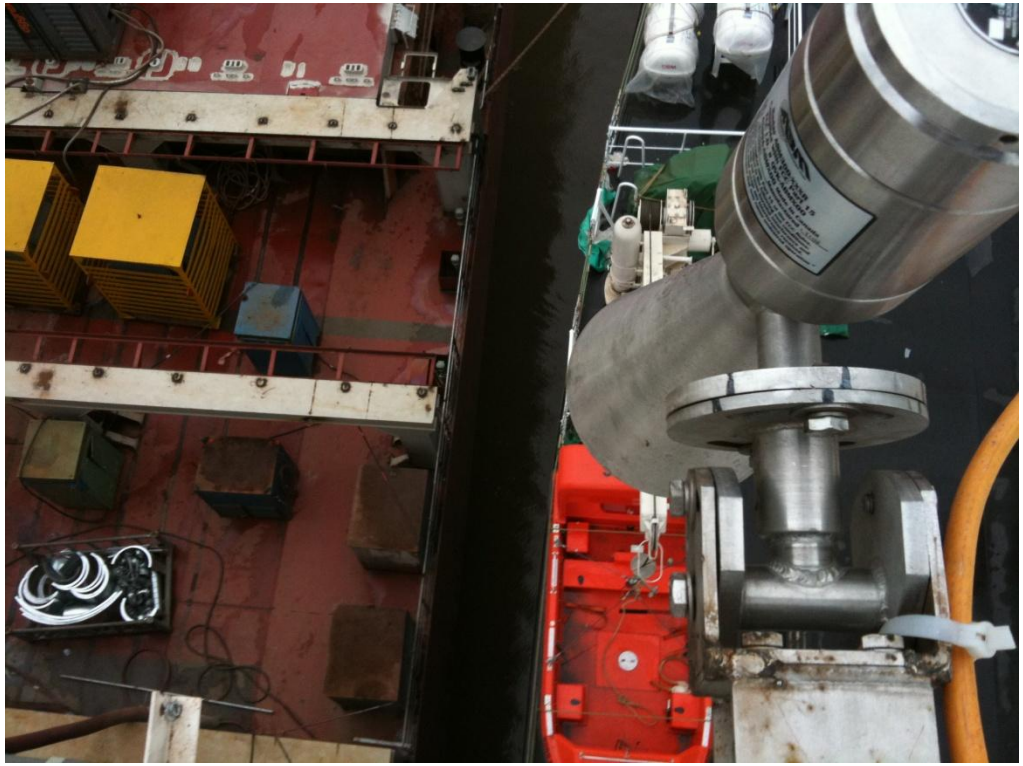
Application Notes

Application Problem: Radar unit has to have very narrow radiation beam to avoid false echoes from ship's body

Application History: Problems with false echoes.

Solution:
ABM300-240R6C2-SSHR5-EXP

Customer Comments:
The measurements were of very good quality!



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Application Problem:
Hot 400F asphalt plus horizontal shape tanks

Application History:
Problems with tank shape and temperature

Solution:
They use our high temperature EX-radar on hot asphalt, the temperature is around 400F, metal stilling wells from top to bottom where installed, ID of pipes 3".

Customer Comments:
We used several different contact and non-contact sensors; no one worked properly. ABM sensor is the first sensor that works well.

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Application Problem:
Very corrosive material, foaming, ammonia and CO_2

Application History:
They were using TDR with metal rods that would have a buildup of material and would also fall off. Customer didn't want to have to clean the rods all the time and fish out the rods from the bottom of the tank.

Solution:
Our high temp radar solved all problems.

Customer Comments:
ABM radar has performed very well and monitoring the level is easy through the serial communication feature.

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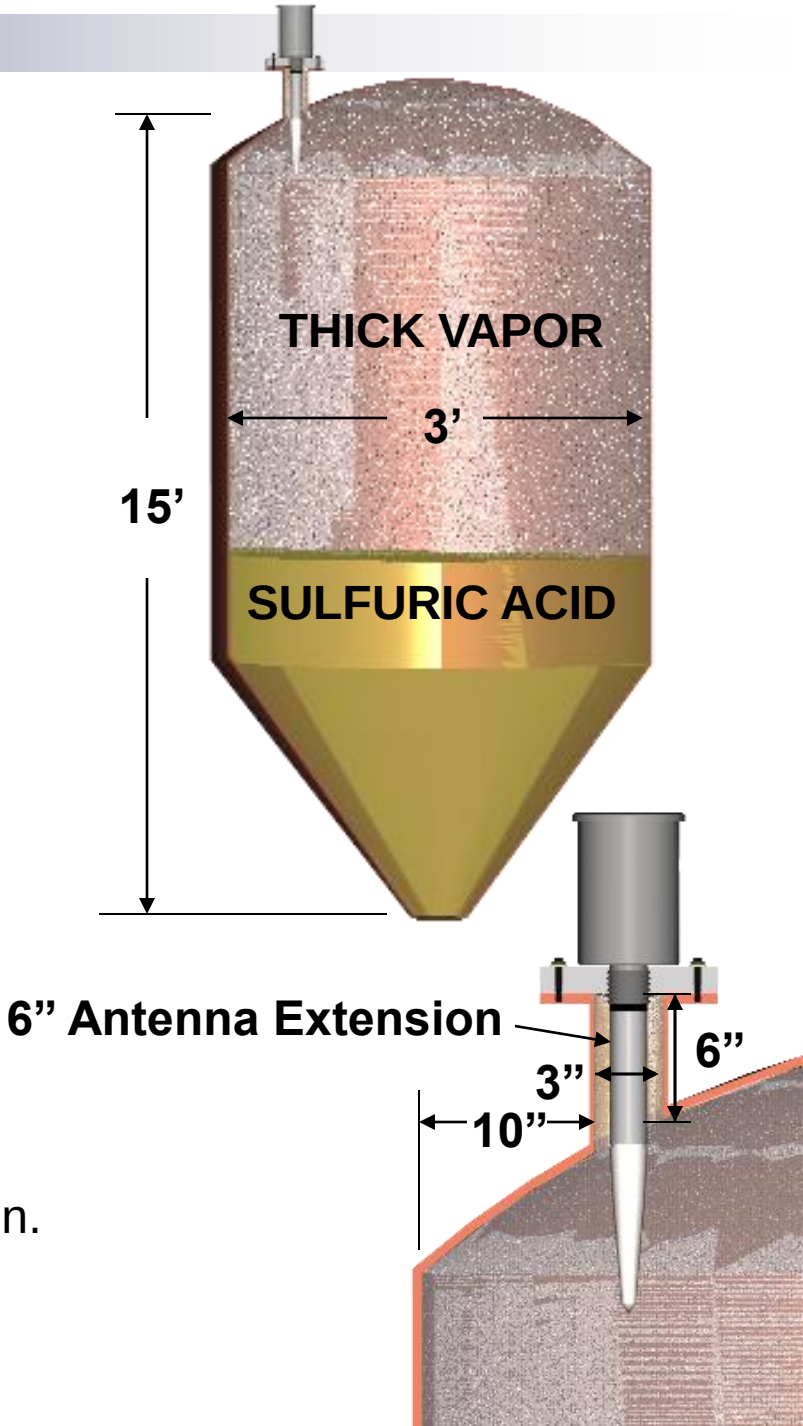
Application Problems: Metal tank consists of Sulfuric Acid with a strong vapor. Mounting hole is only 10” away from tank’s wall, and there is a standpipe of 3” ID and 6” long.

Application History: Some radar units were used before. Those units had fixed transmit power and due to that there were a lot of unwanted echoes from tank wall and when the tank was empty, from its bottom. The stand pipe also influenced the antenna radiation causing a false reading.

Solutions: ABM300-050RC2 radar solves all the problems. The radar uses minimum power and short transmit pulse to get a constant level of the received echoes from the Acid. This eliminates echoes from tank’s wall and bottom. Antenna extension gets rid of the standpipe influence on the antenna radiation.

Customer comments: "Our confidence in radar level measurement is back.”



Application problems: Digester for sludge treatment. Inside is sludge mixed with water. The process generates methane that absorbs ultrasonic waves. The environment is explosive so equipment with EX (Class 1 Div 1) approvals is required.

Application History: These customers tried several ultrasonic level detectors that didn't work because of methane. Some radar units were also used, they had echo stability problems which gave false readings.

Solutions: ABM300-050RC2 with safety barrier is used. The reading is very stable for the full range of sludge level. The safety barrier caused supply voltage drop to 12Vdc. Even at 12Vdc the radar works great in this difficult application.

Customer comments: "Nothing worked before"

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Application problems: to measure liquid level in a below ground (max depth 45 feet) landfill leach ate sump (12-foot diameter, concrete and steel walls). This is contaminated water and atmosphere in the sump is toxic, corrosive landfill gas, 50% methane, 50% carbon dioxide, assume saturated humidity conditions, frequent hose downs of sensor and possible impingement on sensor body by storm water.
Application history: Challenging environment, submersible pressure sensors have all failed.
Solutions: 50Ft EX approved ABM radar solved the problem.
Customer comments: We are very pleased.

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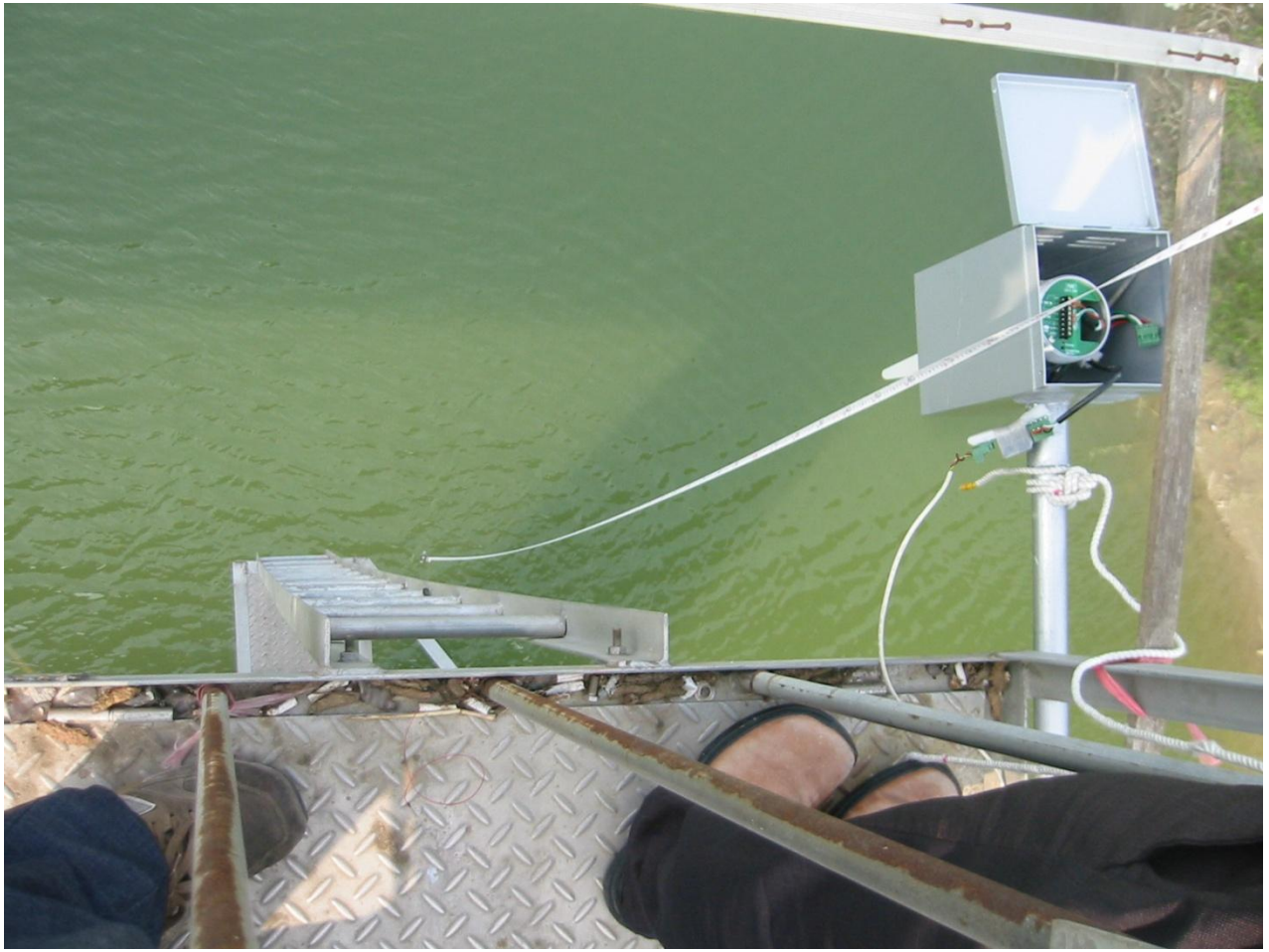
Radar in a water dam Application

Radar Being Used to Measure Level of River Water for Anti-flood System



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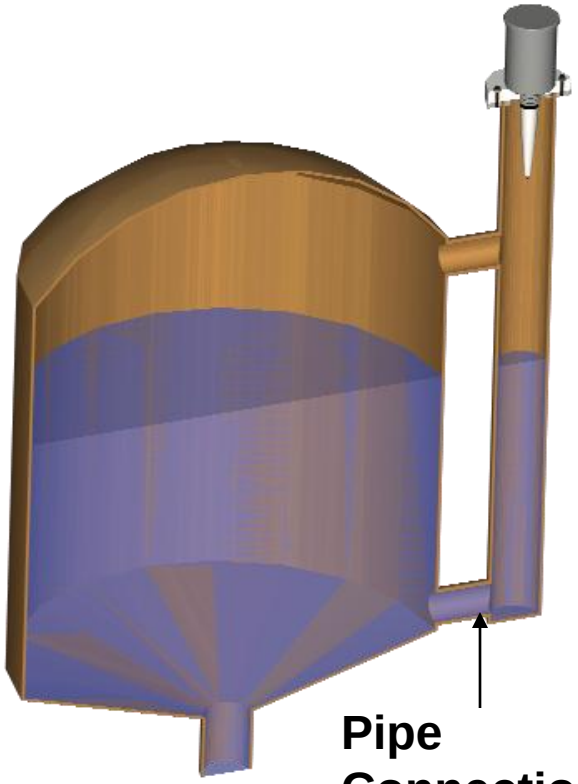
Application Problems: To measure level of liquids in pipe attached to a tank.
Application History: Fixed power radar and ultrasonic level devices were used and they detected false echoes from pipe connections.
Solution: ABM radar and ultrasonic level devices provide automatic power and sensitivity control, so they eliminate false echo's from pipe connections to tank.
Customer Comments: We had a lot of problems with false echoes using non-contact level devices made by well known manufactures. ABM radar and ultrasonic non-contact level devices solved our problems.



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Application Problem:

Installation is too close to the edge of the tank.

Fluid: waste acid which is very corrosive substance.

Application History:

Customer finds it is too costly for the maintenance of the contact devices.

Solutions: ABM400-050R6C2-ALAPP-EXP radar gives the reliable measurement with maintenance free.

Customers Comments: ABM radar is an economical & stable device that they never seen.

ABM products become the first choice for them.

Application Problems:

Narrow Tanks, very close mounting of radar to the wall (it is about 2 inch)
Fluid: Waste water

Application History:

Customer tried various brands of contact device on this application. However, there was a false reading on measurement level due to interruption by the moisture & vapor from the waste water.

Solutions: ABM400- 050R6C2-ALAPP non-contact radar eliminates influence of the moisture and vapor .

Customers Comments: It is their first time they use the ABM non-contact radar. They find out that it is an accurate & stable device and they will use more ABM radar devices in their plant and also recommend them to the other plants.

Application Problem:
Installation is too close to the edge of the tank.
Fluid is waste acid which is a corrosive substance
Application History:
Customer finds it is too costly for the maintenance of the contact device.
Solution: The use of ABM400-050R6C2 with epoxy coated, given the reliable measurement with maintenance free and anticorrosive. Customer added the epoxy coating
Customer Comments: ABM radar is an economical & stable device that they never seen.
ABM products become the first choice for them

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Application Problem:

A level devise is needed with a quick response.

Application History:

Radar measures ocean wave activities around a ship.

Solution:

The radar gets about 25 to 30 updates per second. That feature allows it to be used as a motion detector. **ABM300-050R5C4-ALAPP**

Customer Comments:

Customers have been testing for last 2 years and have estimated 10% of fuel saving every year.

Application Problem:
Horizontal tank

Application History:
These tanks create multiple reflections
Because of the shape.

Solution:
Metal stilling well and one of our
standard radars.

Customer Comments:
Accurate and reliable readings.

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Application Problem:
Sanitary application with boiling corn solution. This solution creates steam.

Application History: Other sensors had problems with steam that caused condensation on the sensor face/antenna.

Solution: ABM pulse radar which eliminates automatically the influence of the condensation on the rod antenna.

Customer Comments: The sensor works, no influence of the condensation on the sensor operation.

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Application Problem: Very fast response pulse radar with at least 10 updates per second to control the lifting of ships bodies.

Application History:
All radar units available in the field were too slow.

Solution: The solution to this problem is ABM pulse radar with fast protocol. Its response is 15 to 30 echoes per second

Customer Comments: At last we have a fast radar that satisfies our needs.

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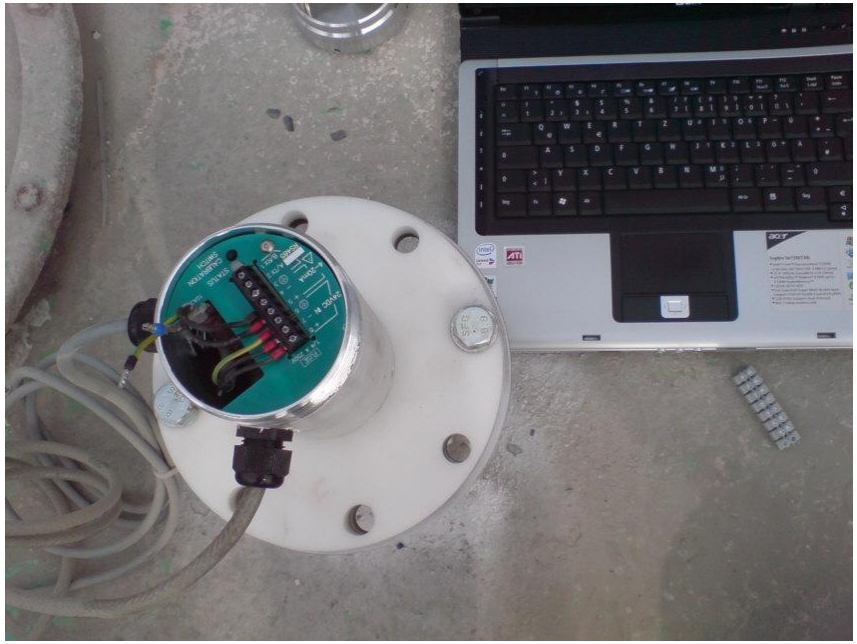


Application Problem: Chalk, dust, very low dielectric constant, close to wall

Application History: Nothing worked, the other brands units picked-up false echoes from tank's wall, they didn't work also during filling conditions.

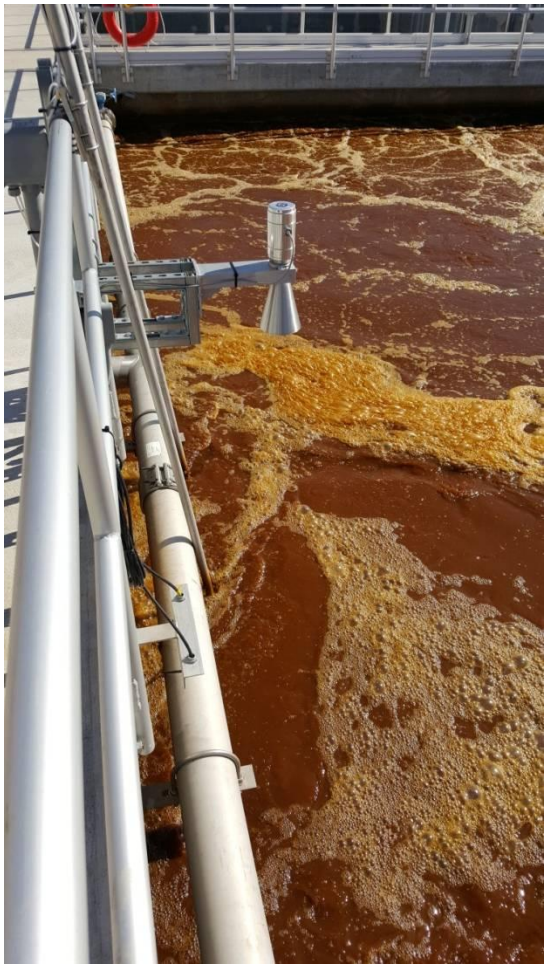
Solution: ABM300-100R2C4-ALHR6, it's a 26 GHz radar

Customer Comments: We tried to use many different technologies (radar on a rope, Yo-Yo, non-contact radar) they all gave us problems

Application Problem:Foam on liquid, very high condensation, pipes and other objects around sensor's mouting.

Application History: No other brands were able to eliminate foam influence and false echoes from objects around mounting.

Solution: ABM Ex-proof self adjusting radar with horn antenna solved all problems. Model number is: ABM300-100R6C4-ALHR6-EXP,



Customer Comments: Since ABM radar has been installed we have reliable measurement regardless any environmental conditions.

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- **Application Problem**: Ice on liquid.
- **Application History**: No other brands were able to eliminate ice influence and measure liquid surface.
- **Customer Comments**: ABM radar is the only one that eliminates ice influence.

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- **Application Problem**: In our waste water pump station we have too many false echoes from objects such as pipes, ladder and grid floor.

- **Application History**: No other well known brands were able to offer a non-contact sensor that will not detect echoes from pipes, ladder and grid floor with removed one panel.

- **Customer Comments**: ABM radar is the only one that eliminates false echoes from pipes, ladder and grid floor. The radar is installed about 15Ft away from the grid floor.

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