Tank 34 Jet Replacement

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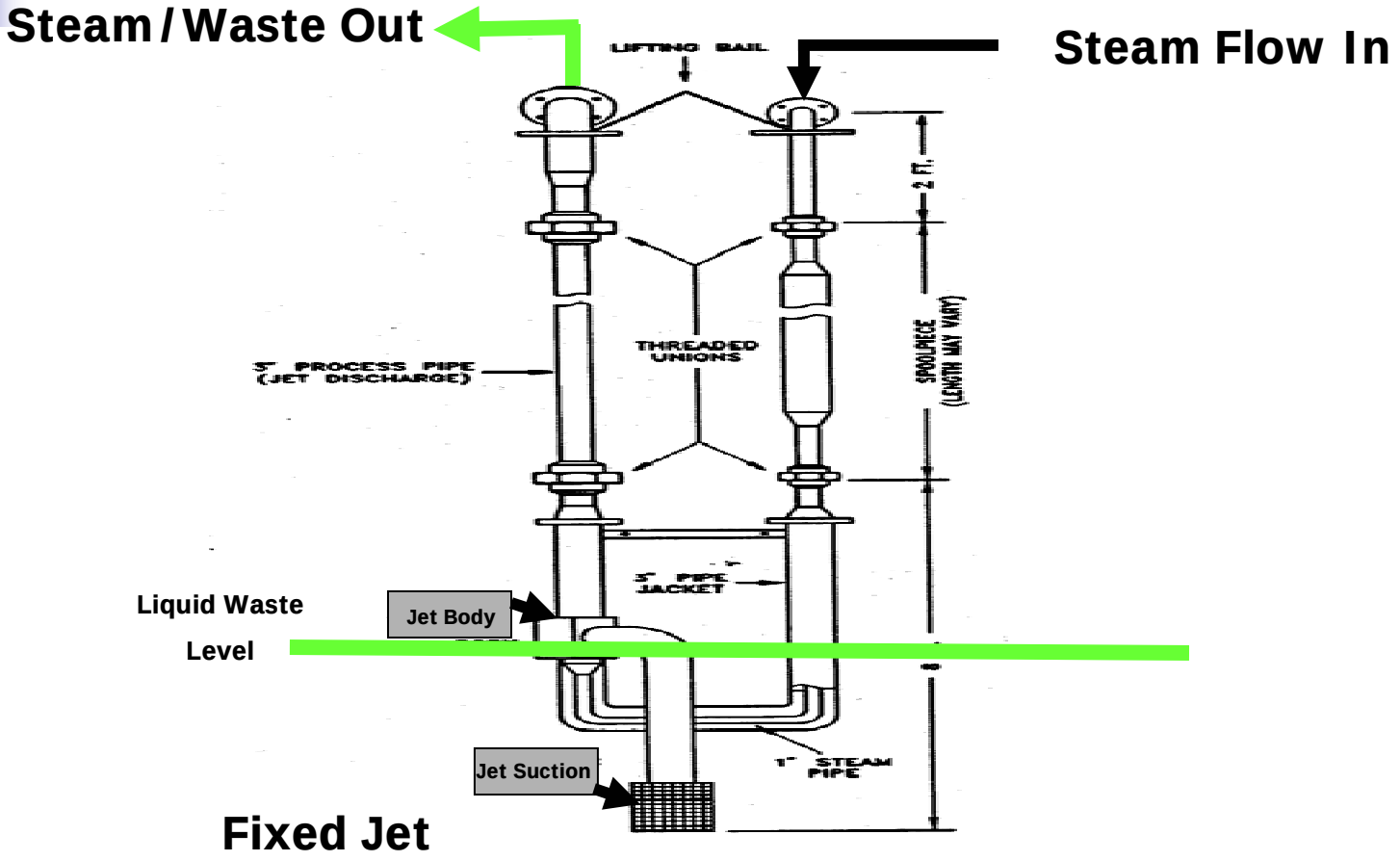
Tank 34 Jet Replacement

- Shorter Waste Transfer Jet Needed
- Expected Exposure to Rework On Tank Top Not Acceptable
- More Cost Effective to Replace Old Jet With New Jet.

Transfer Jet Function



Tank 34

- **Operating Characteristics:**
  - One of 22 underground Waste Tanks in F Tank Farm.
  - The primary function of Tank 34 is to store 1.3 mil. Gals of radioactive liquid waste for processing.
  - Primary external exposure concern is Cesium Internal hazard is PU239.

Radiological Issues

- Actual Dose Rates:
  - 165 rem/hr Contact Rate at the Jet
  - 5 rem/hr Whole Body at the Jet
  - 500 mrem/hr Working Rate
- Actual Contamination Levels
- Exposure:
  - Collective dose – 1.1 rem
  - Highest individual dose – 100 mrem

Tank 34

- **Tank Top <u>Configuration:</u>**
  - Approximately 85 feet wide
  - Various piping systems
  - Ventilation system

Tank 34

- **Actual Work Location**
  - 19’Lx 10’W x13’H
  - Built Containment over Riser
  - Riser provides access to Jet.
  - Hut Design:
    - Pre-Fab Walls
    - Roof w/Crane Access

Jet Removal Engineered Controls

- **External Flushing** – used to remove any waste from the exterior of the jet prior to removal of the jet from the tank
- **Sleeving –** Primary containment installed during the removal of the jet to prevent spread of contamination.
  - Sleever use in removal of process equipment
  - Sleever was designed/built in F Tank Farm

Sleever Design and Use

Sleever Design and Use

- **<u>Mock-up</u>** – spray ring pattern check

Cutting Tool

- A portable band saw was previously used on a similar activity.

- A Circular style saw for metal-cutting replaced the band saw to increase cutting speed resulting in reduced exposure time for personnel.

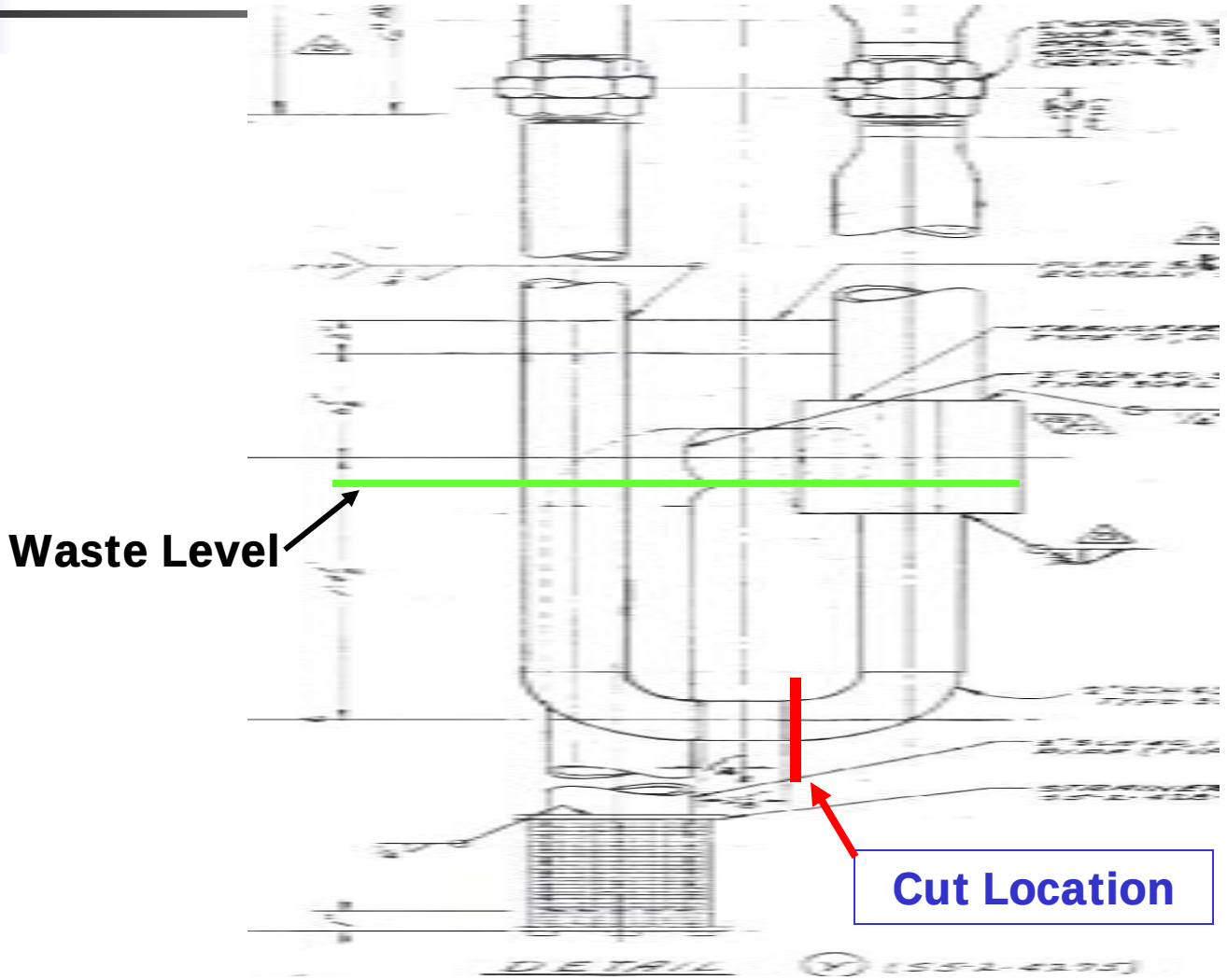
Cutting Tool

- Saw was attached to a T-Handle to increase distance between worker and source.
- Mock-ups were conducted using the improved Tool and approved by the Safety Engineer.

Cutting Sequence

- Raise Jet to cutting position
- Mechanics staged for rotation as necessary due to expected dose rate and exposure
- Position Saw at cutting location
- Activate camera surveillance
- Connect Saw power
- Initiate cut

Jet Cut Location Detail



Actual Cutting Video

Jet Removal

- Lower jet and flush (monitored by camera) after the cut was completed
- Jet ready for removal
- Raise jet as sleeving auto-deploys.
- Secure and Pigtail sleeving (including absorbent material).
- Survey sleeving
- Place into shipping container
- Bag and Remove saw
- Bag and Remove Sleever, place in waste container
- New Jet was installed and riser plug reinstalled

Additional Information

Contact:

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