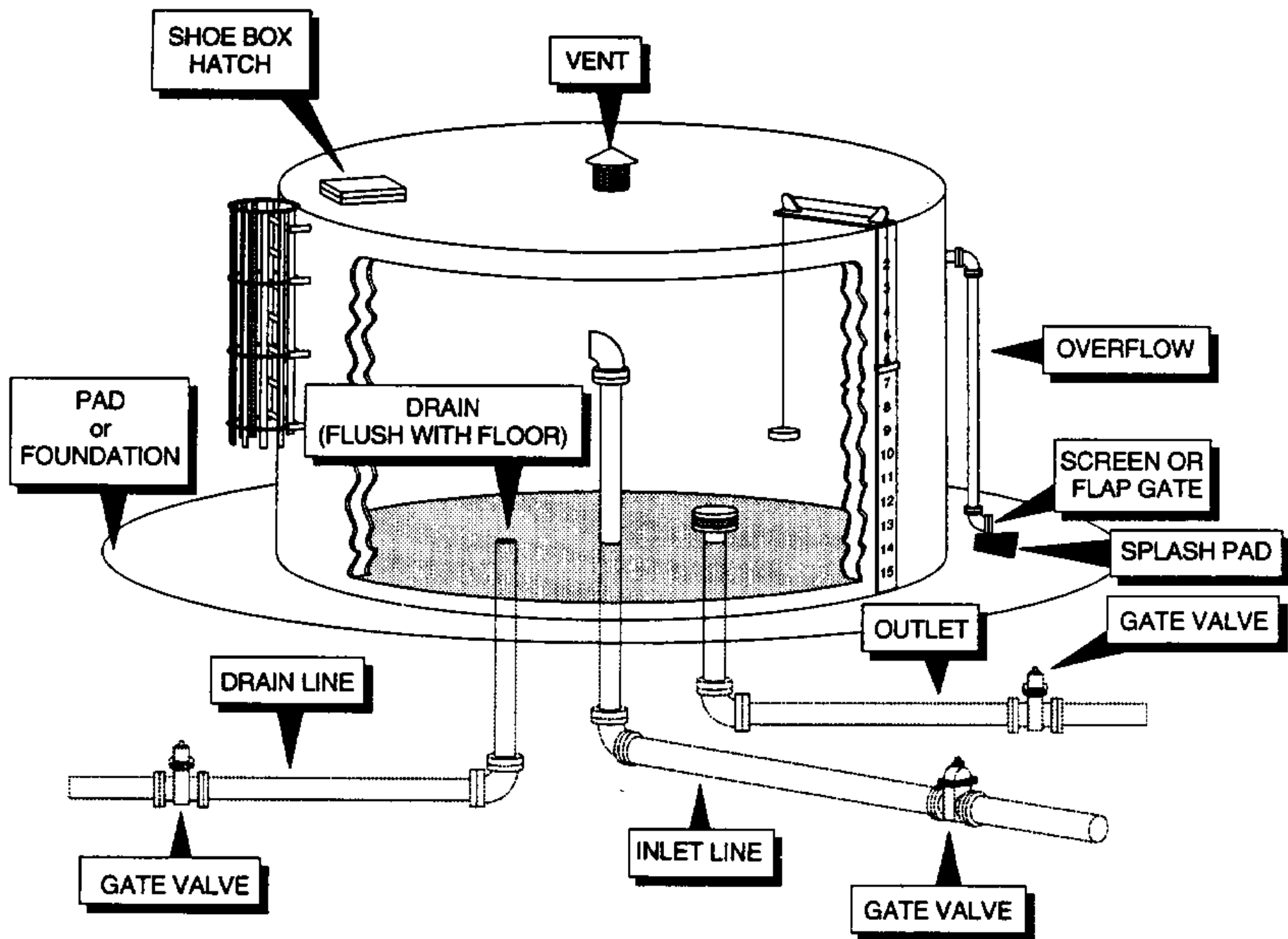


UTAH DEPARTMENT of
ENVIRONMENTAL QUALITY
**DRINKING
WATER**

Water System Facilities Sanitary Surveys-2018 Part 2

Storage Tanks

- Screens
- Security
- Access openings
- Condition of tank
- Vent
- Drains / overflows
- Operation / Maintenance



Storage Tanks

- Area surrounding underground tanks graded to prevent water standing within 50 feet
- Water tight roof or cover
- Cover sloped to drain



Cover Sloped to drain

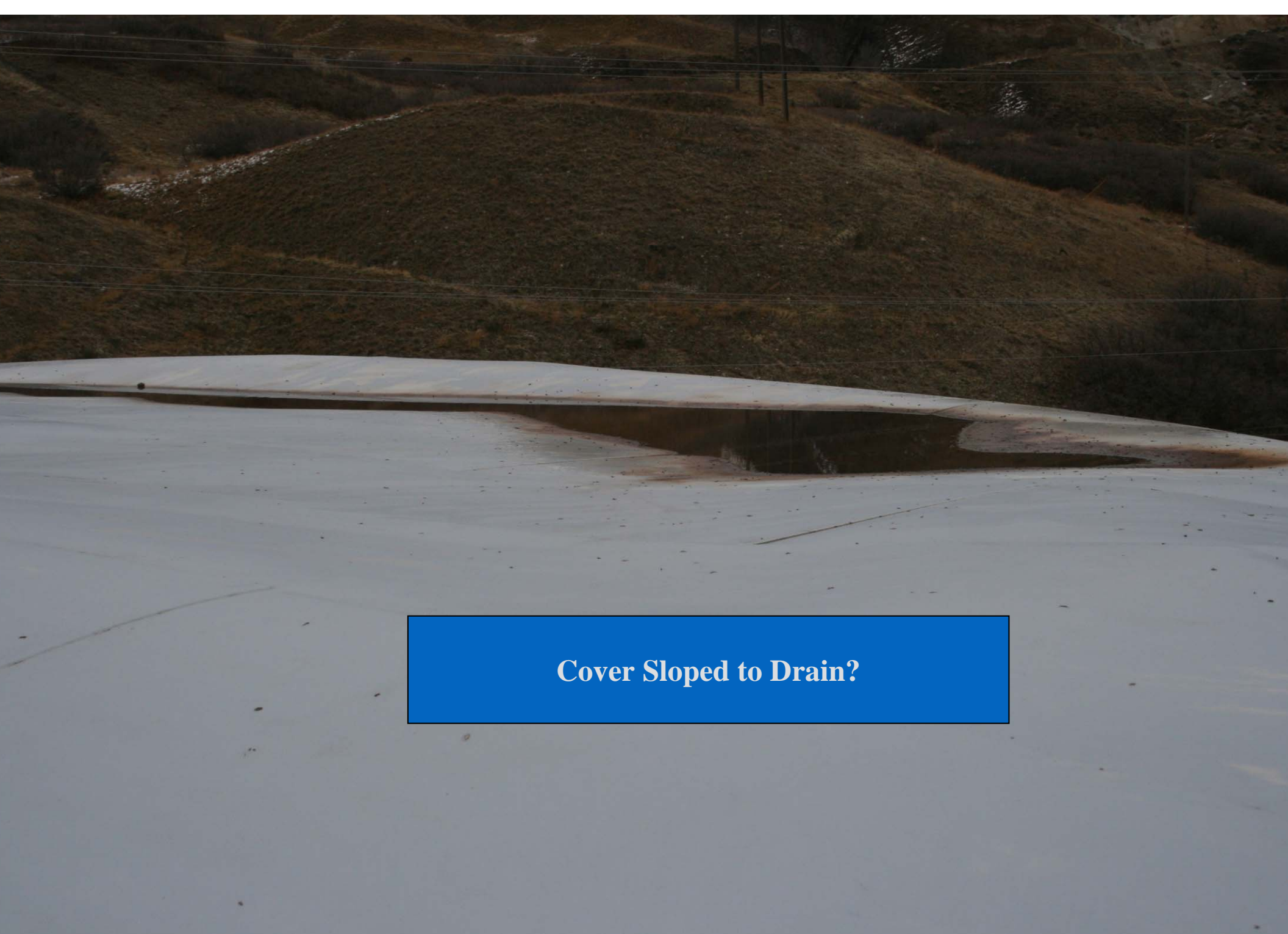
Water Tight Roof & Cover

Area Sloped so Water Will Drain Away

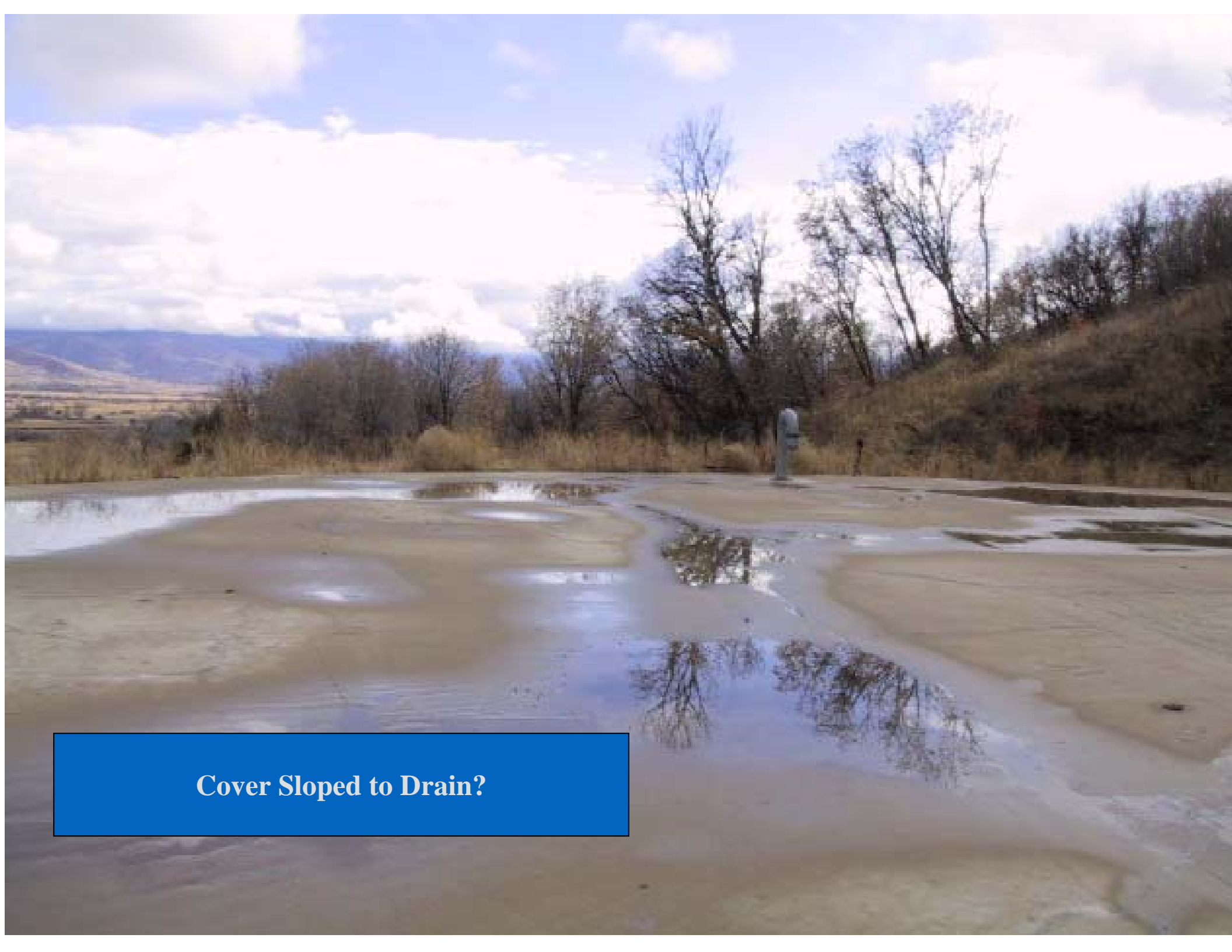
9 2007



Water Tight Cover



Cover Sloped to Drain?



Cover Sloped to Drain?



Cover Sloped to Drain?

Storage Tanks

- Access ladders / safety railings



Access Ladders

**Which one is
Safe to climb?**



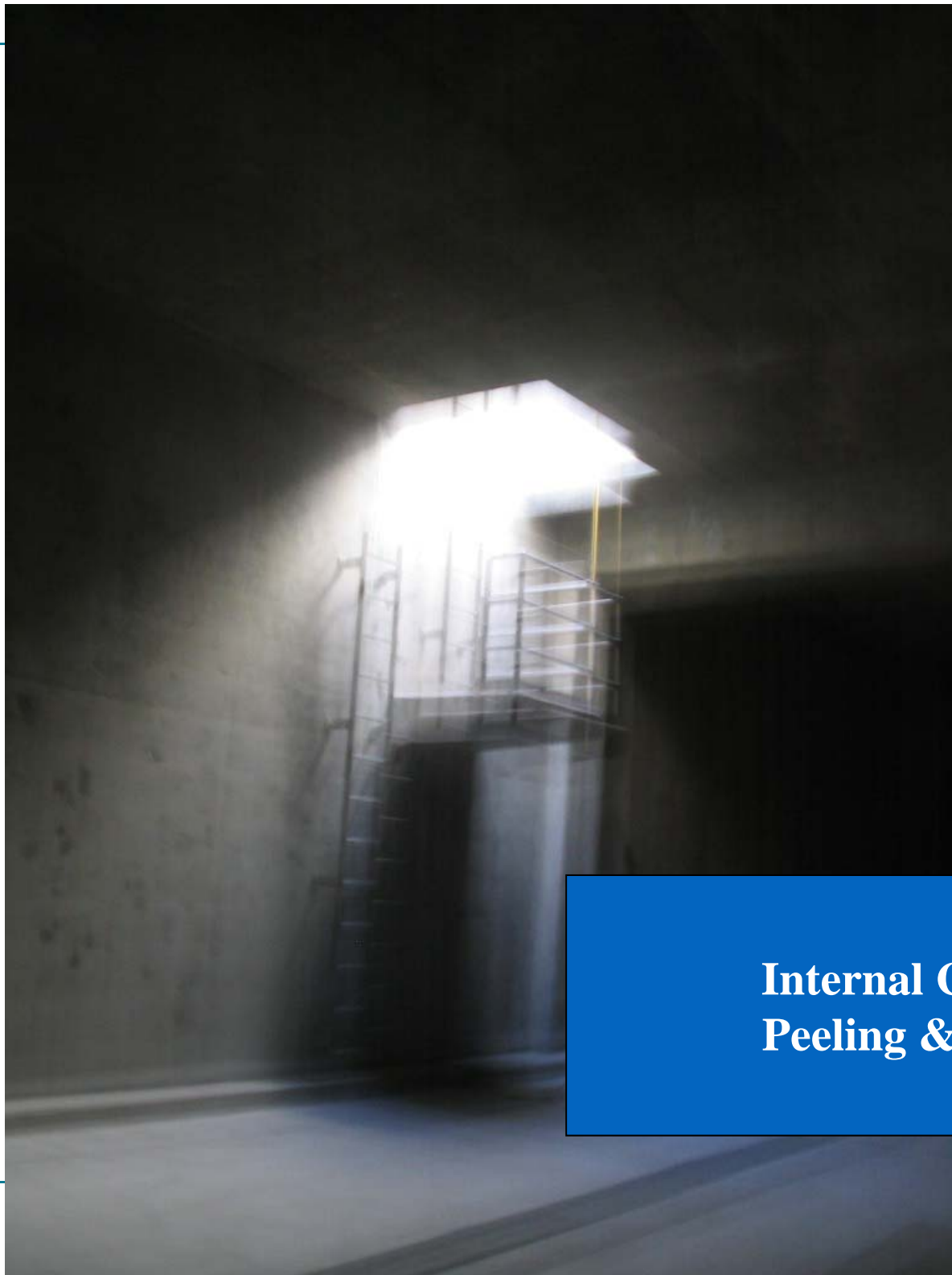
**At Least 3' extension
Above cap**

Distance away from bottom of tank



Storage Tanks

- Internal coatings
 - Peeling or cracks
- Sidewalls



Internal Coatings Peeling & Cracks



**Electrolysis
Bottom of Tank**





Internal Coatings

Storage Tanks

- Integrity of side walls and roof
 - Deterioration or Spalding
 - Evidence of leakage
 - Actual leakage
 - Water intrusion into tank
- No unsealed roof penetrations

Sidewall Integrity

JAN 19 2007



A photograph of a concrete wall, likely a dam or retaining wall, showing signs of weathering and water damage. The wall is made of large concrete blocks with visible horizontal joints. There are several vertical and diagonal cracks, some of which appear to be filled with a lighter material. The surface is discolored with various shades of gray, brown, and white, suggesting moisture and possibly mold or mineral deposits. At the top of the wall, there is a circular structure, possibly a vent or a small tunnel entrance, which is partially covered by a dark, curved object. The background is a clear blue sky.

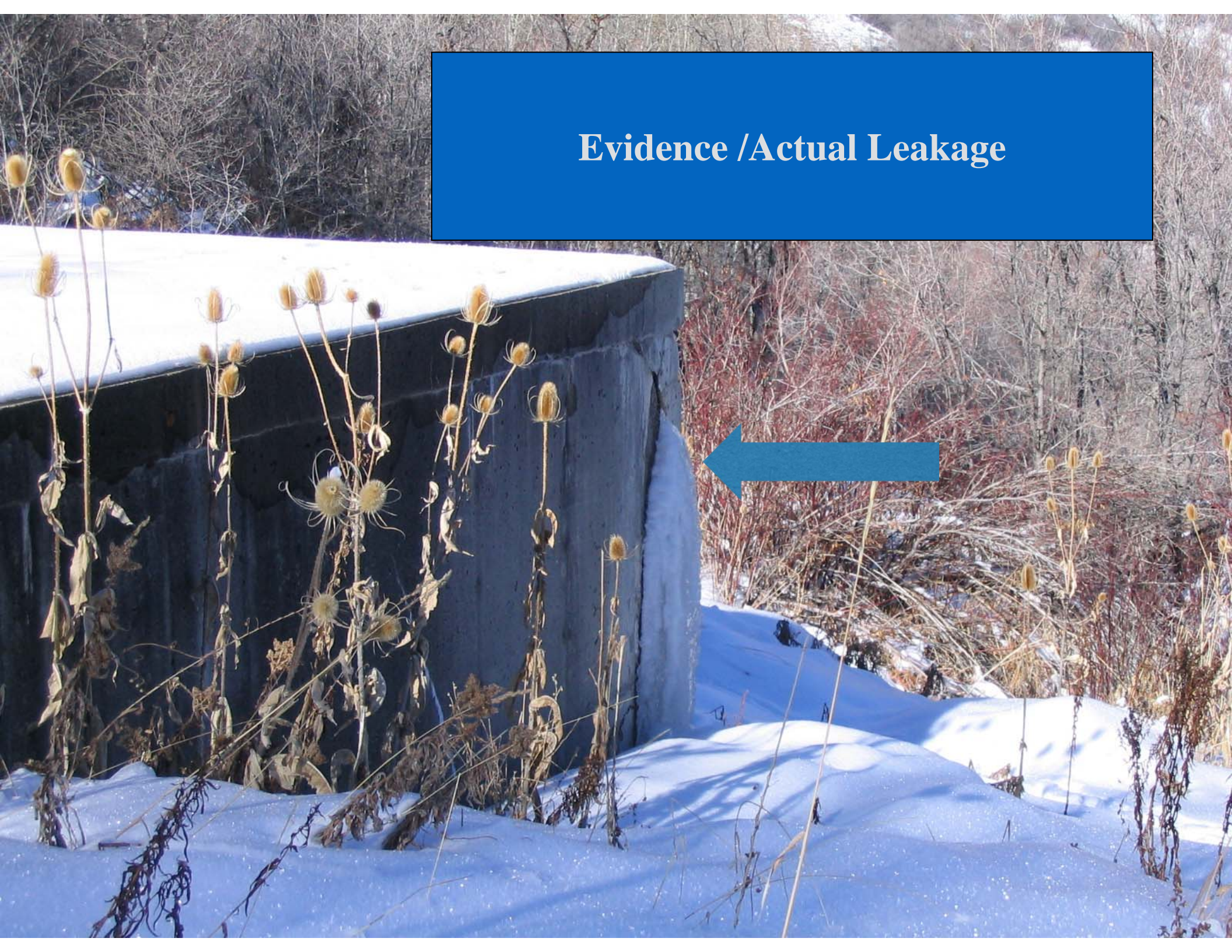
Sidewall Integrity

JAN 19 2007

Deterioration/Spaulding

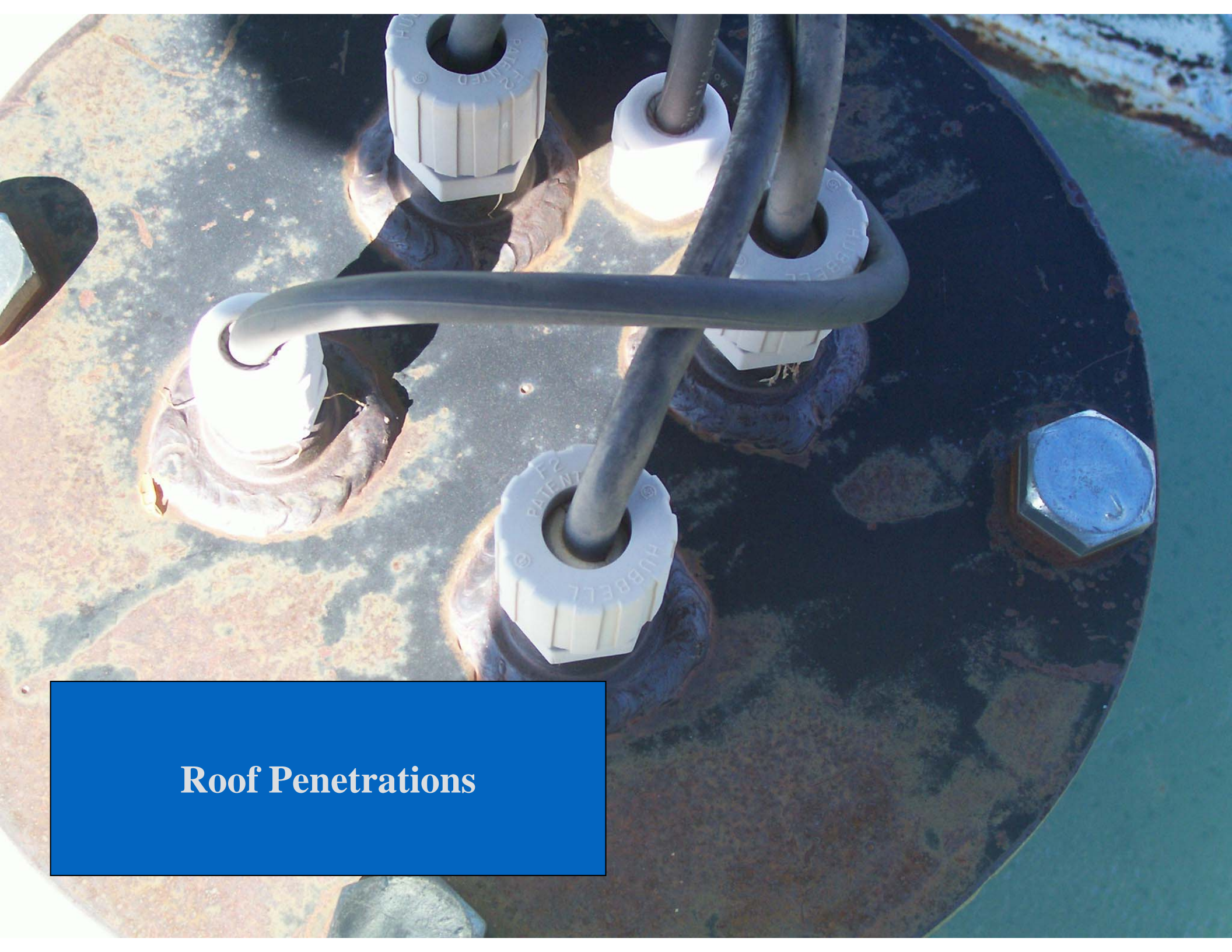


Evidence /Actual Leakage



Structural Stability of Tank





Roof Penetrations

A photograph showing a close-up of a rusty, brown metal roof penetration. A red pen is placed horizontally next to a small hole in the metal to provide a sense of scale. The metal surface is heavily corroded and shows signs of wear. In the background, a concrete surface and some rebar are visible.


Unsealed Roof Penetrations

Unsealed Roof Penetrations



Access Boxes

- Shoebox type access lid
- 2" overlap
- 4" above the top of the tank / 18" above surrounding ground
- Gasketed
- Locked
- Integrity of access box (50 pt)

A photograph of a metal shoe box lid mounted on a concrete base in a field. The lid is a rectangular metal box with a flat top and a visible lip. It is mounted on a concrete base that is partially embedded in the ground. The surrounding area is a dry, grassy field with some taller grasses on the right. In the background, there are some industrial buildings and a fence line.

**Shoe Box lid – 2” lip
4” above cement
18” above the earth
Gasketed & Locked
Integrity of Access Box**



Access Hatches



Flange for pour in place hatch/extra seams



24 12:58 PM



Improper Access Opening



Improper Access Opening





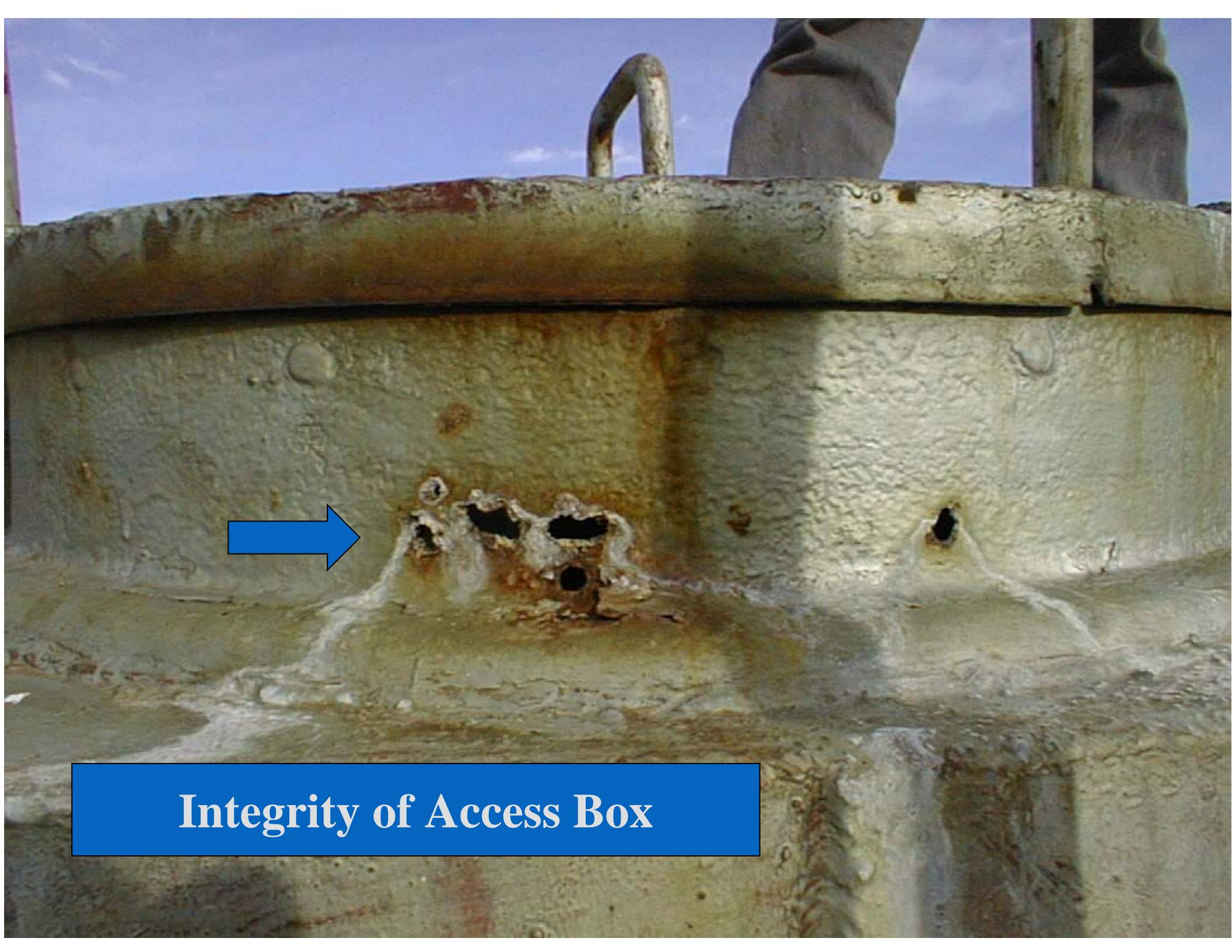


Integrity of Box



**Unsealed Bolt Hole
No Gasket**





Integrity of Access Box



Integrity of Access Box

Air Vents

- **Air vents** - Storage
 - Down turned or covered
 - Screened #14 mesh with larger protective screen
 - Terminate at least 24" above ground
 - Covered from wind, rain, & dust



24- 36" above tank



Good Protector Screen



#14 on Outside



What is wrong here?



Exposed to wind/rain

A cylindrical metal vent with a conical roof is mounted on a metal roof. The vent has a dark, perforated body and a light-colored, conical top. The roof is made of light-colored metal panels. There is some rust and debris around the base of the vent.

Exposed to wind/Rain





#14 on Outside



What is Wrong Here?

Overflow Piping

- Storage Tanks
 - #4 screen
 - Adequately sized
 - Minimum 12” free fall
 - Not connected to sewer









Drain lines

- Storage Tanks (if)
 - #4 screen
 - 2 times the pipe diameter
 - If connected with overflow 12” minimum free fall
- Not connected to sewer



2 x Pipe Diameter
#4 screen
Not Connected to sewer

Combination Overflow/Drain
12" free fall





Well Pumps to Tank

Tank Drain Line in box connects to Sewer



**Tank
Drain
Line**

Connects to sewer

Distribution System

- System pressures – minimum 20 psi
- Piping materials (ANSI / AWWA Standards)
- 10 foot separation from sanitary or storm sewer lines
- AWWA disinfection procedures



#14 Mesh



A close-up photograph of a metal mesh air vent. The vent is a cylindrical metal pipe with a white plastic or rubber cap at the end, which has a circular opening covered by a silver-colored metal mesh. The vent is positioned on a dark, heavily textured surface, possibly a piece of machinery or a large pipe, which shows signs of rust and wear. A blue text box is overlaid on the image, containing the text "#14 required on air vents".

#14 required on air vents





24 2:00 PM



Evidence of Flooding?





What Else in Manhole?



Distribution System

- Pressure
- Cross-connections
- Pump stations
- Air relief valves
- Fire hydrants and blow offs
- Breaks
- Repairs, etc.

Blow Offs



A photograph of industrial equipment inside a concrete enclosure. The ceiling is made of corrugated metal with several orange lifting straps hanging from it. A bright, yellowish light fixture is mounted on the ceiling. The equipment consists of various pipes, valves, and a large red pressure relief blow off. A blue arrow points from the text 'Pressure Relief Blow Off' to the blow off. The equipment is mounted on a concrete wall. A small electrical control box is visible on the left wall.

Pressure Relief Blow Off



Terminates in Buried Pit



Connects to Storm Drain Line

A large, solid blue arrow pointing downwards, centered on a light beige, textured background. The arrow has a black outline and is positioned such that its shaft extends from the top edge of the frame towards the bottom, with its triangular head pointing towards the bottom center.



Terminates in Gutter No Screen