

REPAIR PROCEDURE FOR MANHOLE  
MODIFICATIONS TO LEACH TANKS  
WHITE MESA MILL  
UMETCO MINERALS CORPORATION

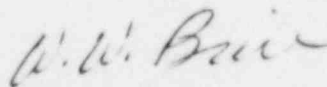
October 6, 1985

The following procedure was used to repair and modify the leach tanks at the White Mesa Mill. These modifications were designed by W. W. Brice, Master Mechanic White Mesa Mill and by H. Roberts, Registered Professional Engineer in the State of Colorado.

1. Clean, remove manhole cover and tank top lid.
2. Obtain Radiation Work Permit and test air quality.
3. Strip rubber lining from the door frame, side wall, and floor sufficient to allow the installation of the steel reinforcements.
4. Steel reinforcements will consist of fourteen pieces for each tank in addition to two steel bands. The following is a list of the pieces and bands.
  - A. A 3/8 inch mild steel plate 6 feet wide and 7 feet high rolled to a 12 foot 6 inch radius the 6 foot way.
  - B. A 3/8 inch mild steel plate 6 feet long and 12 inches wide rolled the hard way to a 12 foot 6 inch radius.
  - C. Eight pieces of 3/8 inch by 4 inch strap.
    - i. Two pieces 20 inches long shown as "horizontal strapping" on sheets 1 and 2.
    - ii. Two pieces 32 inches long shown as "vertical strapping" on sheets 1 and 2.
    - iii. One piece 50 inches long rolled to a 16 inch outside diameter and cut into 4 equal sections. Shown as "rolled corner transition strapping" on sheets 1 and 2.
  - D. Four each 3/8 inch corner sections cut from a 16 inch square with a 16 inch diameter circle cut from the center. Shown as "corner sections" on sheets 1 and 2.
  - E. Two mild steel bands made from 3/8 inch by 8 inches by 20 foot sections (3 sections each band). Each end of the section has angles welded in place, one flush with the end of the section and the other set back 10 inches. The angles are 3/8 inch by 3 inches by 3 inches by 8 inches with three 11/16 inch holes on bolt centers. Each angle has two gussets for added strength when tightening. See sheet 3 for details.

### INSTALLATION

1. Center the 6 foot by 7 foot plate over the door opening on the interior tank wall and pull tight against the tank wall.
2. Tack weld the 3/8 inch plate to the 3/16 inch tank wall in several places.
3. Cut the door hole in the 3/8 inch plate using the manhole door frame as a guide except for the corners. Cut the corners on a 8 inch radius.
4. Weld the 3/8 inch plate to the door frame all the way around. One pass with 6010 or 7018 rod. Weld the 3/8 inch plate to the 3/16 inch tank wall all the way around using at least two passes.
5. Next weld the 3/8 inch by 4 inch strap vertical and horizontal pieces into place. The strap will be welded to the 3/8 inch wall plate and the door angle using two passes.
6. Weld the 3/8 inch floor plate to the 1/4 inch tank bottom and to the 3/8 inch wall plate.
7. Weld the four corner plates to the face of the flange and the 3/8 inch by 4 inch by 13 inch rolled corner transition strapping pieces.
8. Have all welding inspected by an independent inspector certified in accordance with Standard SNT-TC-1A.  
The acceptance standards, defect removal and repair shall be per API 650: 6.2 Magnetic Particle Method.
9. Clean and prepare for rubber lining.



W. W. Brice  
Master Mechanic  
White Mesa Mill

Existing Tank Wall

Plate added to Interior  
Tank Wall- 7'x6'x 3/8"

3/8" Corner  
Sections

Horizontal Strapping-  
3/8"x4"x20"

Vertical Strapping-  
3/8"x4"x32"

Rolled Corner  
Transition Strapping-  
13"x4"x 3/8"

Tank Pedestal

BY JSH DATE 10-5-85

SUBJECT Umetco Minerals Corp.

SHEET NO. 2 OF 3

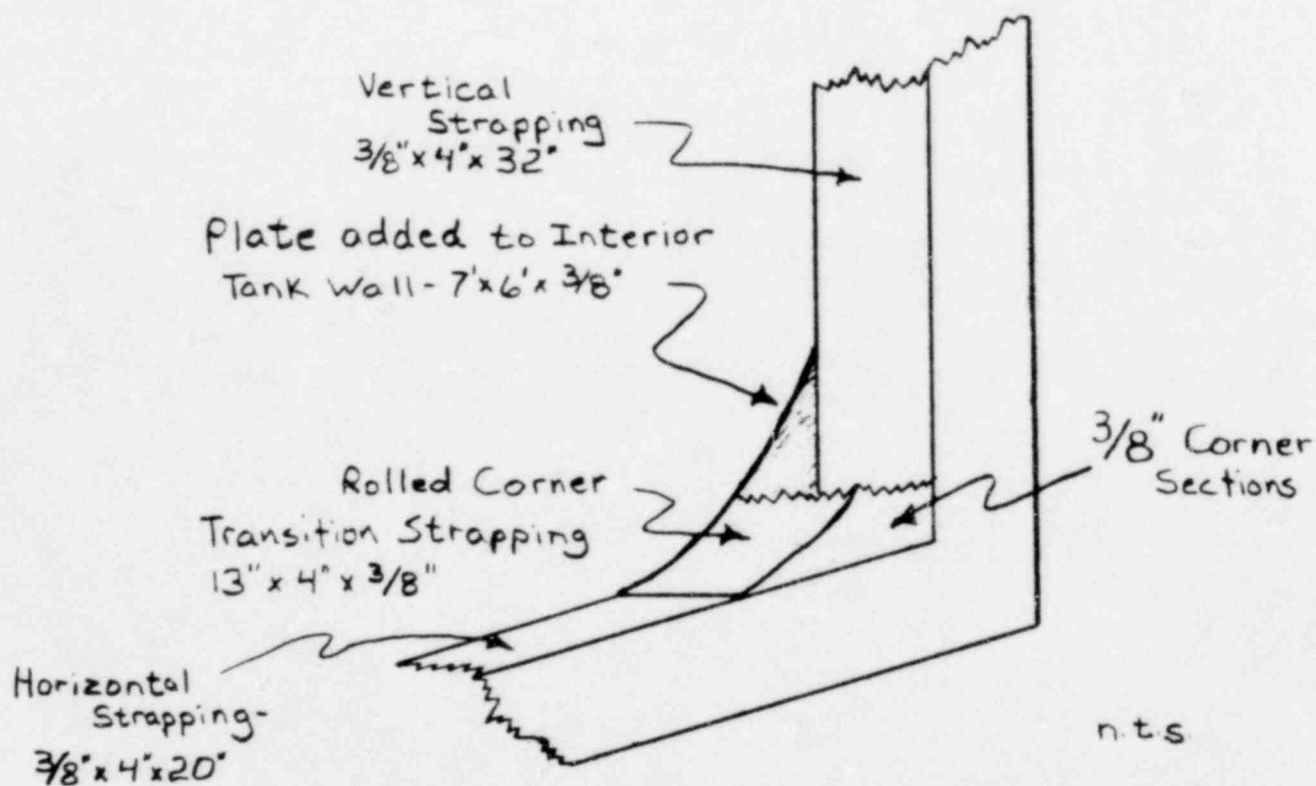
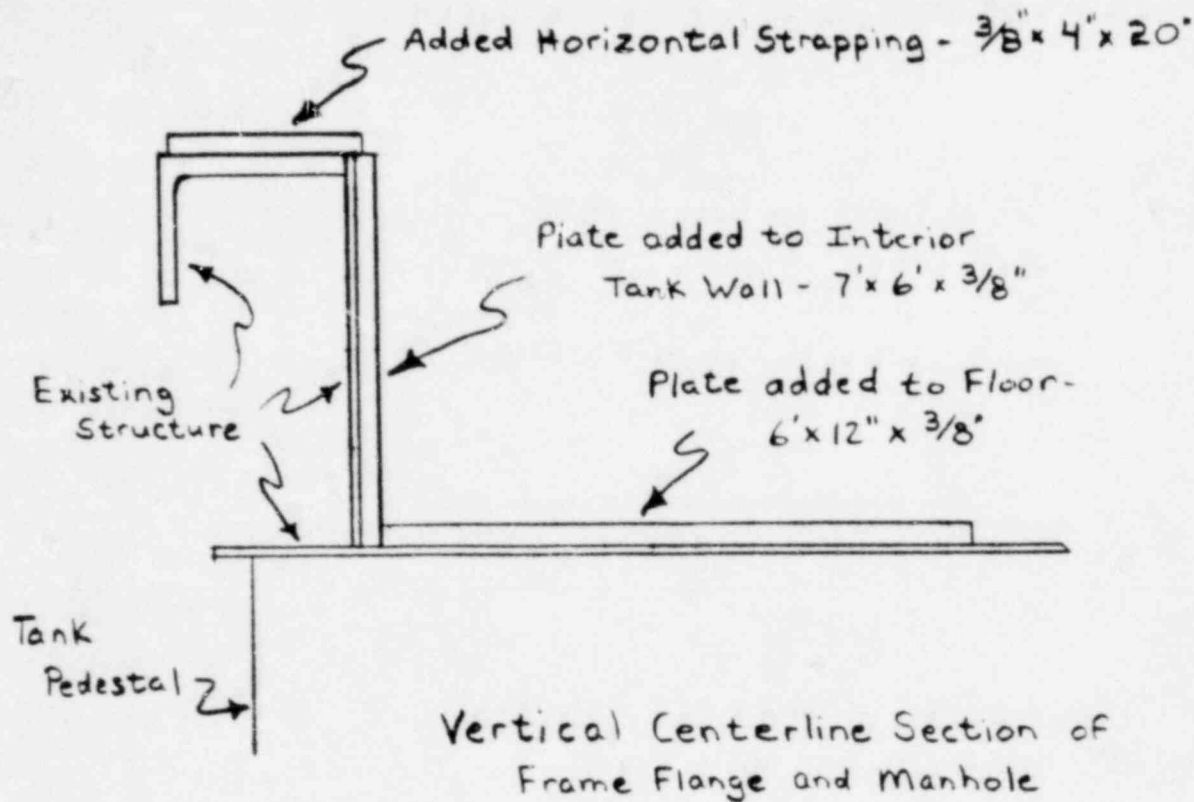
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White Meso Mill

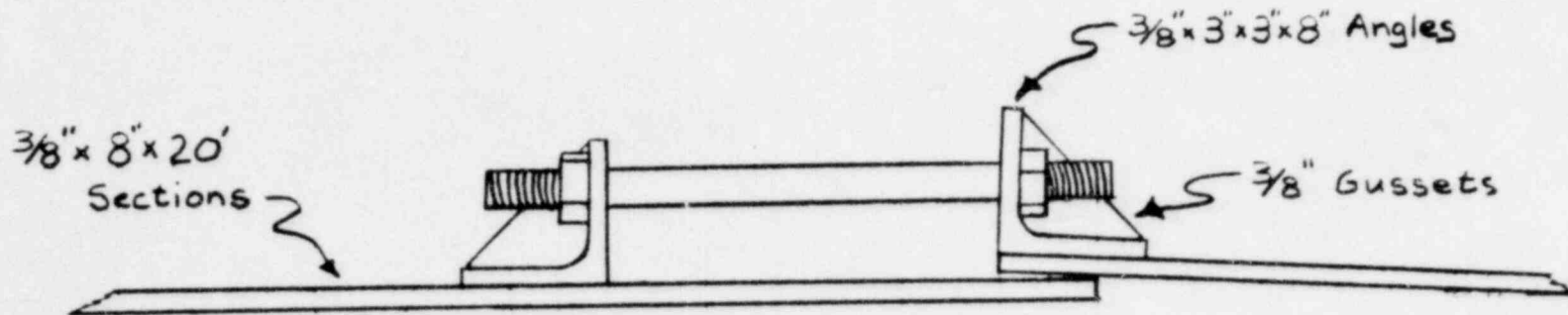
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Scale 1"=4'

Leach Tank Modifications



Frame Flange Corner Detail



Detail of Band Sections

## MODIFICATIONS TO LEACH TANKS

October 6, 1985

I confine my recommendation to the modifications made to the leach tanks within the six foot by seven foot rolled reinforcement.

These modifications are well designed and well made and will be safe during the operating conditions of these tanks. This recommendation is based on the design improvements and welding techniques as follows.

### DESIGN IMPROVEMENTS

All modifications are double thickness of the original tank walls (3/16 inch to 3/8 inch).

Toe plate is added to reinforce the wall to floor transition.

Interior and exterior corners are cut to a radius to eliminate stress raisers from sharp corners.

The box frame is reinforced with a second 3/8 inch thickness of strap to withstand tensile stress in that section from internal pressure (20 psi) on the door panel.

### WELD TECHNIQUE

All welds were made by skilled craftsmen using correct materials and techniques. They worked in conditions conducive to high quality structural work. All welds were inspected by the Master Mechanic at the mill and by an independent welding inspection team.

Registered Professional Engineer  
State of Colorado #7949

*R. D. Schweikhardt*

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Technical Superintendent  
White Mesa Mill  
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