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FY 2003 VISUAL EXAMINATION OF IN-TANK AND TANK ANNULI AT 241-SY TANK FARM

B.L. Aftanas

COGEMA Engineering Corporation

Richland, WA 99352

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Abstract: This report documents the completion of the fy 2003 in-tank and annulus Video Inspections for the 241-SY tank farms. Representative photos of observed anomalies, water-streaks, corrosion deposits, pitting, and in-tank stains on the 241-SY-101, 241-SY-102, and 241-SY-103 in-tank and annulus primary walls have been included as appendices.

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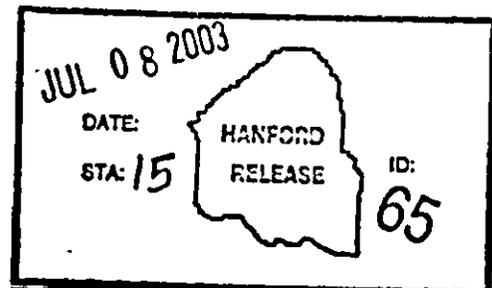
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1.0 INTRODUCTION

In the third quarter of FY 2003, Visual Inspections of 241-SY-101, 241-SY-102, and 241-SY-103 were performed as defined in the *Visual Inspection Plan for Double-Shell Tank Farms*, RPP-8212, (Aftanas, 2001). The video inspection locations identified for each DST include four annulus risers and one in-tank primary riser. The four annulus risers inspected, in each tank, included the original two risers inspected in the early 1990s, and two additional risers situated approximately 90-degrees distant, unless field conditions limited the access to the designated riser, to ensure that each tank quadrant was inspected. The in-tank riser inspected, in each tank, was chosen because it was a spare riser or contained easily removable equipment, it was situated as close to the middle of the tank as possible, and it had the largest unobstructed view and rotation area as possible.

FY 2003 video inspections for the 241-SY Tank Farms included:

- 4-inch annulus Risers 40, 43, 46, and 49 and 4-inch in-tank Riser 6 for tank 241-SY-101
- 4-inch annulus Risers 40, 44, 46, and 49 and 4-inch in-tank Riser 3 for tank 241-SY-102
- 4-inch annulus Risers 40, 43, 46, and 50 and 4-inch in-tank Riser 15 for tank 241-SY-103.

2.0 SCOPE

Based on the engineering review of the annulus video inspection data, no evidence of significant corrosion was identified and no degradation of the primary or secondary tank walls have been observed. Staining was observed on the annulus floor and on the interior dome area in several of the videos. This inspection report documents the results of the current video examinations and reviews in support of the integrity assessment of the overall 241-SY Tank Farm systems. This inspection report will also be used to provide a structured systematic approach for inspection of the DSTs, on a 5-year inspection cycle.

3.0 INSPECTION OF TANK ANNULI

3.1 1992 Inspections

In 1992, limited video inspections of the SY Tank Farm were performed by lowering a closed-circuit television camera (CCTV) into the 241-SY-101, 241-SY-102, and 241-SY-103 annuli and viewing the visible surfaces of the primary-shell and secondary-shell walls. The findings were reported in the *Visual Examination Report for Tank Annuli at the 241-SY Tank Farm*, WHC-SD-

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WM-RPT-076, (Harris, 1993). These video inspections found no indication of primary steel shell tank leakage, no evidence of visible cracks, no potential leak sites, or no other physical impairment to the tank shells. Staining was observed on the annulus floor, in several of the videos.

An apparent porosity observed on the primary shell tank wall of SY-102 through Riser 41 (18H) did not include evidence of surface corrosion. The depth of these indications could not be determined by remote visual examination and changes to these indications could not be explored by comparing the 1992 videotape records to the recent 2003 videotape records due to restricted access to Riser 41 as a result of saltwell pumping. This area will be inspected during the UT inspections scheduled for FY 2004.

The general observation was that the degradation of the tanks was considered minimal, but minor surface rust does exist over many areas of the tank wall surfaces. The greatest accumulation of rust was found at the welds and the adjacent heat affected area. The degree of rust varies from tank to tank, but more markedly between the primary and secondary shell. Without exception, the progress of rust on the secondary-shell exceeded the progress of rust on the primary-shell.

Photos of the 1992 inspections are included as baseline data for SY-103 Risers 40 and 46. The photos of the original four risers inspected in 1992 for SY-101 and SY-102 were not used as baseline data due to the unavailability of those risers during the 2003 video inspections.

3.2 2003 Inspections

Photos showing the current condition of the tanks are attached. The majority of the annulus photos display mill scale and the expected minor surface rust. Although areas of corrosion, markings, and blemishes are visible, none are thought to reflect significant degradation to the tanks integrity. Construction markings and laitance flow markings are clearly visible on the primary tank wall. Water staining is clearly evident on the primary and secondary tank walls and on the annulus floor, although the water stains appear to be dry. The in-tank photos display the interior dome and wall surface, the condition of the in-tank instrumentation, the waste level and waste surface characteristics and visible staining. Past waste levels are clearly defined by different color rings or crystalline deposits on the interior tank walls. Interior dome stains are observed in all three of the SY tanks.

3.2.1 241-SY-101 Video Inspections

RPP-8212 specified four annulus risers and one in-tank riser for video inspections of the 241-SY-101 primary and secondary-shell walls and provided guidelines for performance of those inspections. Video inspections of the four annulus risers were conducted April 29, 2003 and April 30, 2003 (Work Package # 2W-02-01561/W) and included Risers 40, 43, 46, and 49. Video inspection of in-tank Riser 6 was conducted May 15, 2003 (Work Package # 2W-02-01558/W).

During the video examinations, areas of light corrosion were identified, however no significant degradation to the tank wall was noted. Based on the review of the collected data, mappings of general corrosion have not been made.

• Video Inspections of Annulus Risers 40, 43, 46, and 49 (Figures 19-74)

Video examination of the 241-SY-101 primary and secondary tank wall through annulus Risers 40, 43, 46, and 49 show a layer of light corrosion and mill scale with some minor pitting. Construction markings and laitance flow markings are clearly visible. There is no significant degradation of the dome area, haunch, primary/secondary wall, welds, or knuckle. Water Stains on the annulus floor are visible from Riser 40 and appear dry.

• Video Inspection of Primary Tank Interior through In-tank Riser 6 (Figures 1-18)

The in-tank video examination of 241-SY-101 performed through Riser 6 shows only light pitting on the interior dome with no evident cracks or leaks. Staining (Figures 13-16) is observed directly in the center of the dome beneath the Central Pump Pit and at one dome riser. No crust has formed on the waste. A thick white crystal waste ring has formed on the interior tank wall at waste level. The waste level is fairly high and covers the interior tank wall to the haunch. All older in-tank piping and instrumentation appears to be lightly corroded, with no significant cracking or pitting evident. White crystalline waste has accumulated on the mixer pump, clearly visible during the inspection, but there appears to be no signs of corrosion on the pump.

3.2.2 241-SY-102 Video Inspections

RPP-8212 specified four annulus risers and one in-tank riser for video inspections of the 241-SY-102 primary and secondary-shell walls and provided guidelines for performance of those inspections. Video inspections of the four annulus risers were conducted April 30, 2003 and May 1, 2003 (Work Package # 2W-02-01562/W) and included Risers 40, 44, 46, and 49. Video inspection of in-tank Riser 3 was conducted May 15, 2003 (Work Package # 2W-02-01559/W).

During the video examinations, areas of light corrosion were identified, however no significant degradation to the tank wall was noted. Based on the review of the collected data, mappings of general corrosion have not been made.

• Video Inspections of Annulus Risers 40, 44, 46, and 49 (Figures 89-146)

Video examination of the 241-SY-102 primary and secondary tank wall through annulus Risers 40, 44, 46, and 49 show a layer of light corrosion and mill scale with some minor pitting. Construction markings and laitance flow markings are clearly visible. There is no significant degradation of the dome area, haunch, primary/secondary wall, welds, or knuckle. Water Stains on the annulus floor are visible from Risers 40 and 46 and appear dry.

• Video Inspection of Primary Tank Interior through In-tank Riser 3 (Figures 75-88)

The in-tank video examination of 241-SY-102 performed through Riser 3 shows only light pitting on the interior dome with no evident cracks or leaks. Staining (Figures 81-88) is observed on the dome beneath the Central Pump Pit and at dome risers. No crust has formed on the waste. The waste level is fairly low, and waste rings formed on the interior tank wall are clearly visible. All older in-tank piping and instrumentation appears to be lightly corroded, with no significant cracking or pitting evident. Transfer pumping of the waste was in progress during the course of the video inspection.

3.2.3 241-SY-103 Video Inspections

RPP-8212 specified four annulus risers and one in-tank riser for video inspections of the 241-SY-103 primary and secondary-shell walls and provided guidelines for performance of those inspections. Video inspections of the four annulus risers were conducted April 22, 2003 (Work Package # 2W-02-01563/W) and included Risers 40, 43, 46, and 50. Video inspection of in-tank Riser 15 was conducted May 6, 2003 (Work Package # 2W-02-01560/W).

During the video examinations, areas of light corrosion were identified, however no significant changes from the 1992 examinations were noted. Based on the review of the collected data, mappings of general corrosion have not been made.

• Video Inspections of Annulus Risers 40, 43, 46, and 50 (Figures 164-248)

Video examination of the 241-SY-103 primary and secondary tank wall through annulus Risers 40, 43, 46, and 50 show a layer of light corrosion and mill scale with some minor pitting. Construction markings and laitance flow markings are clearly visible. There is no significant degradation of the dome area, haunch, primary/secondary wall, welds, or knuckle. Water Stains on the annulus floor are visible from Riser 40 and appear dry.

There is evidence of liquid draining down the primary and the secondary tank walls at Riser 43 (Figures 195-196, 199-200) and Riser 46 (Figures 211-214, 217-218, and 221-222). The liquid streaks originate at the top of the dome, flow down over the secondary and primary domes, and continue down the primary tank wall. These stains appear to have occurred before 1992, and are clearly evident on both the 1992 and 2003 videos. The stains appear dry and the "before" and "after" photos of Riser 46 show the surface condition of the primary and secondary tanks has not significantly changed.

• Video Inspection of Primary Tank Interior through In-tank Riser 15 (Figures 147-163)

The in-tank video examination of 241-SY-103 performed through Riser 15 shows only light pitting on the interior dome with no evident cracks or leaks. Staining (Figures 157-158, 161-163) is observed directly in the center of the dome beneath the Central Pump Pit and at dome risers. A white rough crystalline crust has formed on the waste and a thick white crystalline ledge has formed around the perimeter of the tank at waste level. A white deposit has formed on the interior tank wall above the waste surface, signifying a previous waste level. All older in-tank piping and instrumentation appears to be lightly corroded, with no significant cracking or pitting evident.

4.0 CONCLUSIONS AND RECOMMENDATIONS

During the 2003 241-SY video examinations, areas of light corrosion were identified, however no significant degradation of the primary or secondary walls in the tank annuli has been seen.

Maintaining the 241-SY annuli ventilation systems operational significantly reduced the source of water intrusion into the 241-SY tanks. In accordance with the *DST Annulus Ventilation Engineering Study*, RPP-7695, (Anantatmula,, 2001), the annulus ventilation systems have

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significant moisture removal capabilities sufficient to prevent corrosion damage; therefore the ventilation systems should be maintained operational to prolong tank life.

Light corrosion, corrosion nodules, mill scale and minor pitting were seen on some of the 241-SY primary annulus surfaces. Ultrasonic Testing (UT) is scheduled to be performed on the SY tanks in FY2004. If at that time, it is found that significant wall thinning has occurred on the tanks, such that the tank integrity is in question, additional investigations/inspections of the 241-SY tanks may be necessary.

5.0 REFERENCES

Aftanas, 2001, *Visual Inspection Plan for Double-Shell Tank Farms*, RPP-8212, CH2M HILL Hanford Group, Inc., Richland, Washington.

Anantatmula, 2001, *DST Annulus Ventilation Engineering Study*, RPP-7695, CH2M HILL Hanford Group, Inc., Richland, Washington.

Harris, 1993, *Visual Examination Report for Tank Annuli at the 241-SY Tank Farm*, WHC-SD-WM-RPT-076, Westinghouse Hanford Company, Richland, Washington.

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**Photos of 241-SY-101, 214-SY-102,
and 241-SY-103 In-Tank and Primary Annuli**

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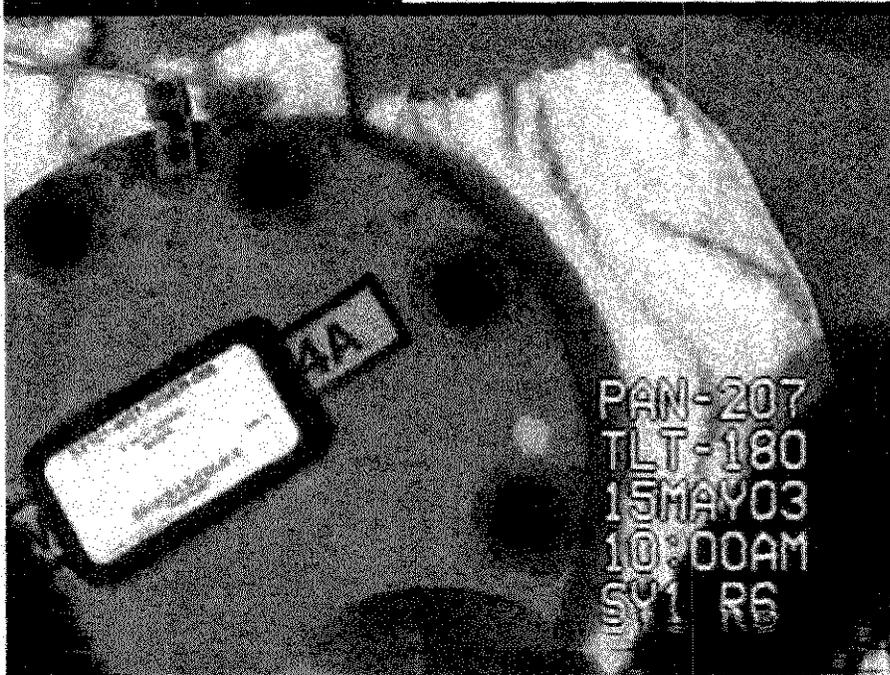


Figure 1 - SY-101 Riser 6, Identification Tag (2003)

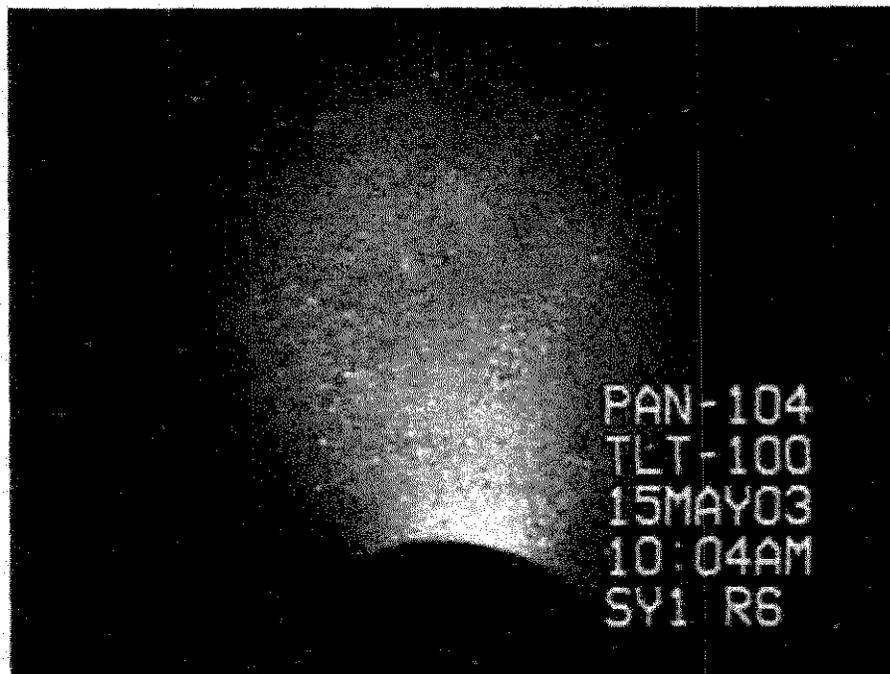


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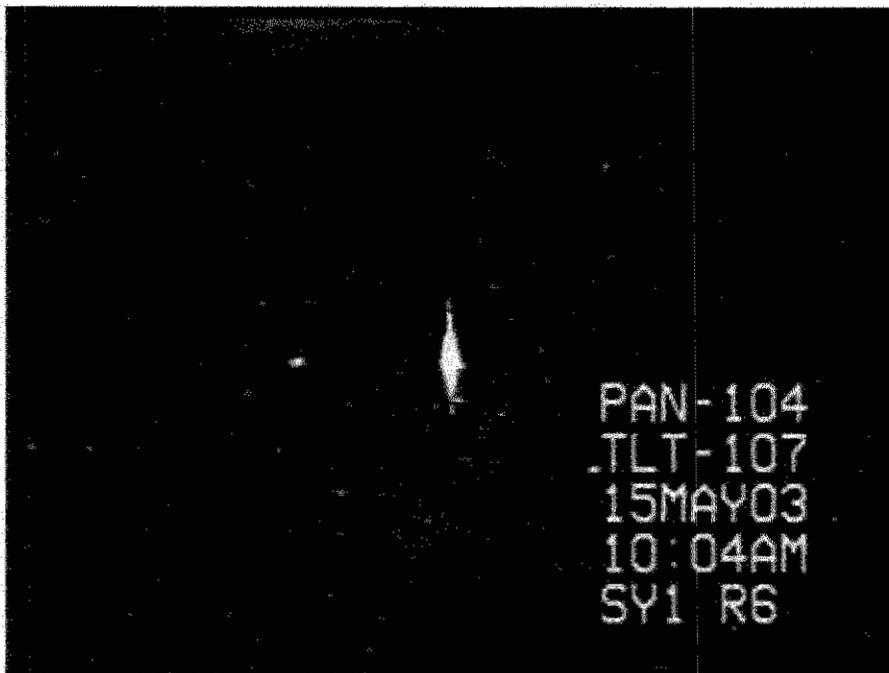


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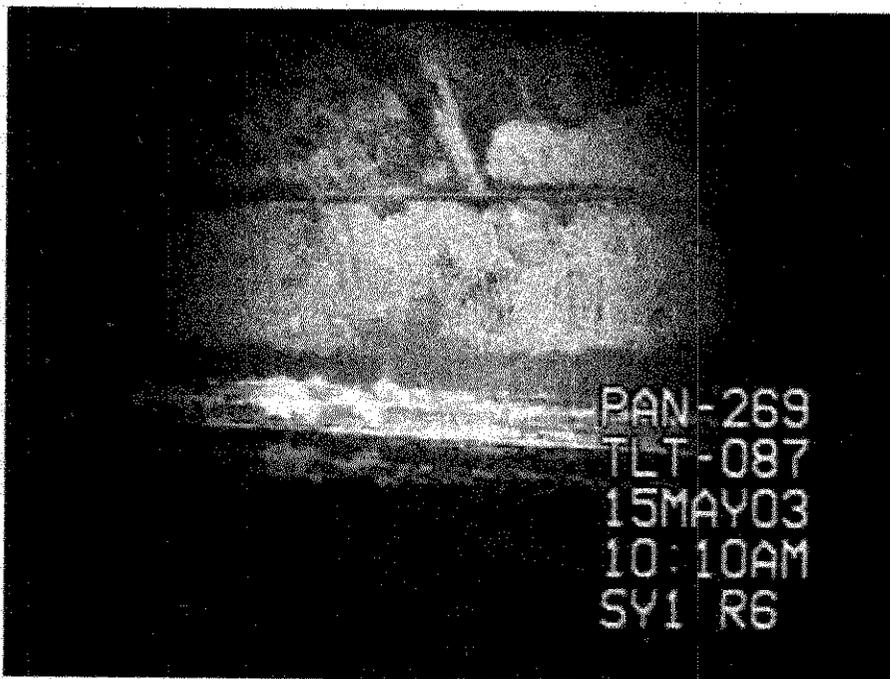


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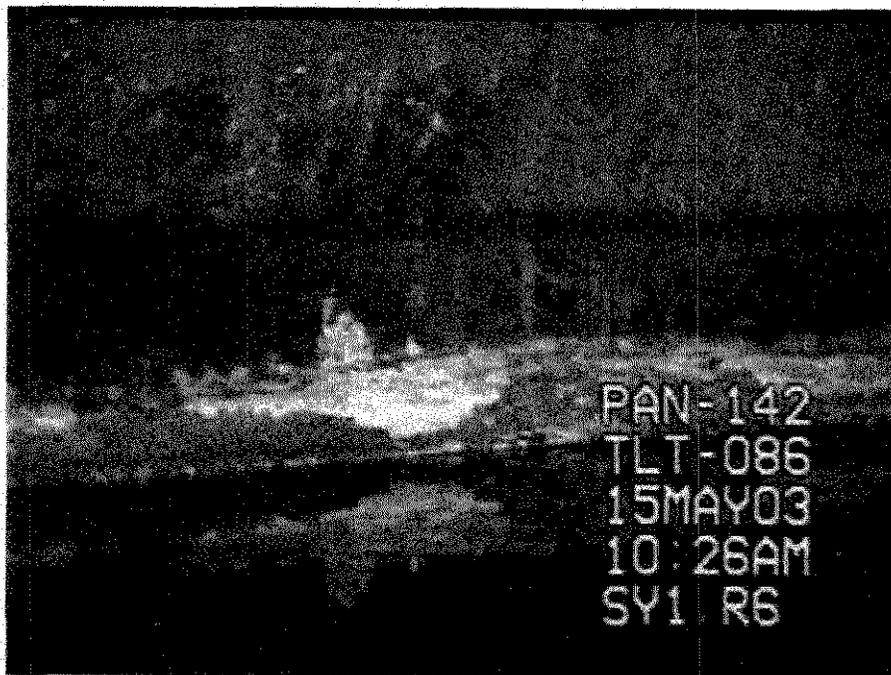


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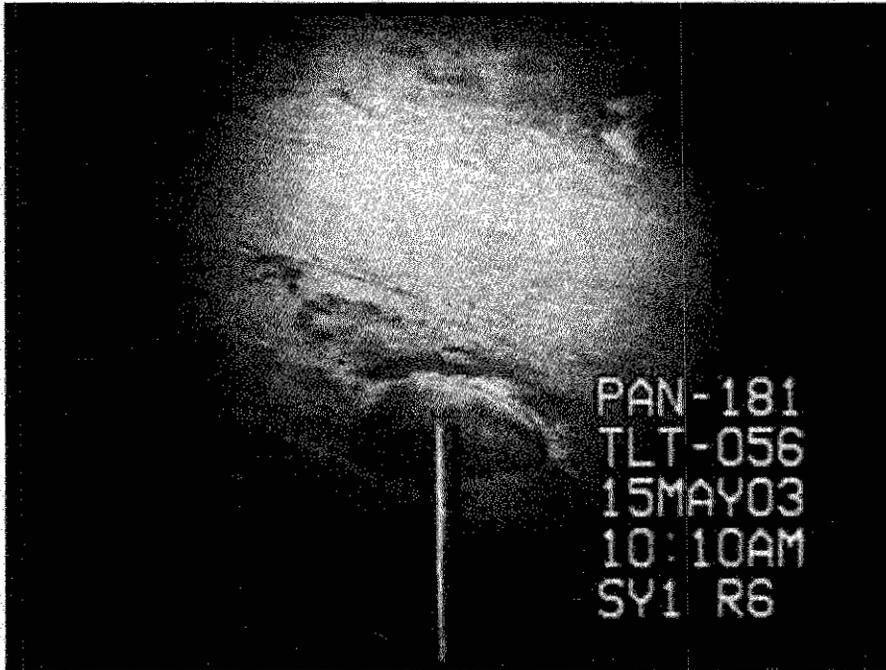


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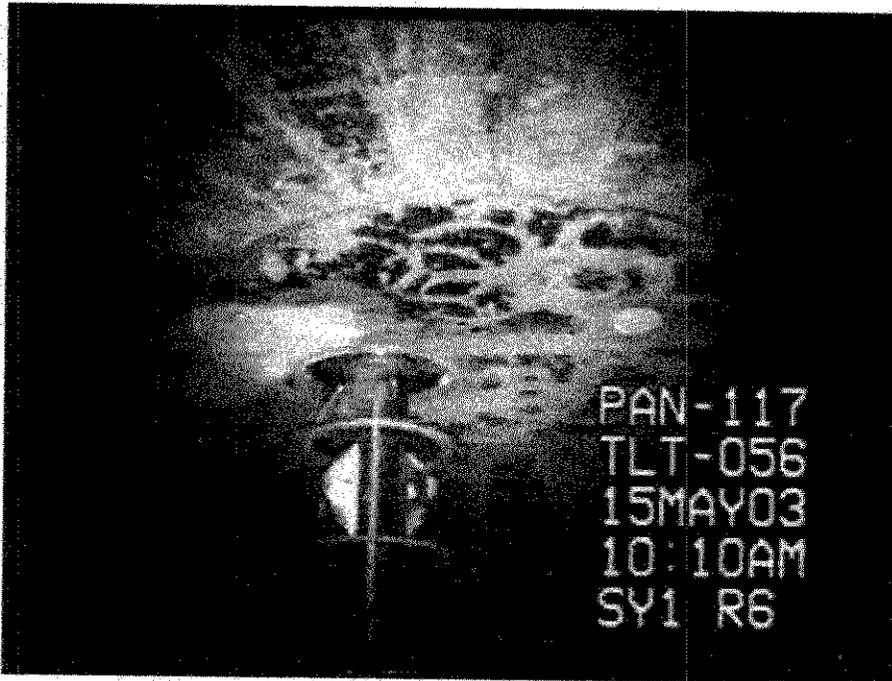


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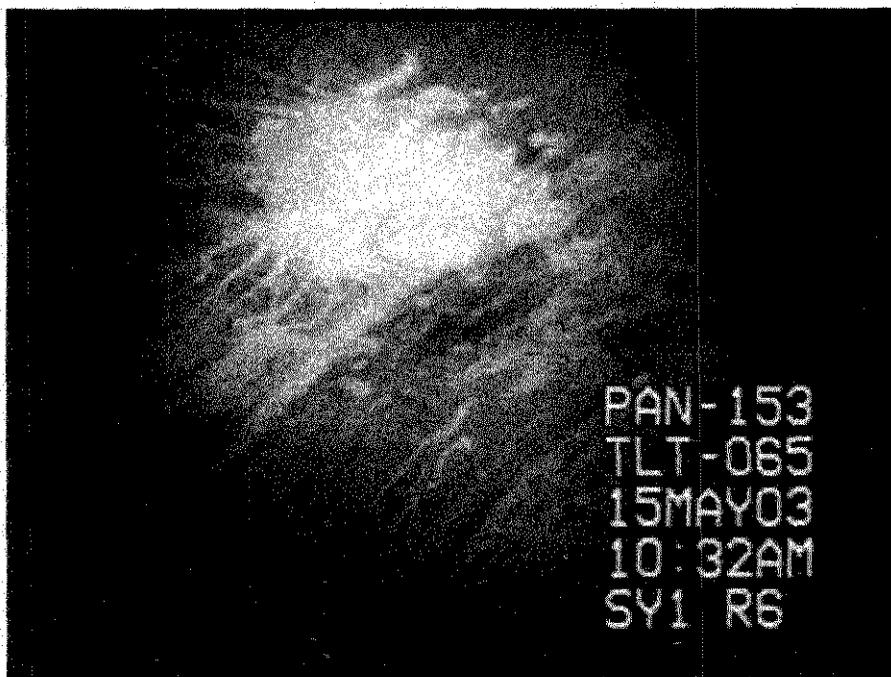


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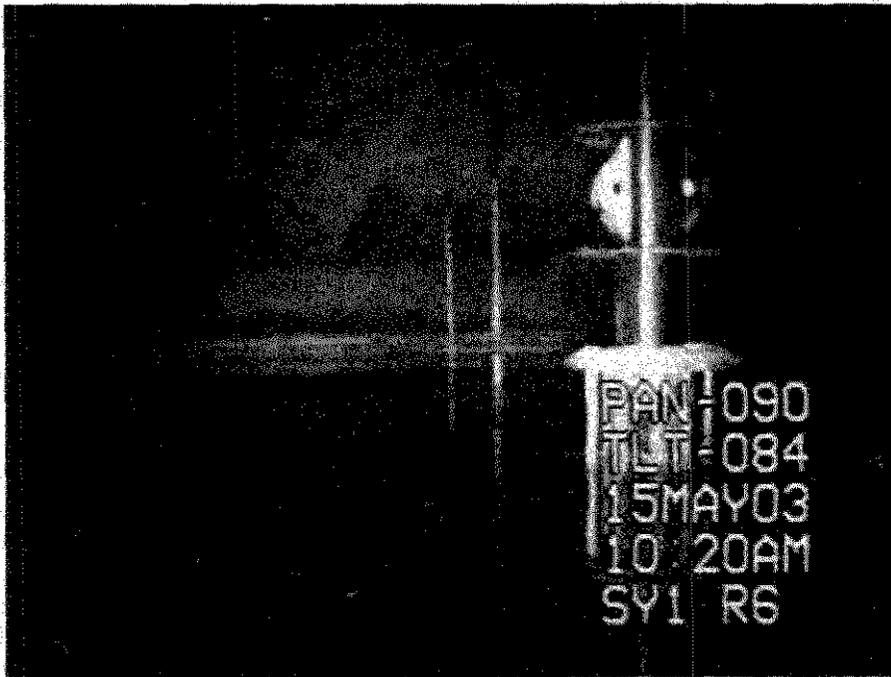


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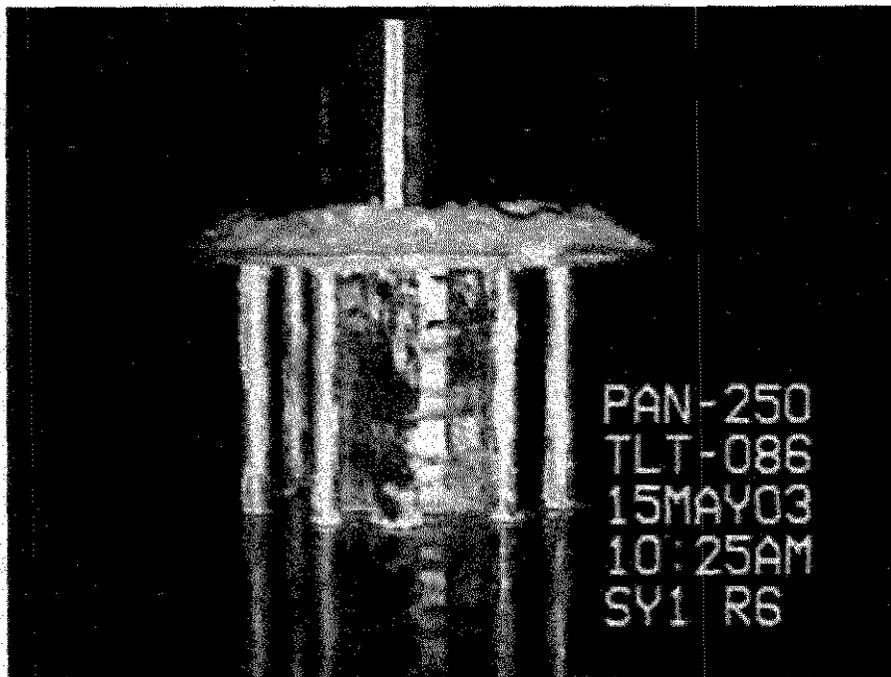


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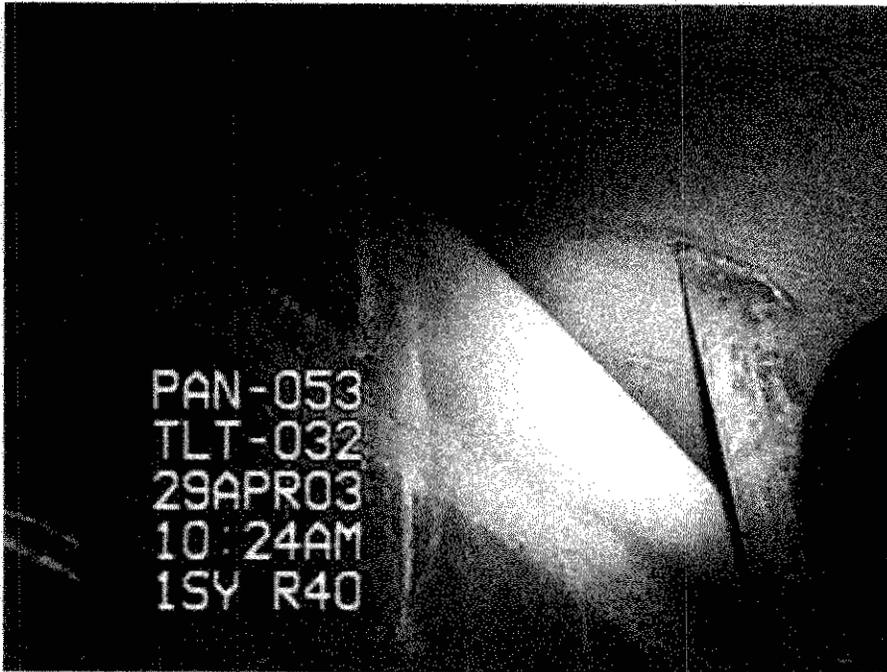


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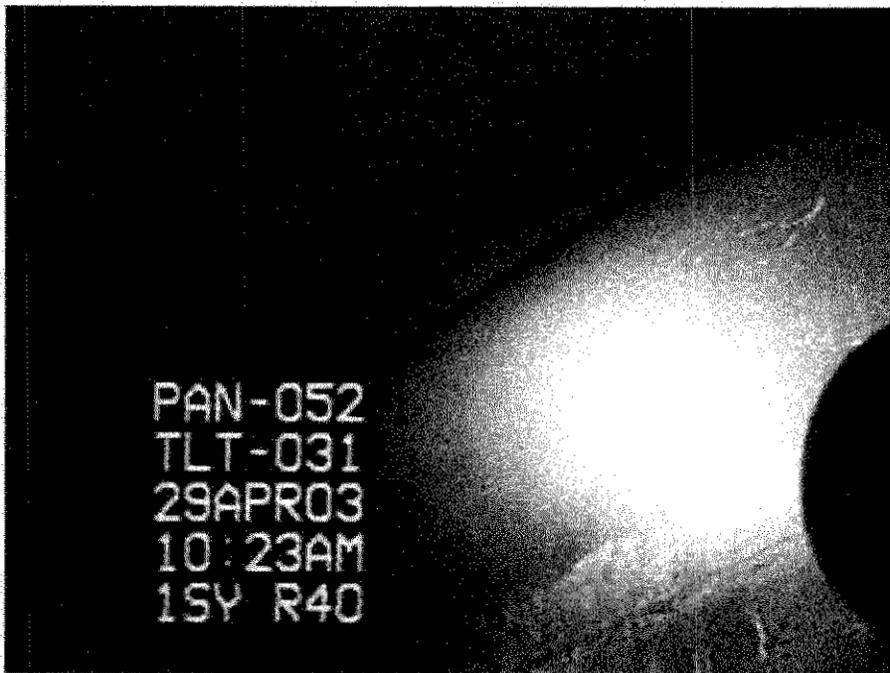


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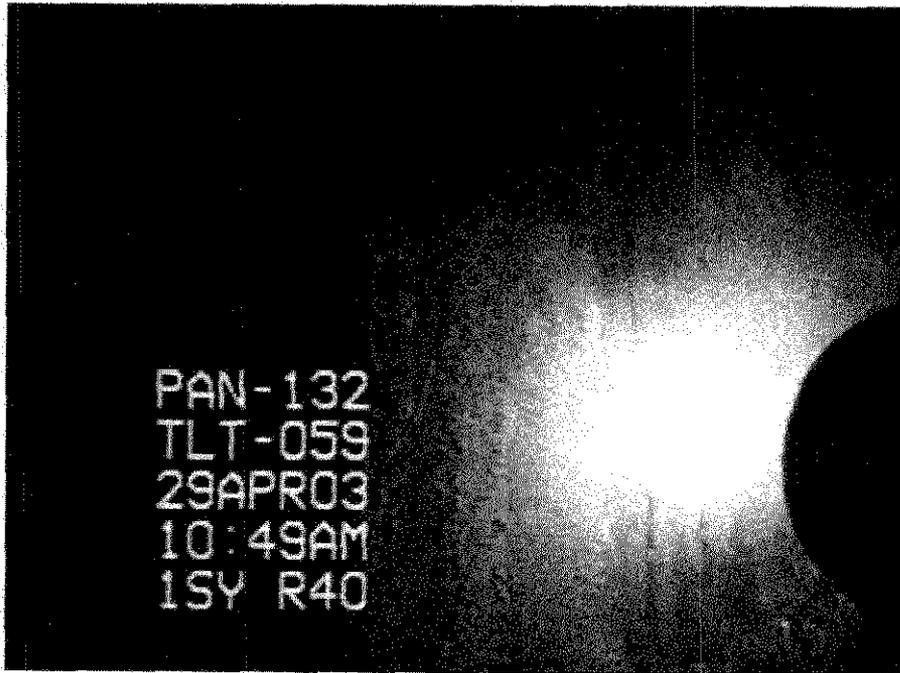


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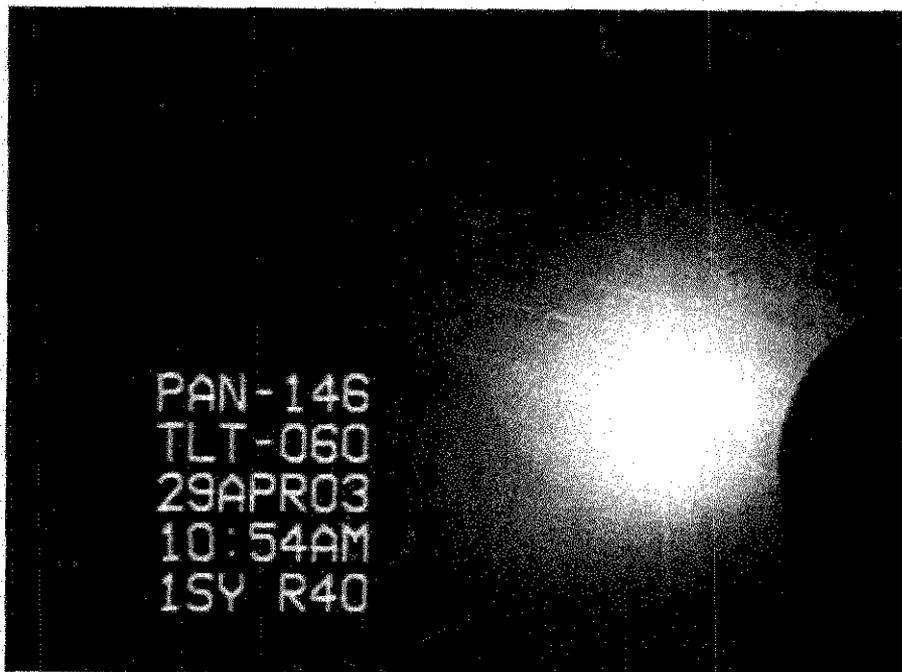


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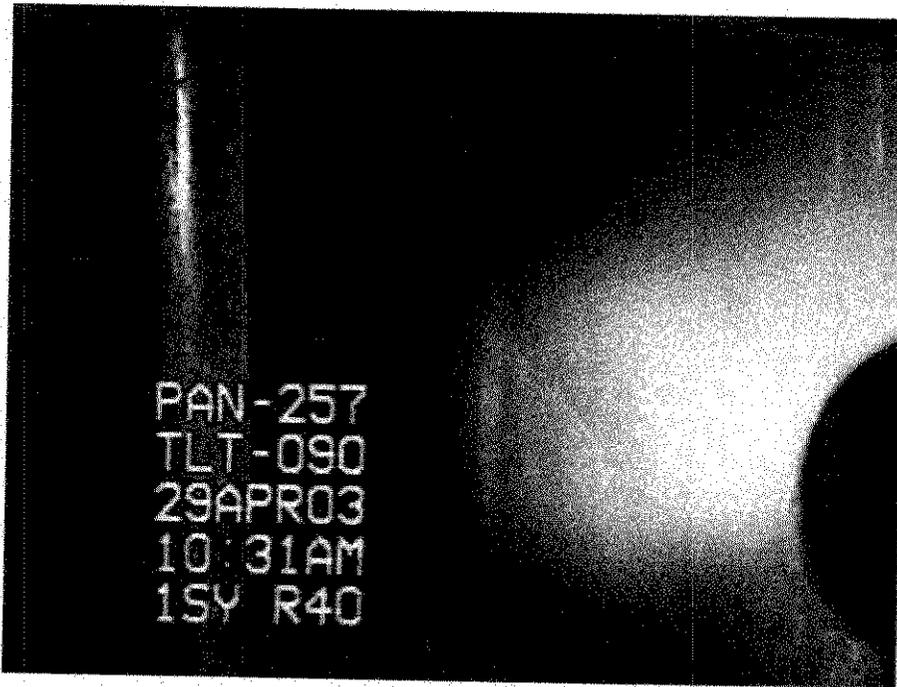


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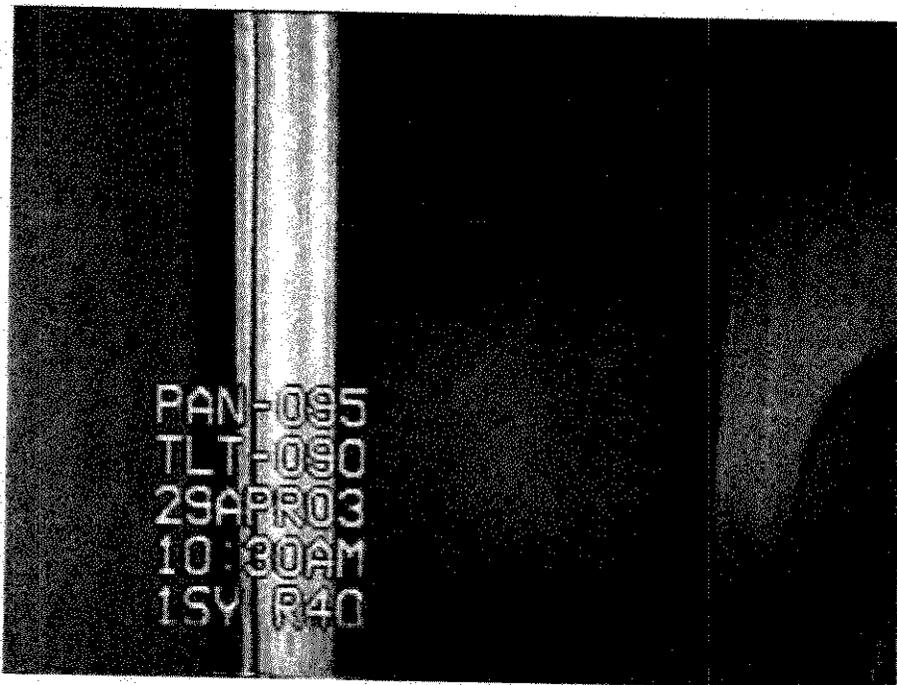


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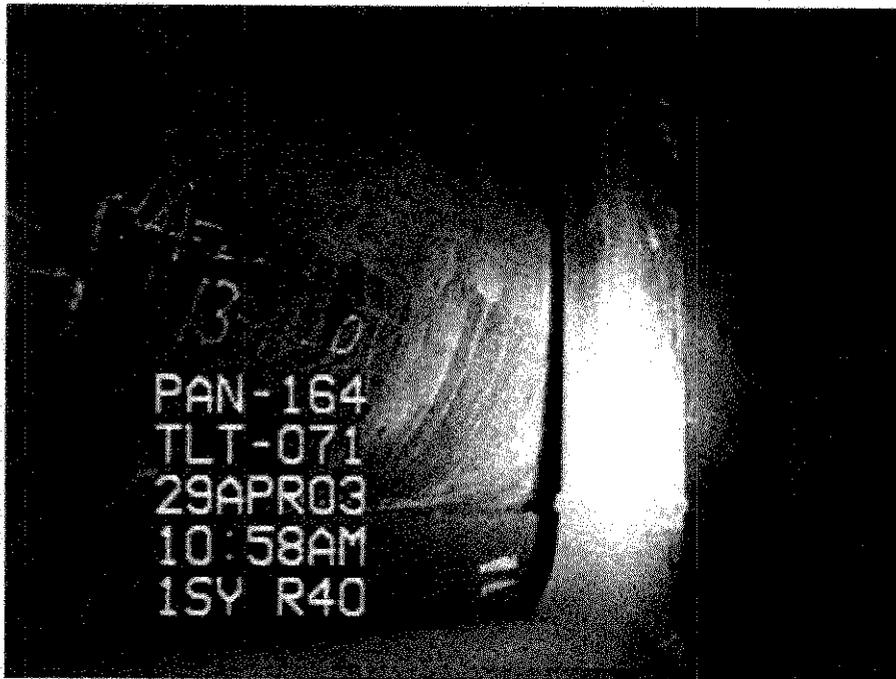


Figure 29 - SY-101 Riser 40, Primary Tank, Knuckle Weld (2003)



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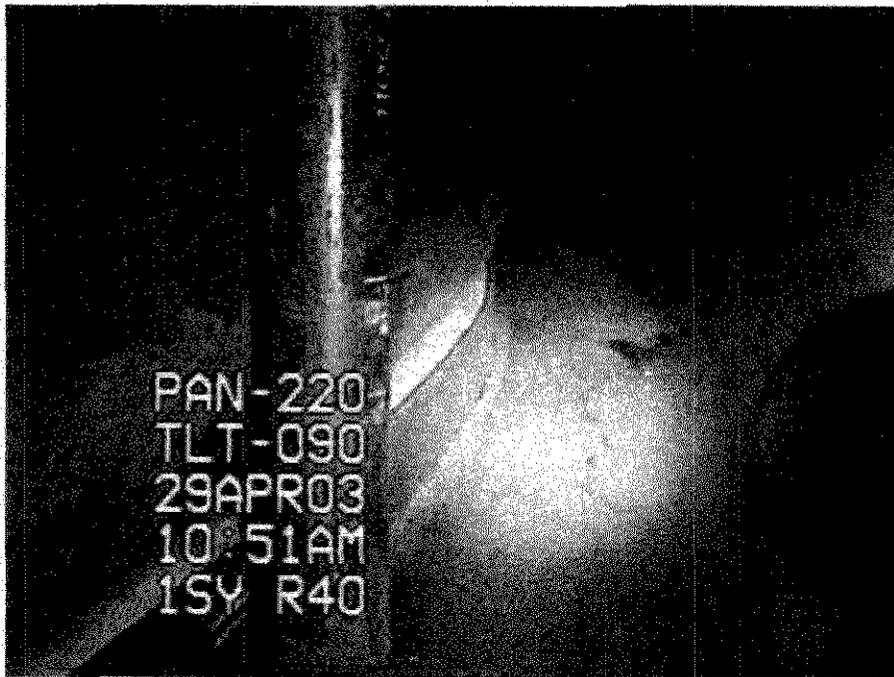


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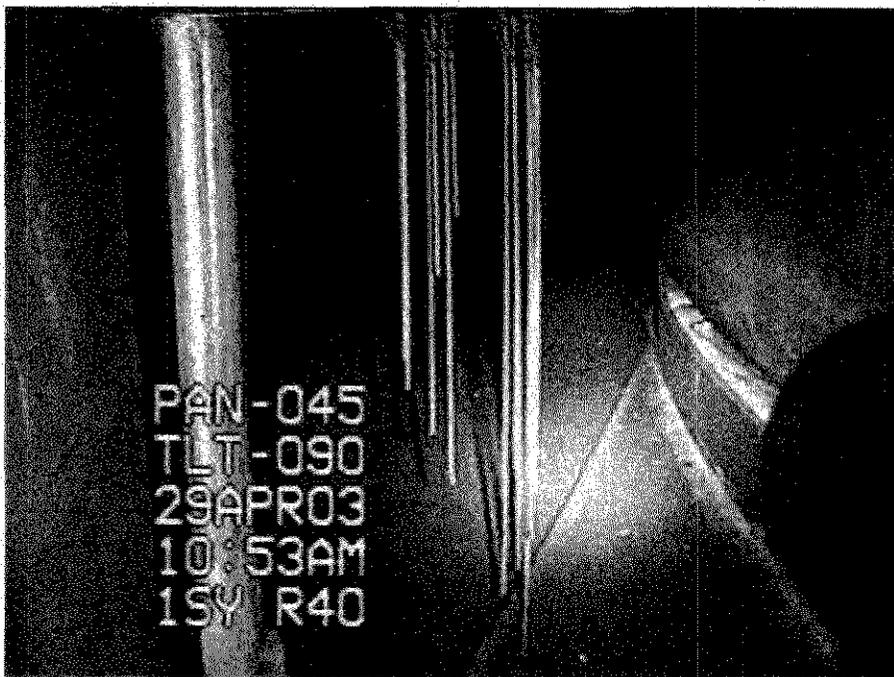


Figure 32 - SY-101 Riser 40, Primary Tank, Annulus Floor/Instrumentation (Left, 2003)

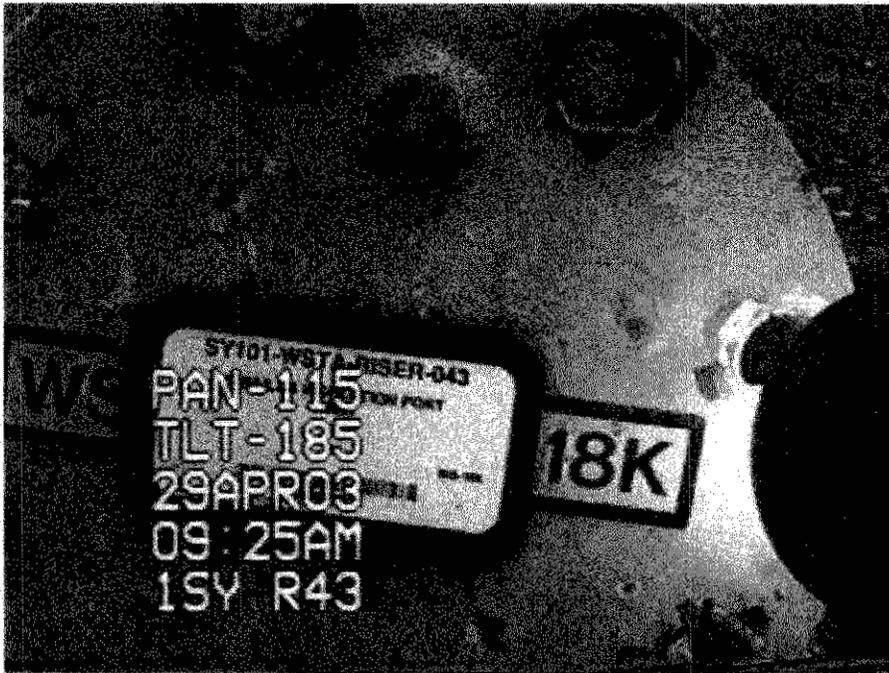


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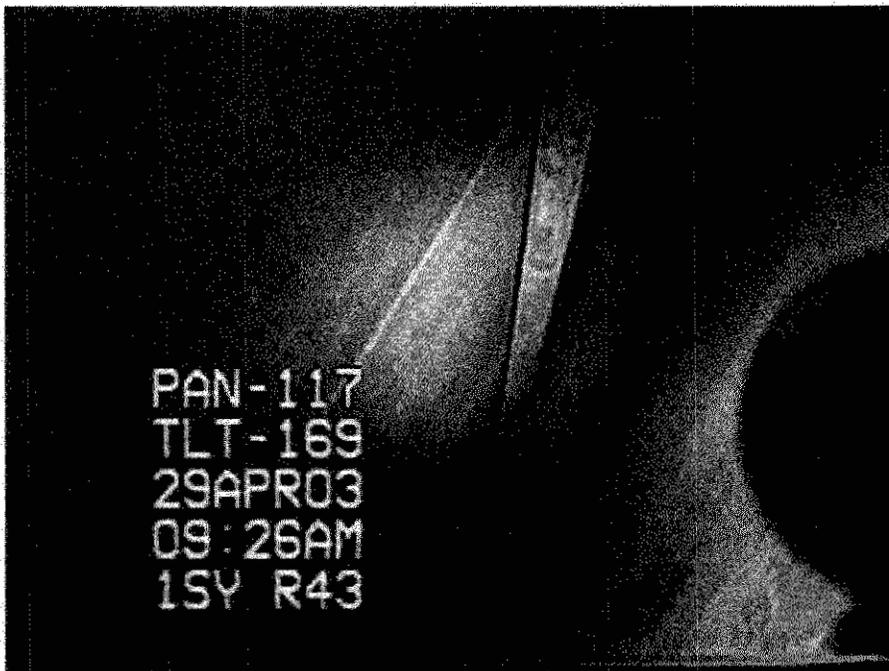


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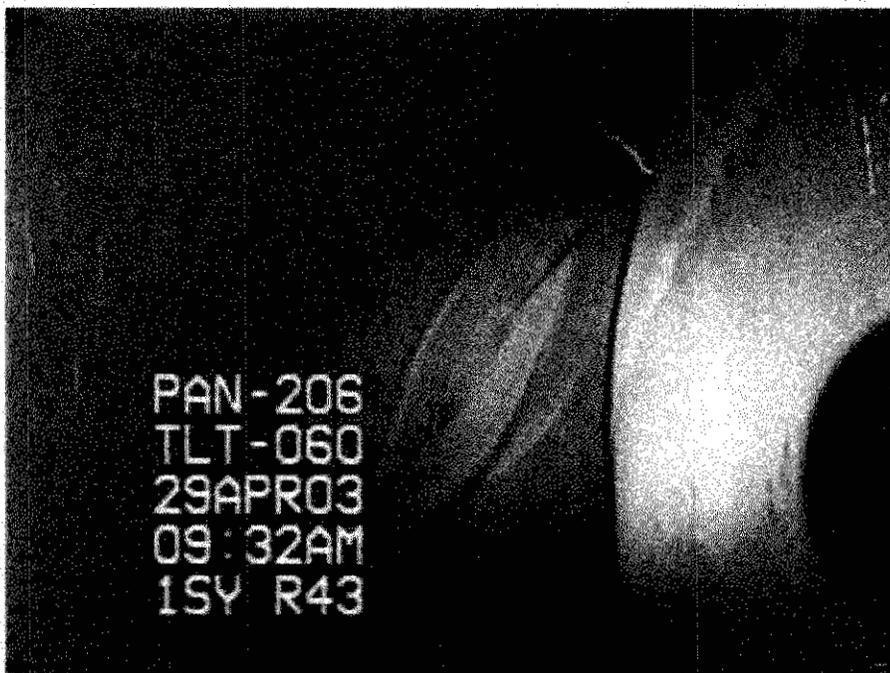


Figure 36 - SY-101 Riser 43, Primary Tank, Primary/Secondary Wall Junction (Left, 2003)

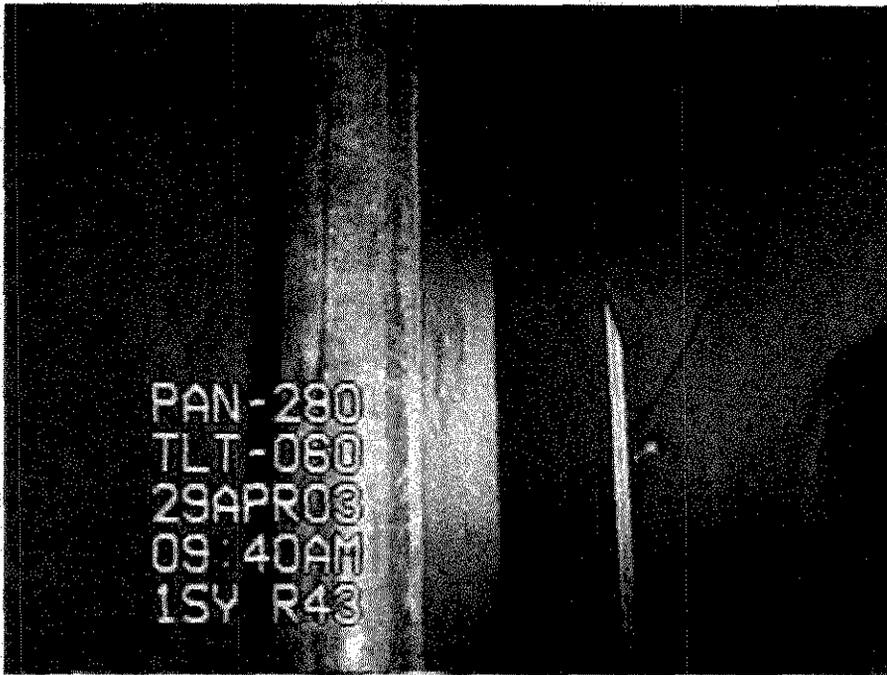


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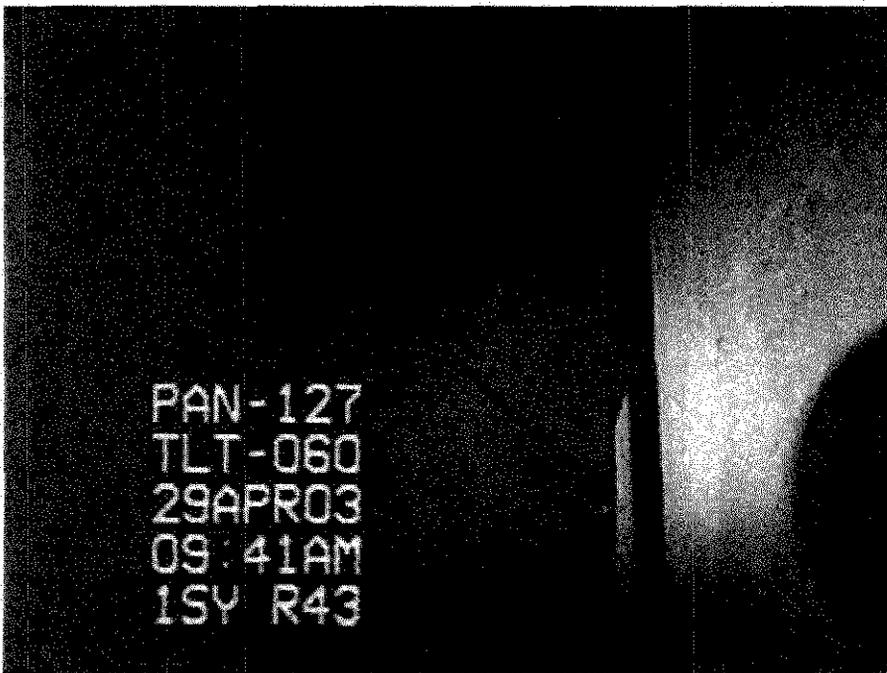


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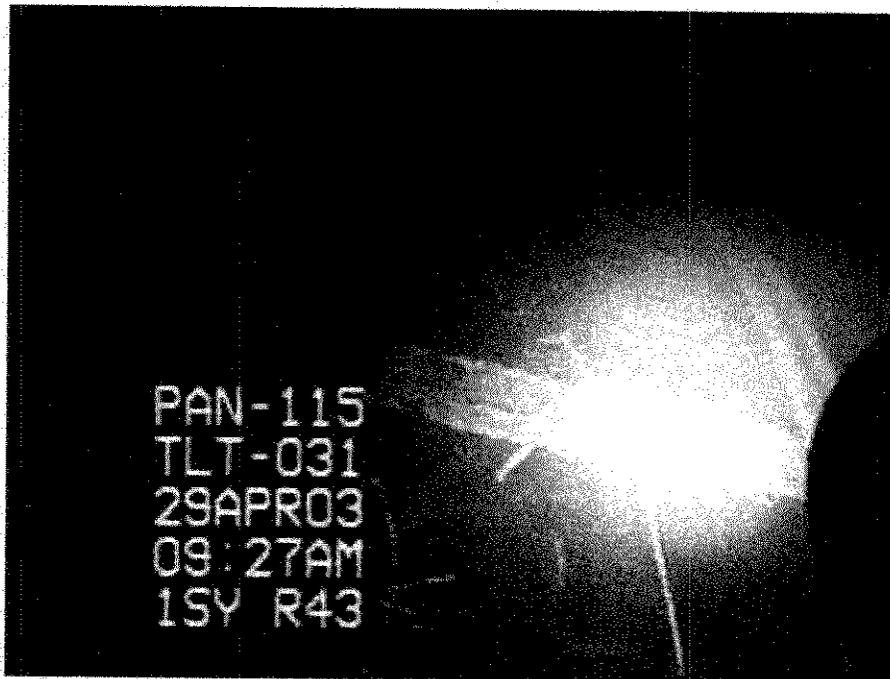


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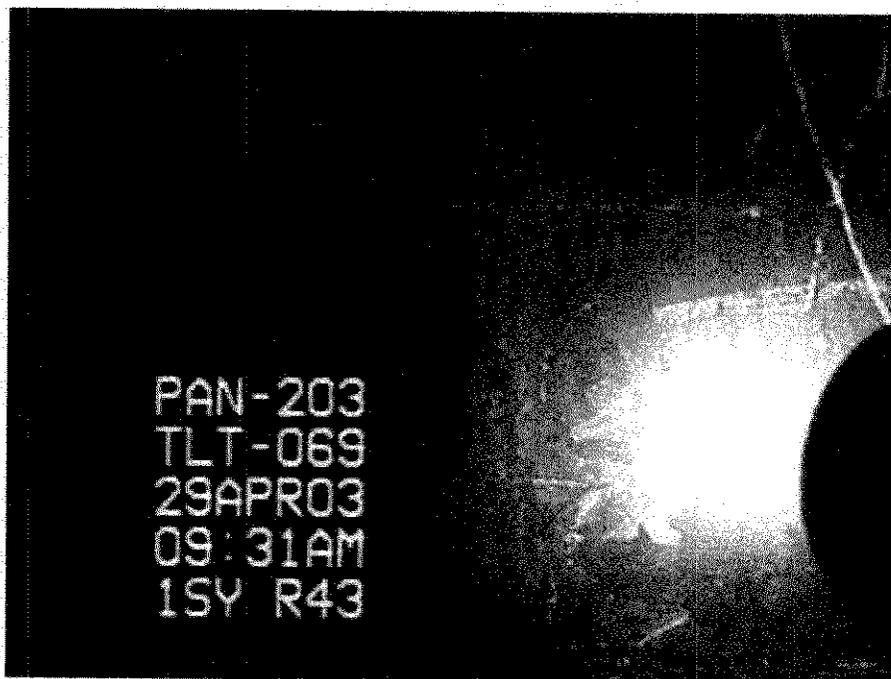


Figure 40 - SY-101 Riser 43, Primary Tank, Vertical Weld/Mill-Scale/Construction Marks (2003)

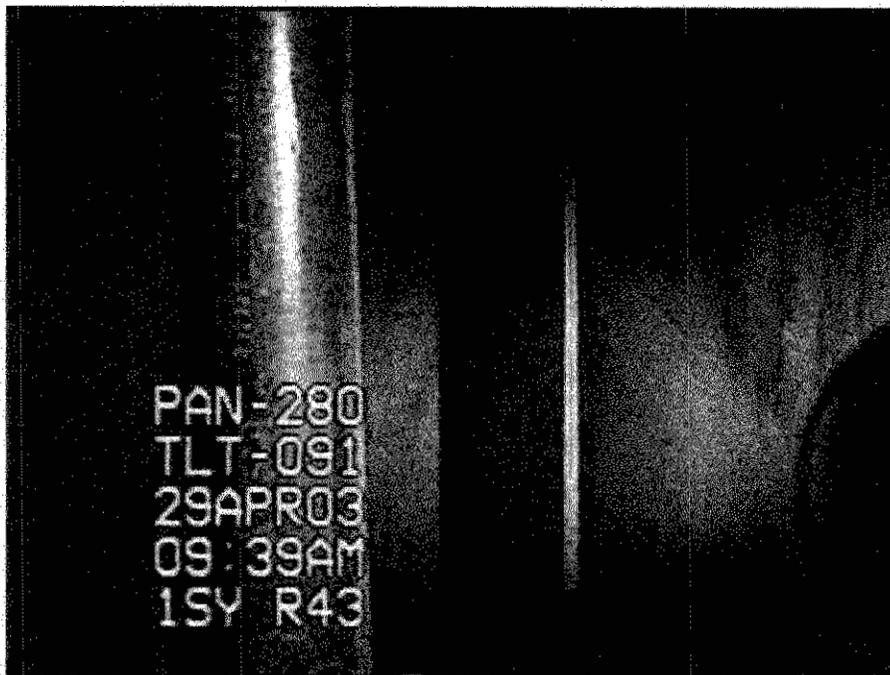


Figure 41 - SY-101 Riser 43, Secondary Tank Wall (Right, 2003)

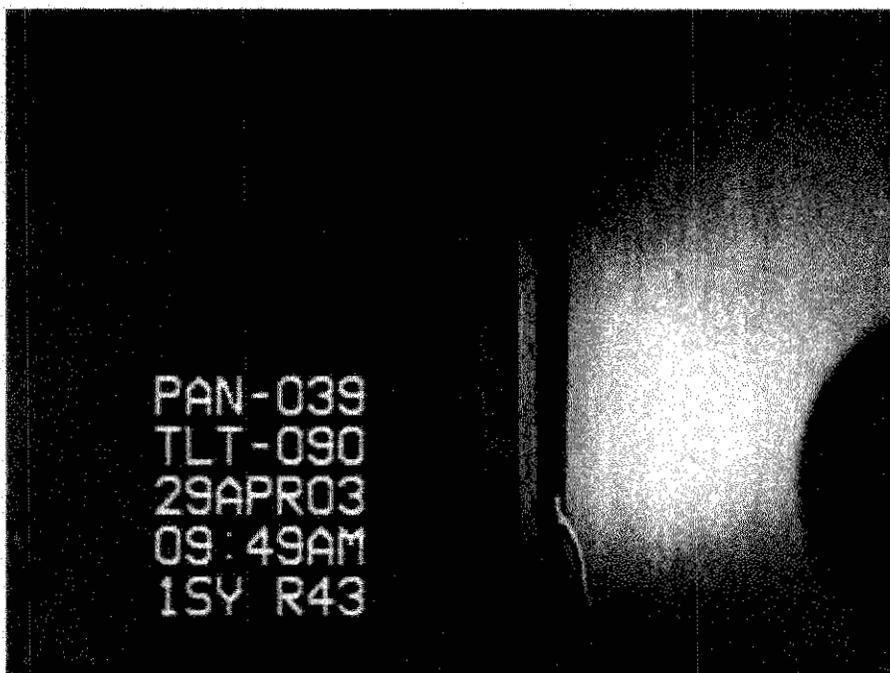


Figure 42 - SY-101 Riser 43, Secondary Tank Wall (Left, 2003)

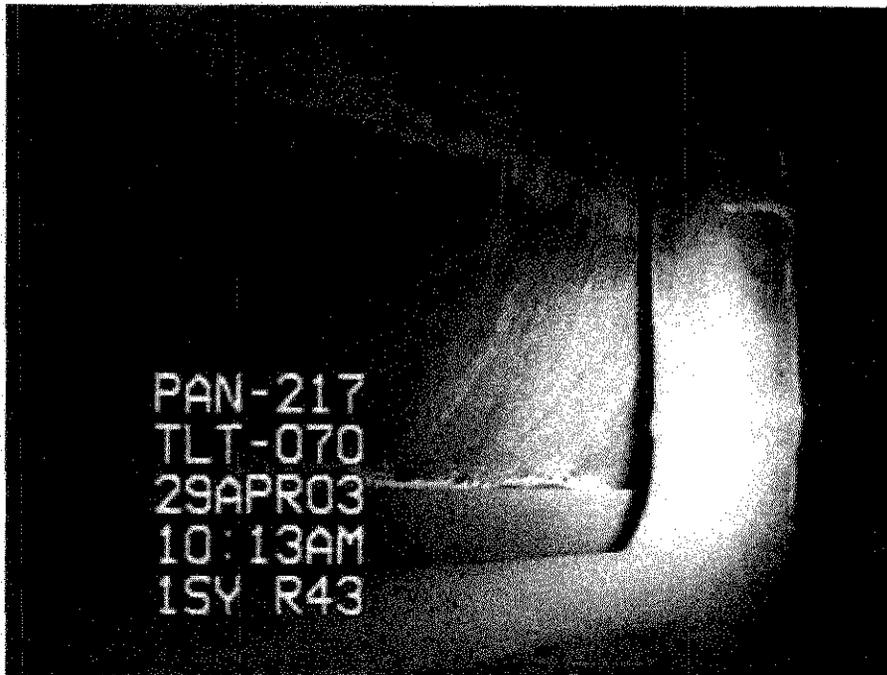


Figure 43 - SY-101 Riser 43, Primary Tank, Knuckle Weld (2003)

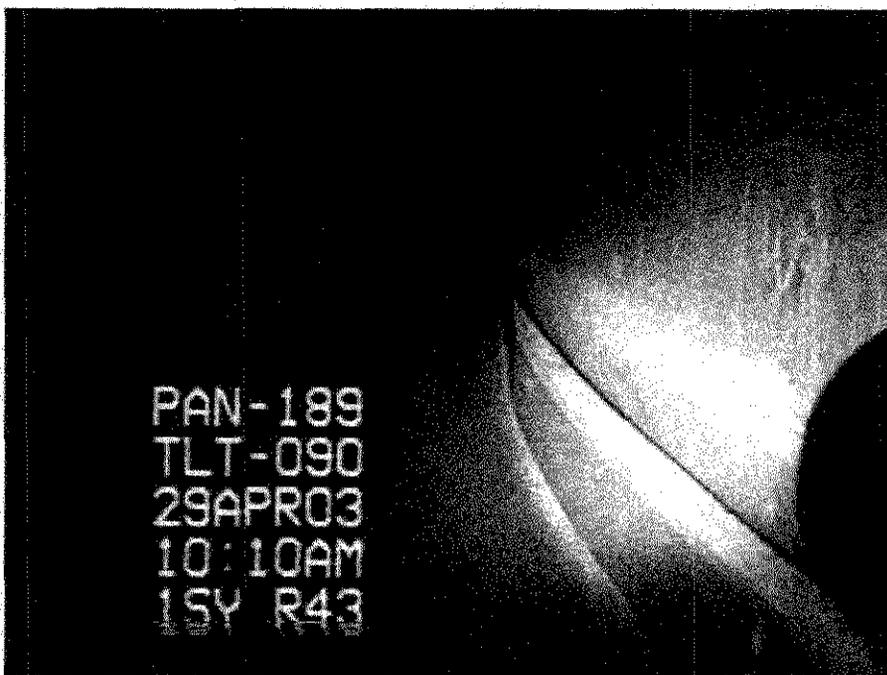


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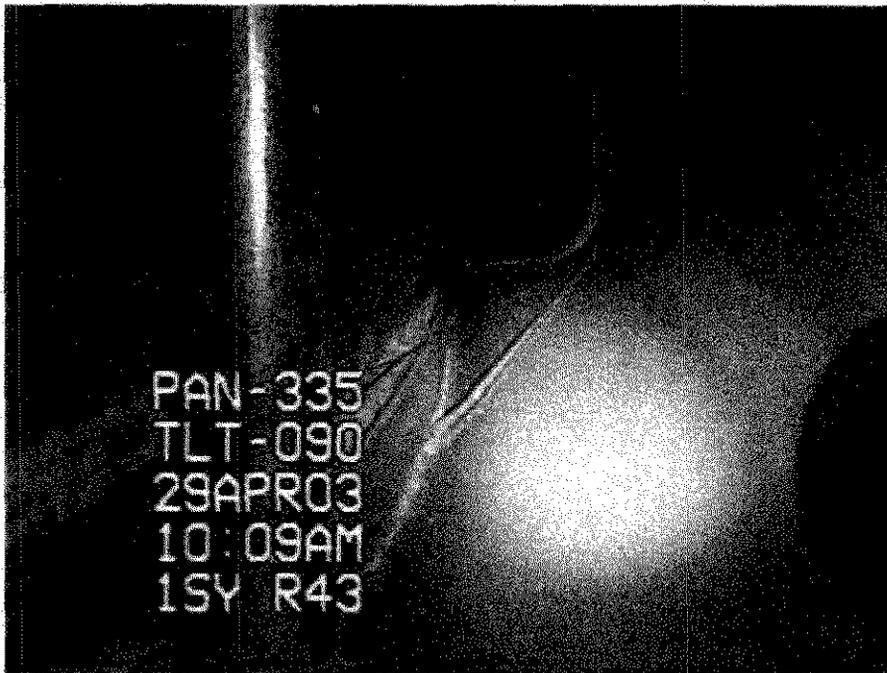


Figure 45 - SY-101 Riser 43, Primary Tank, Annulus Floor/Instrumentation (Right, 2003)

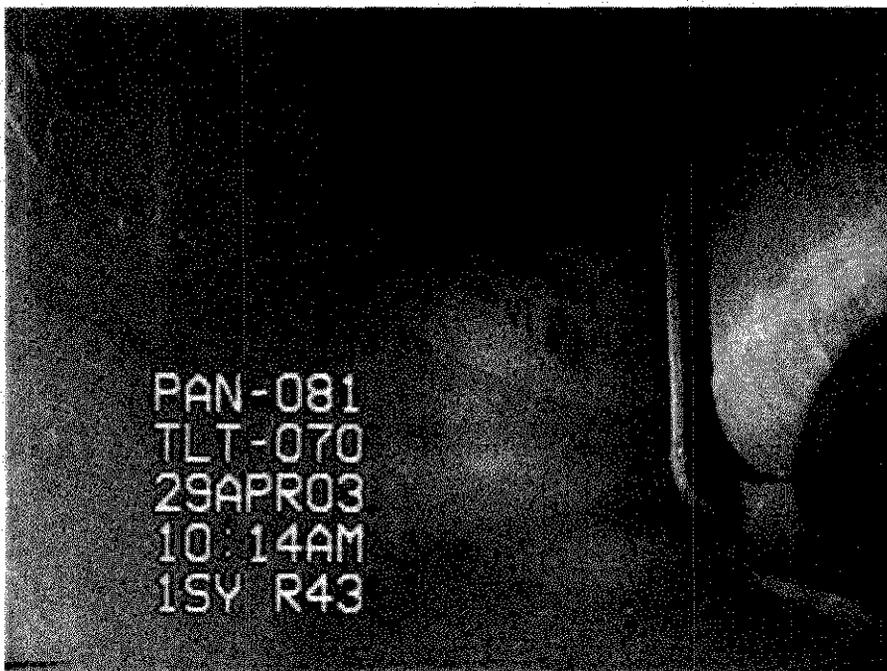


Figure 46 - SY-101 Riser 43, Primary Tank, Annulus Floor/Instrumentation (Left, 2003)

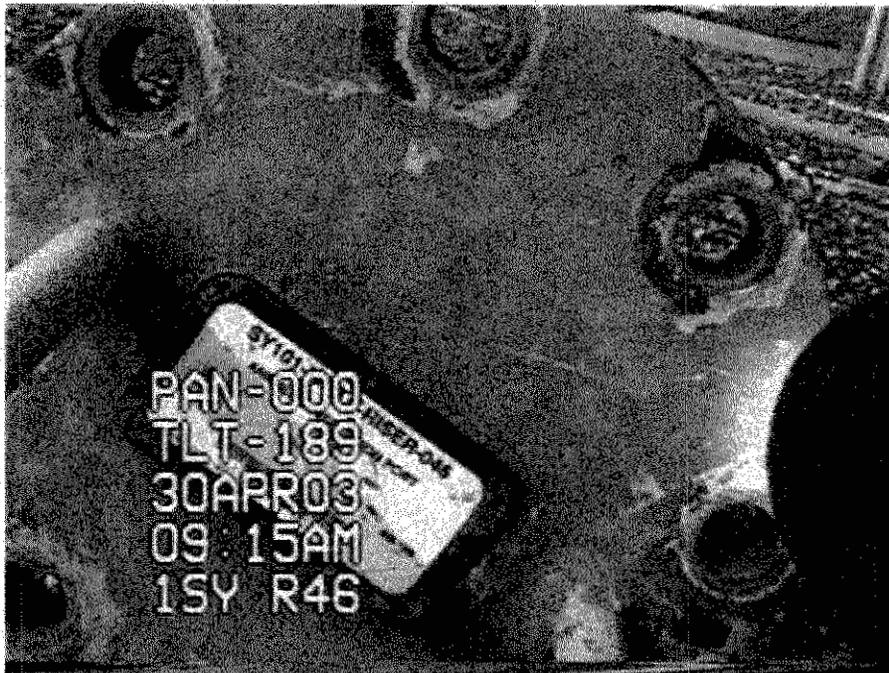


Figure 47 - SY-101 Riser 46, Identification Tag (2003)

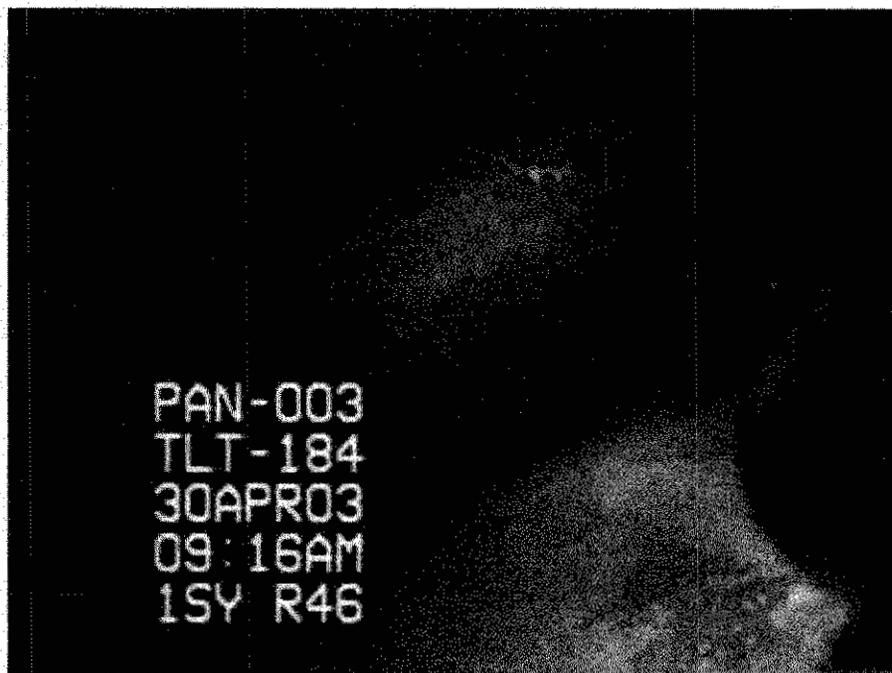


Figure 48 - SY-101 Riser 46, View of Annulus from Riser 46 (2003)

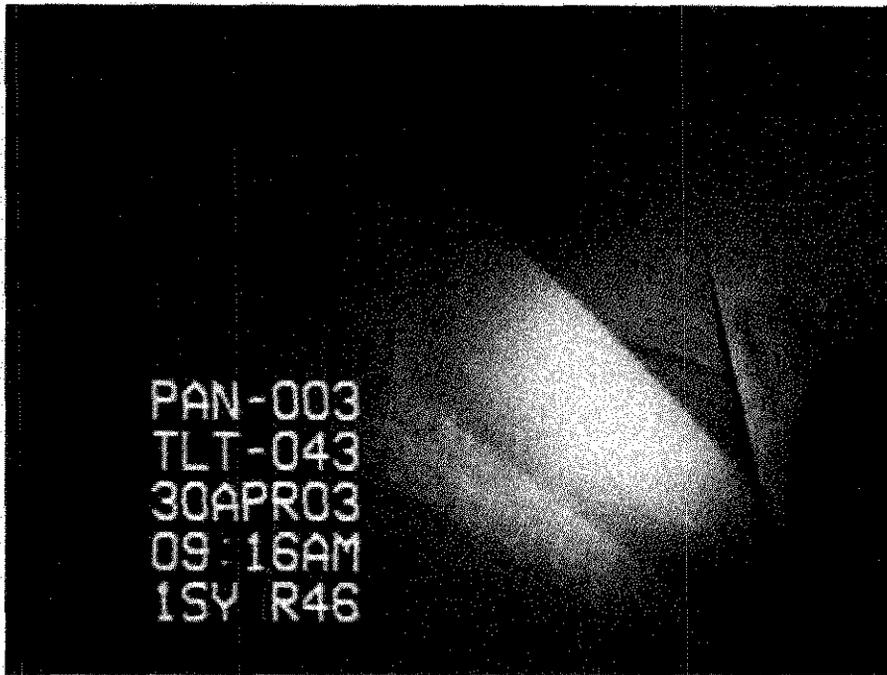


Figure 49 - SY-101 Riser 46, Primary Tank, Primary/Secondary Tank Junction (Right, 2003)

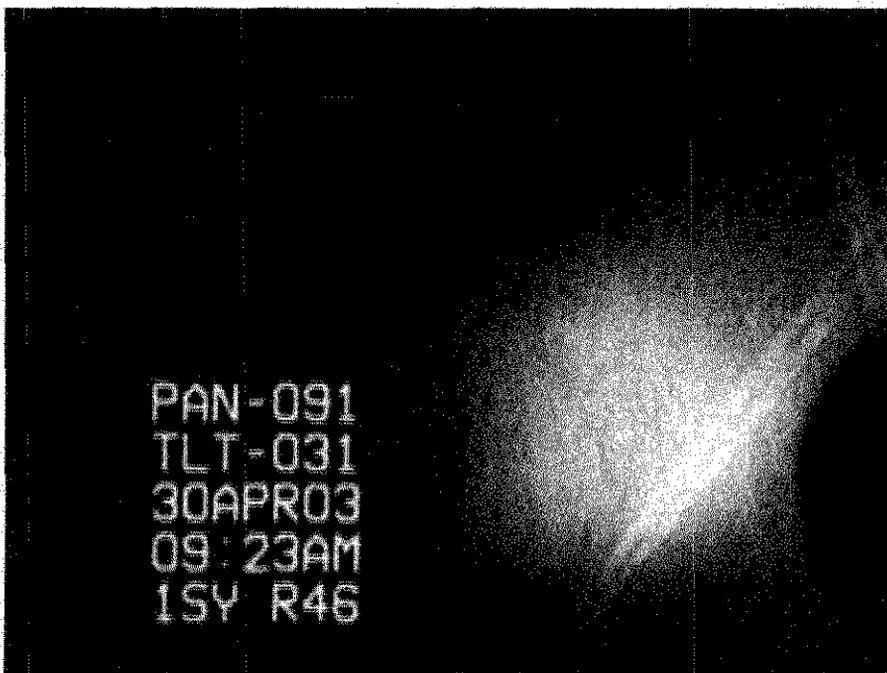


Figure 50 - SY-101 Riser 46, Primary Tank, Primary/Secondary Tank Junction (Left, 2003)

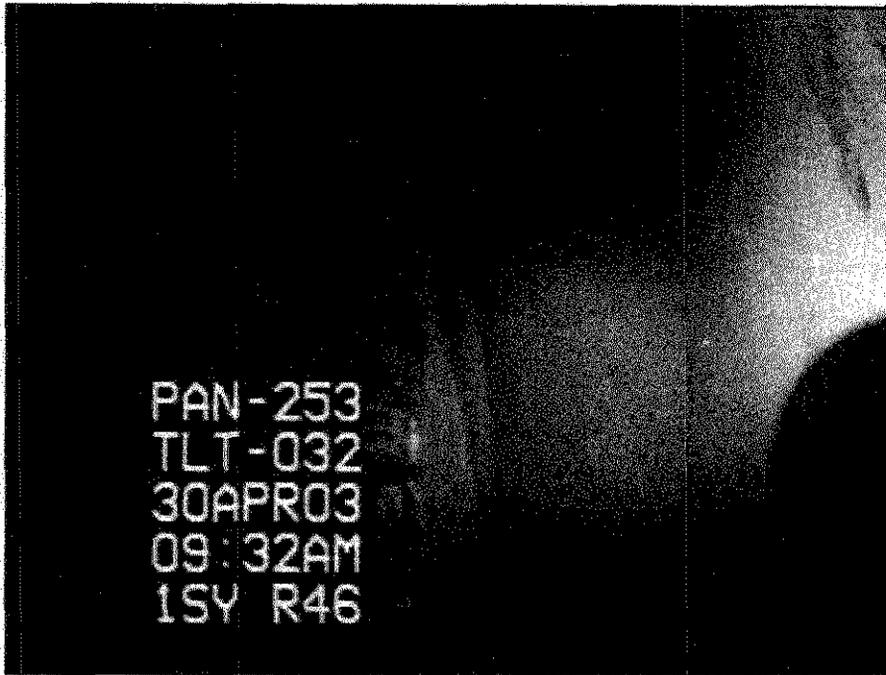


Figure 51 - SY-101 Riser 46, Primary Tank, Primary/Secondary Tanks/Dome (Right, 2003)

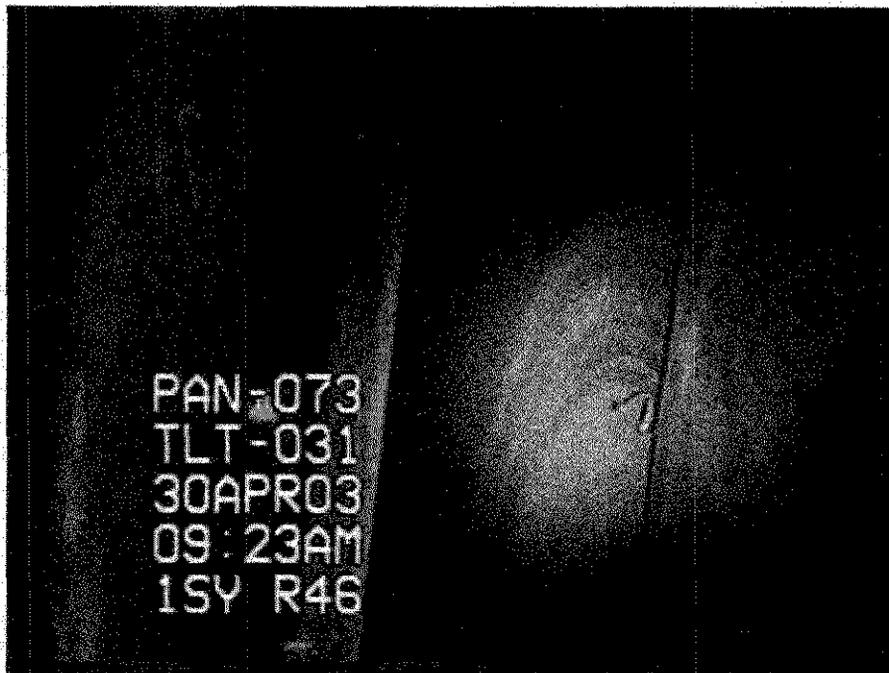


Figure 52 - SY-101 Riser 46, Primary Tank, Primary/Secondary Tanks/Dome (Left, 2003)

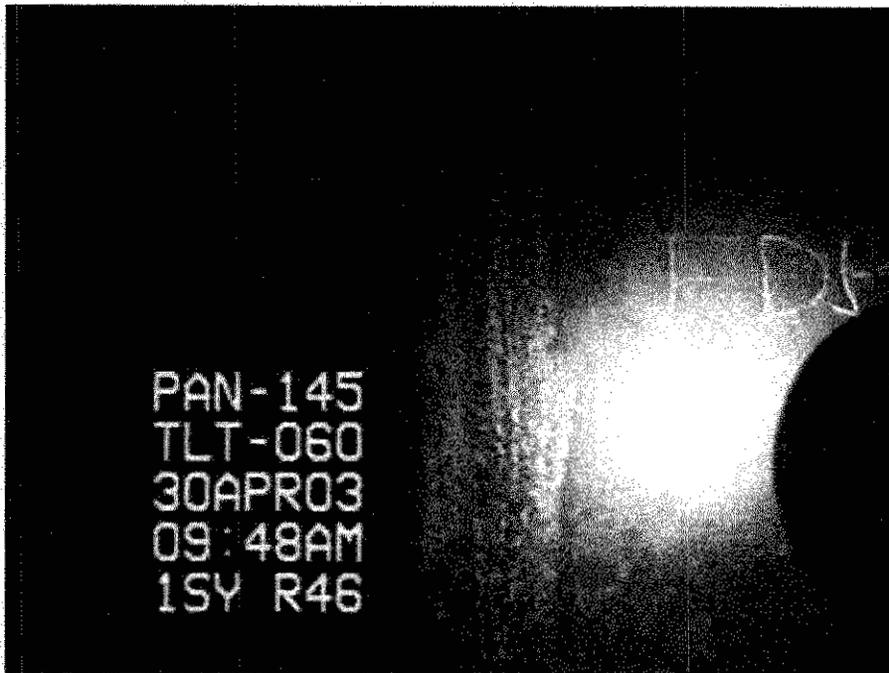


Figure 53 - SY-101 Riser 46, Primary Tank, Construction Marks, Vertical Weld (2003)

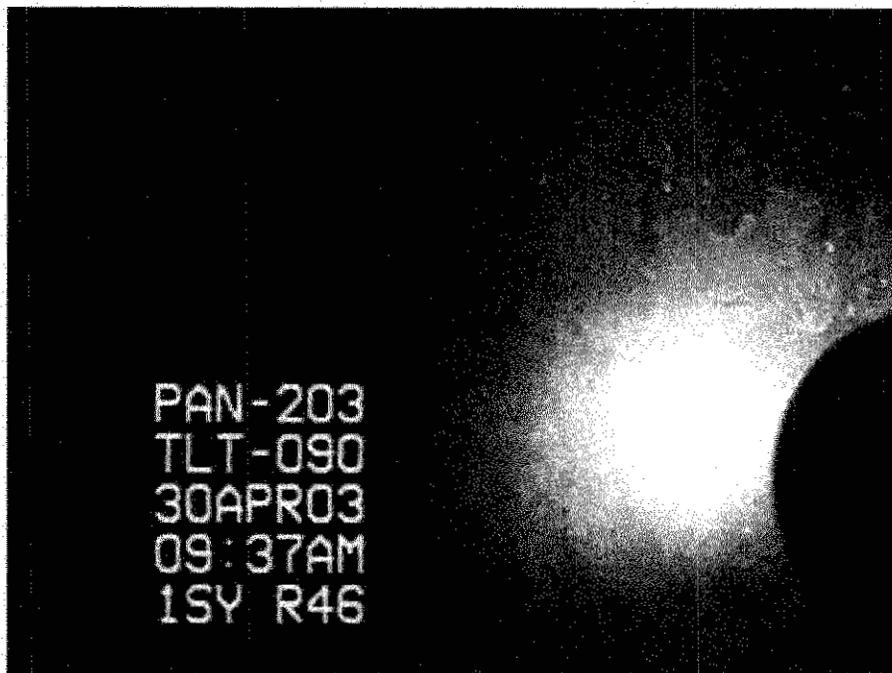


Figure 54 - SY-101 Riser 46, Primary Tank, Mill Scale (2003)

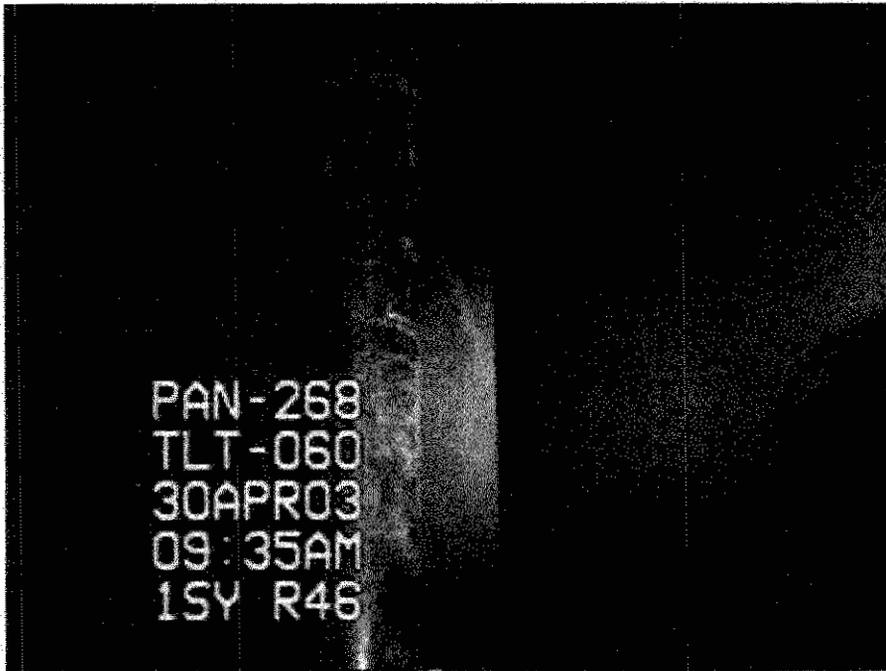


Figure 55 - SY-101 Riser 46, Secondary Tank Wall (Right, 2003)

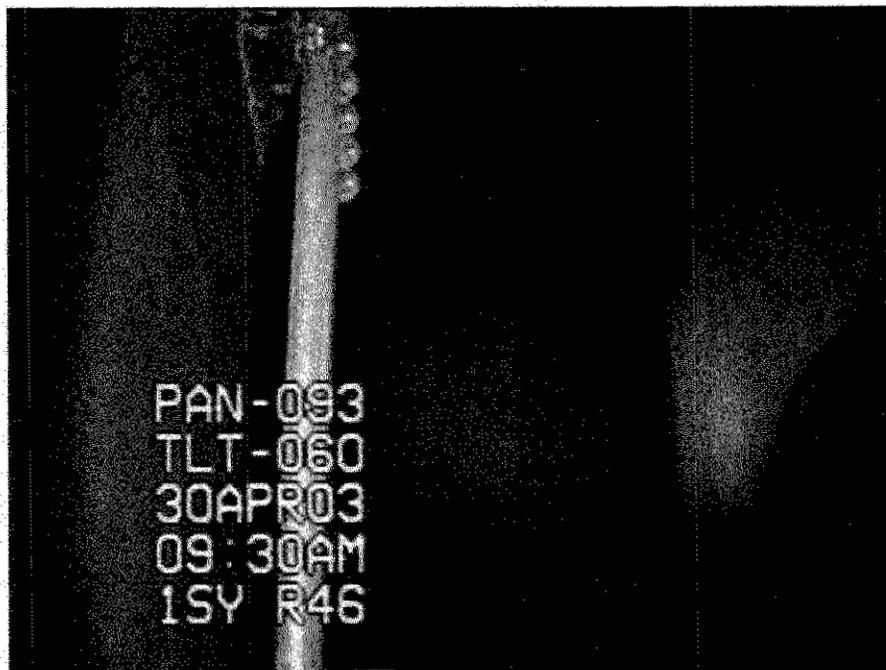


Figure 56 - SY-101 Riser 46, Secondary Tank Wall (Left, 2003)

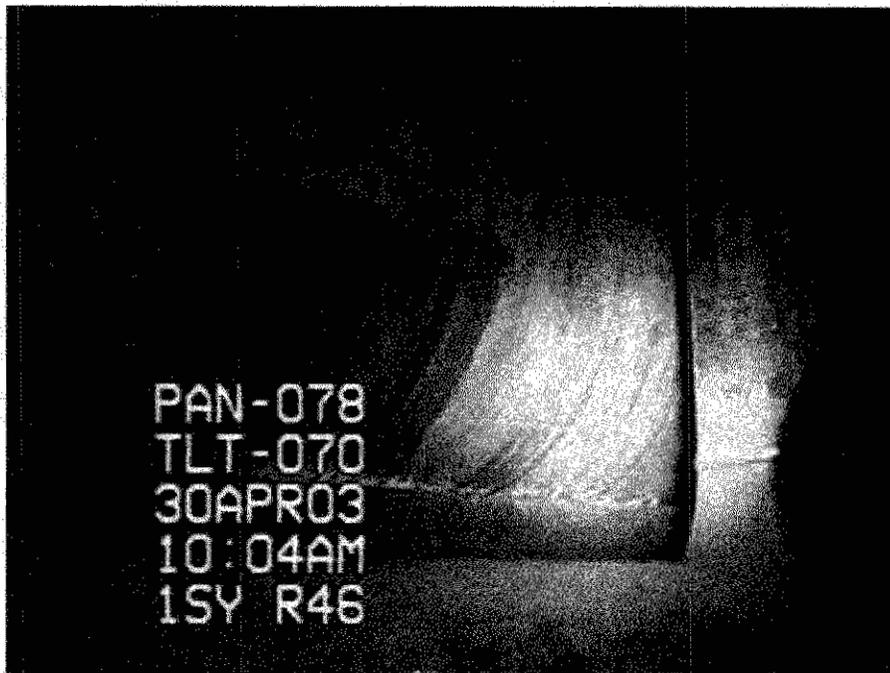


Figure 57 - SY-101 Riser 46, Primary Tank, Knuckle Weld (2003)

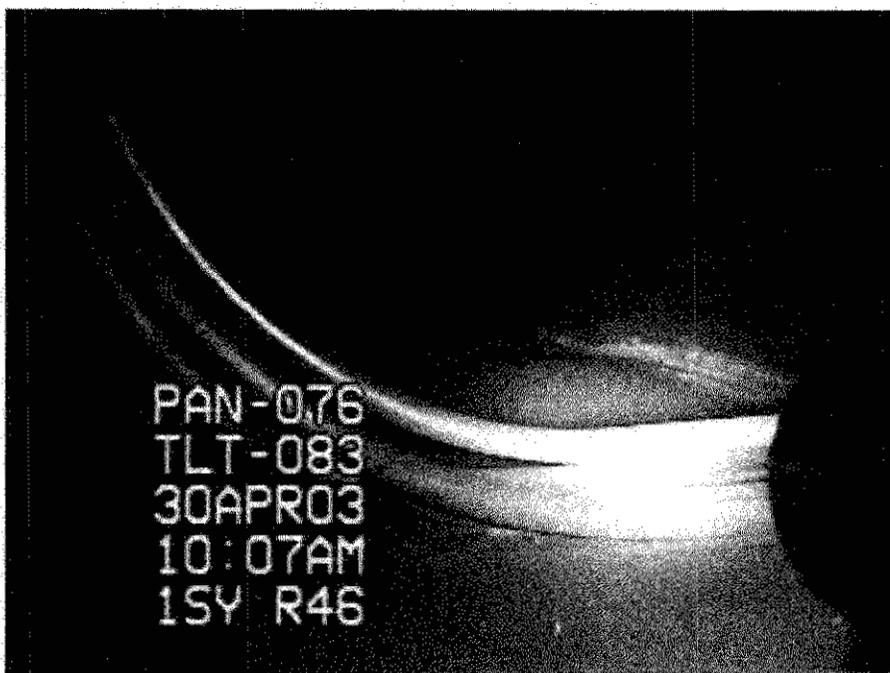


Figure 58 - SY-101 Riser 46 Primary Tank, Annulus Instrumentation (2003)

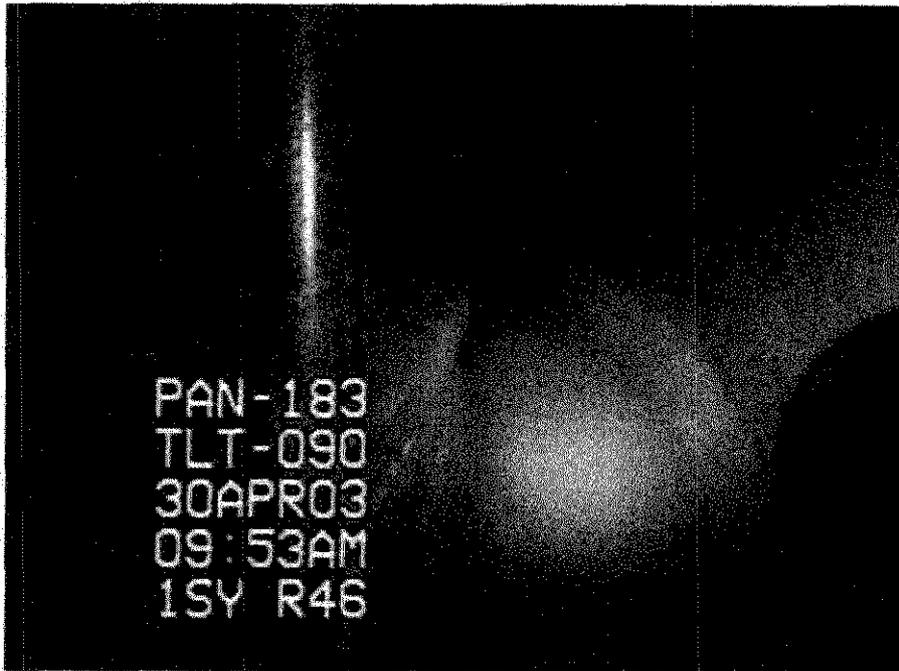


Figure 59 - SY-101 Riser 46, Primary Tank, Annulus Floor (Right, 2003)

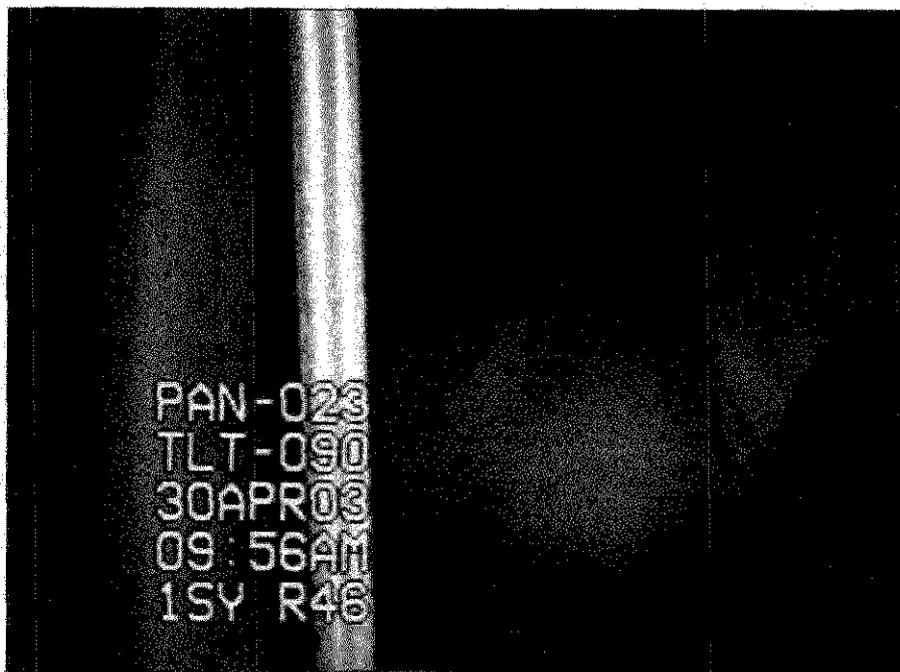


Figure 60 - SY-101 Riser 46, Primary Tank, Annulus Floor (Left, 2003)

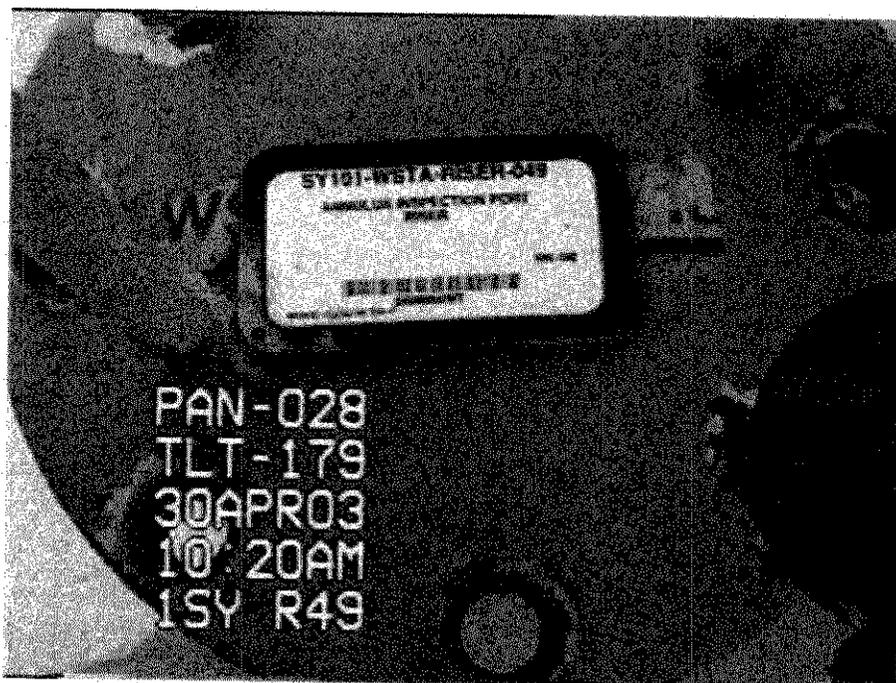


Figure 61 - SY-101 Riser 49, Identification Tag (2003)

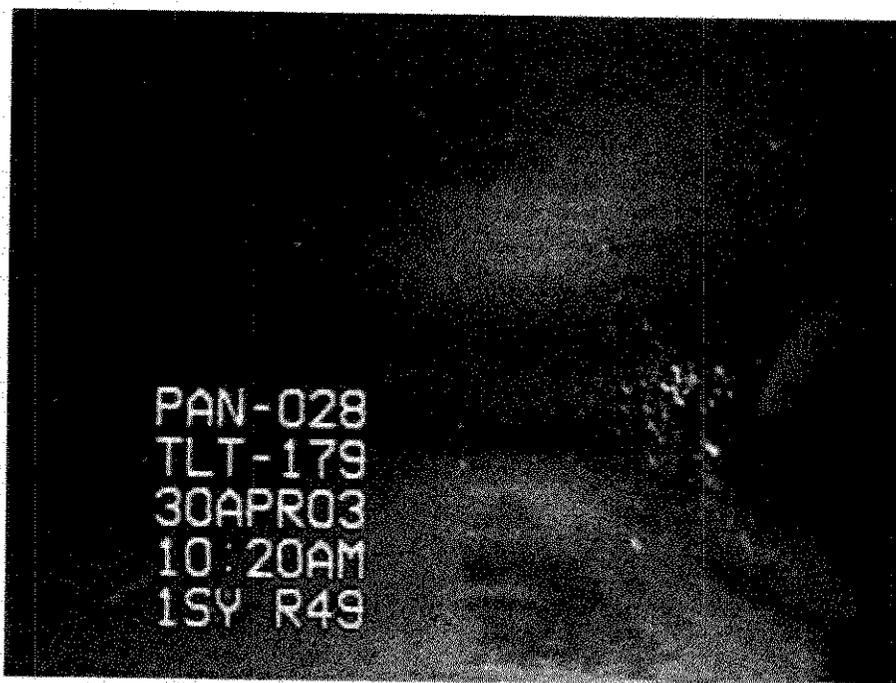


Figure 62 - SY-101 Riser 49, View of Annulus from Riser 49 (2003)

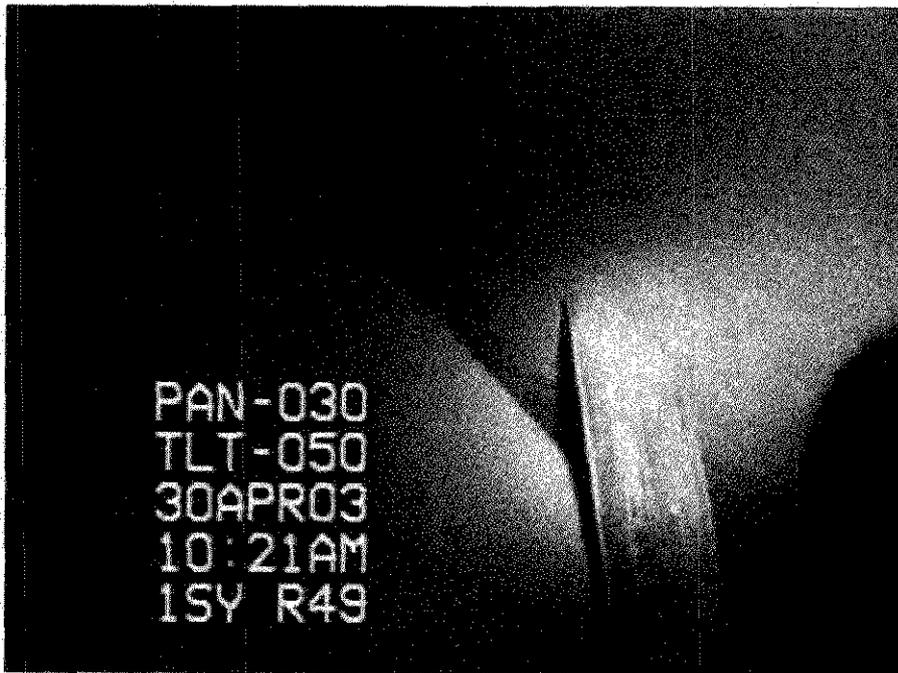


Figure 63 - SY-101 Riser 49, Primary Tank, Primary/Secondary Tank Junction (Right, 2003)

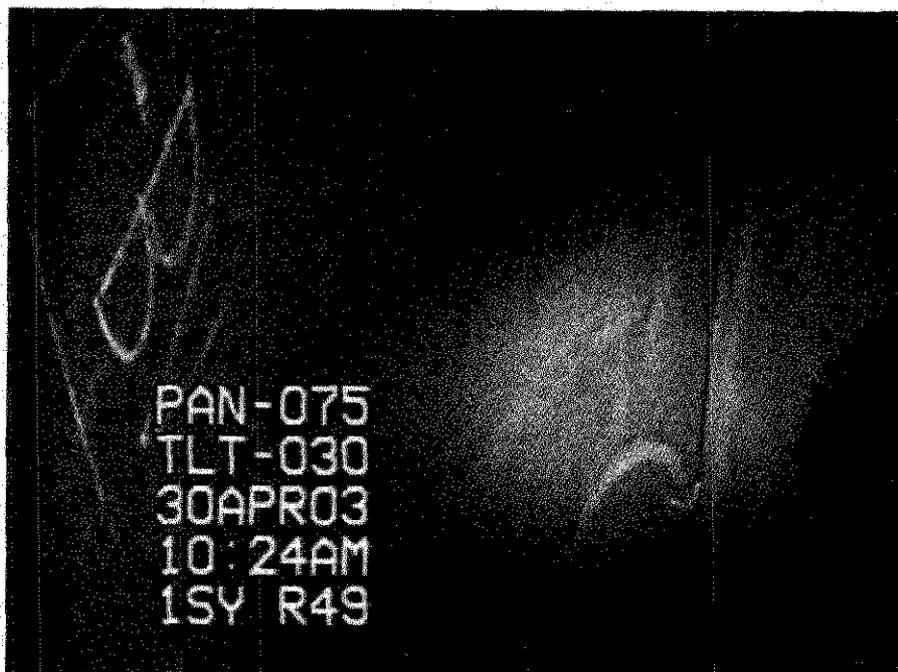


Figure 64 - SY-101 Riser 49, Primary Tank, Primary/Secondary Tank Junction (Left, 2003)

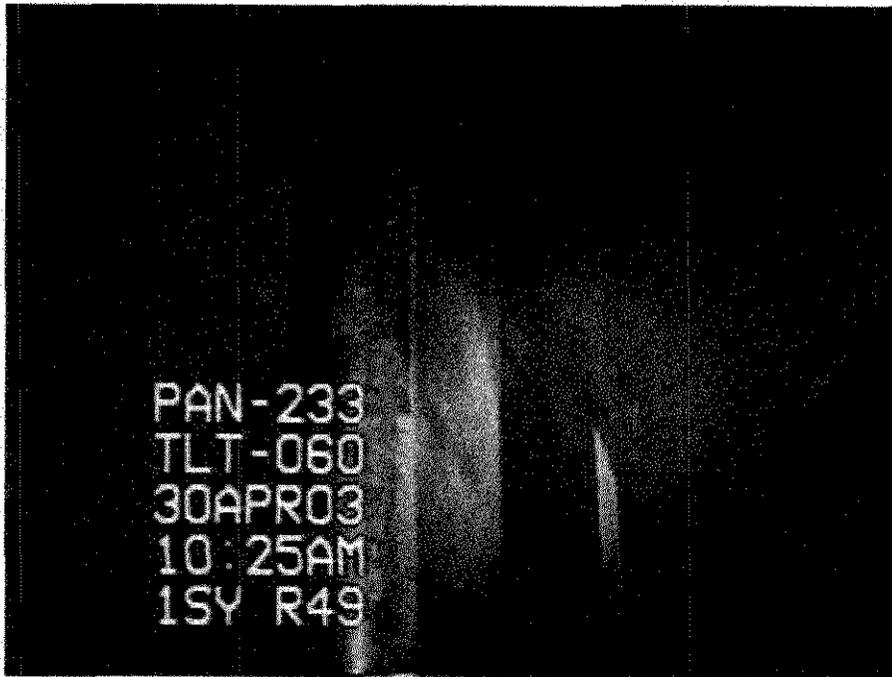


Figure 65 - SY-101 Riser 49, Primary Tank, Primary/Secondary Tanks/Dome (Right, 2003)

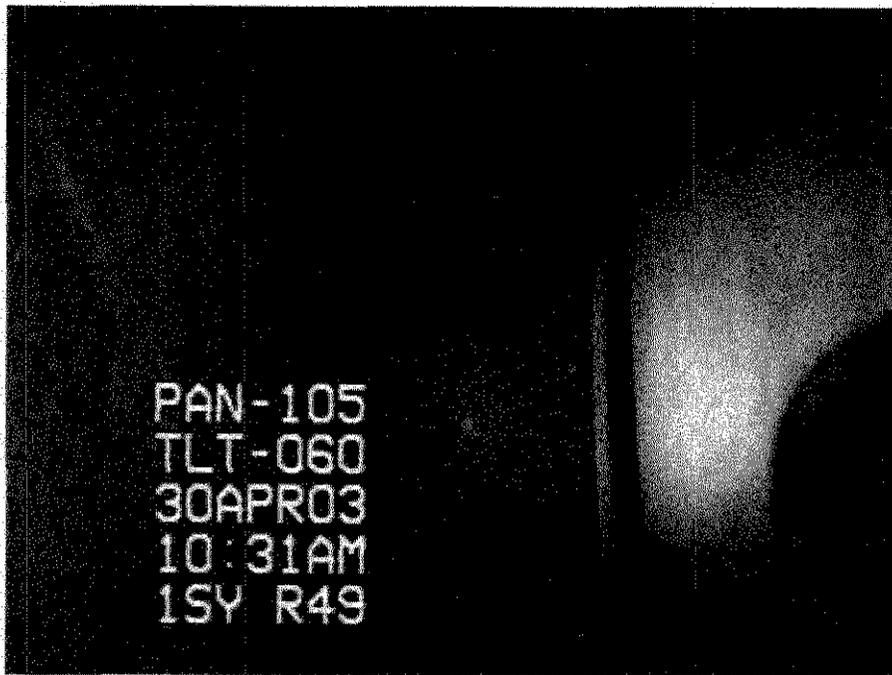


Figure 66 - SY-101 Riser 49, Primary Tank, Primary/Secondary Tanks/Dome (Left, 2003)

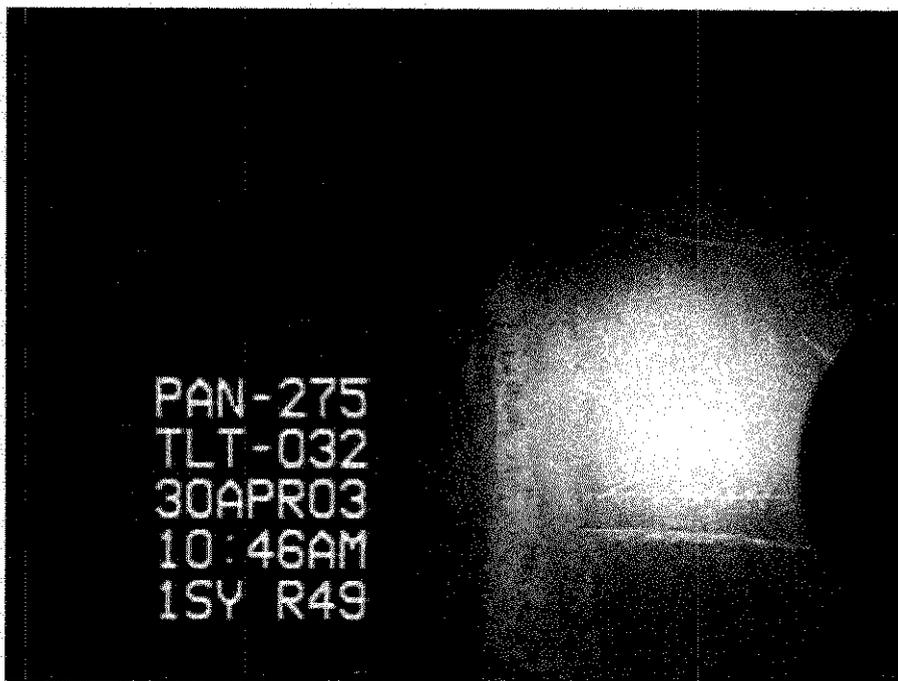


Figure 67 - SY-101 Riser 49, Primary Tank, Vertical Weld/Construction Marks (2003)

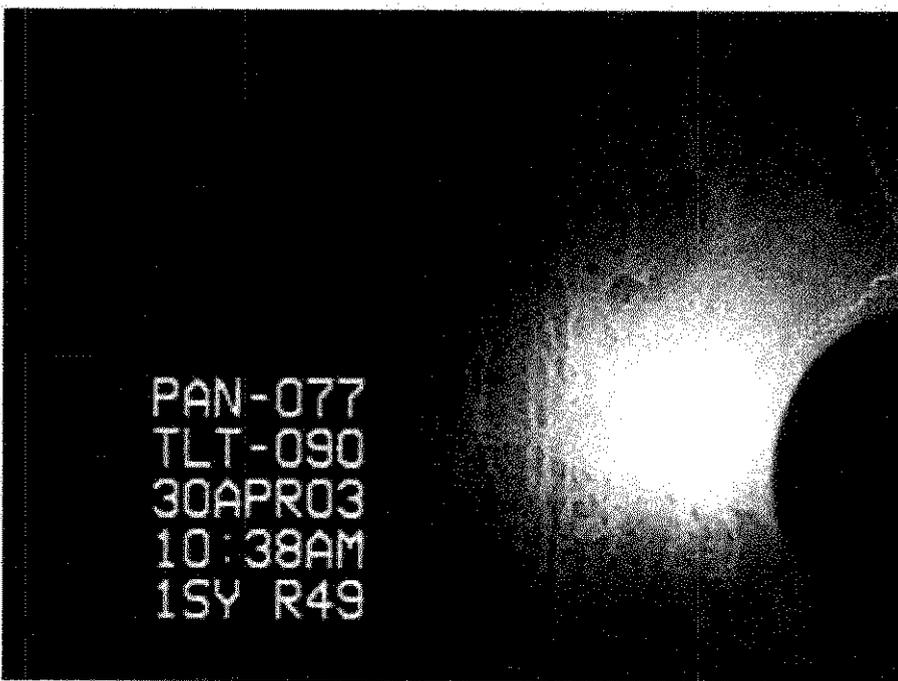


Figure 68 - SY-101 Riser 49, Primary Tank, Laitance Streaks/Mill Scale (2003)

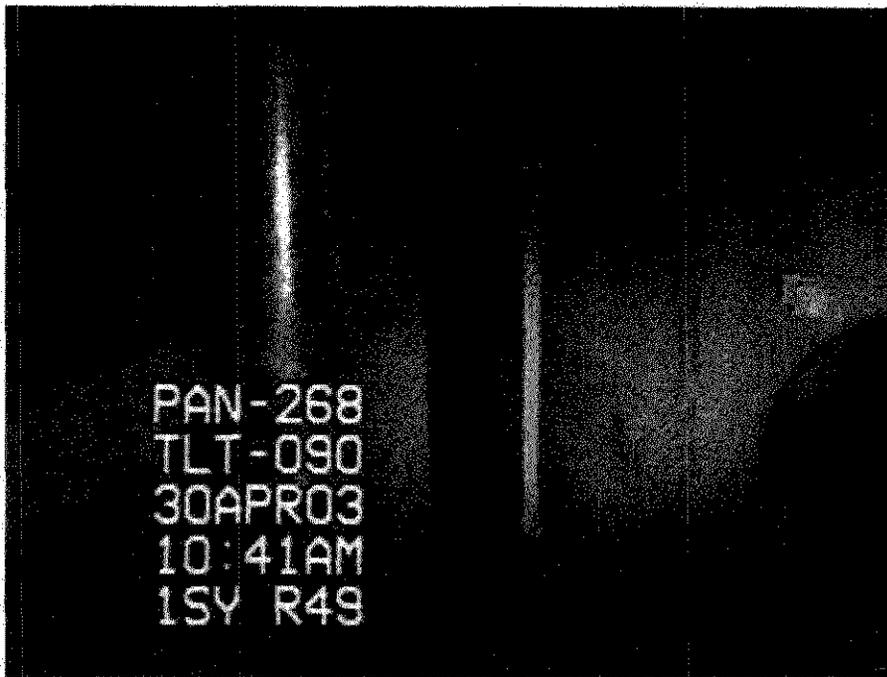


Figure 69 - SY-101 Riser 49, Secondary Tank Wall (Right, 2003)

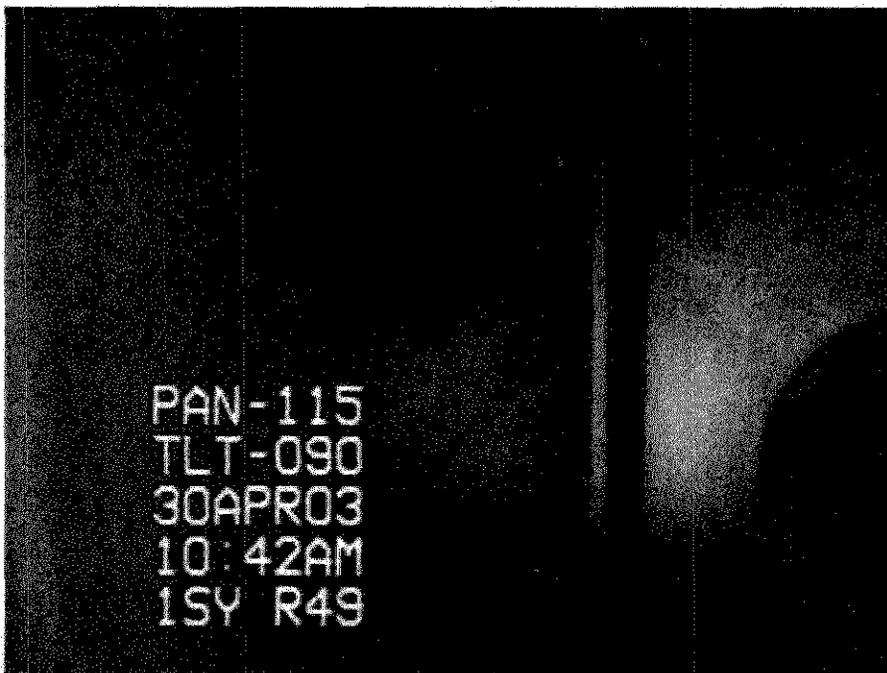


Figure 70 - SY-101 Riser 49, Secondary Tank Wall (Left, 2003)



Figure 71 - SY-101 Riser 49, Primary Tank, Knuckle Weld (2003)



Figure 72 - SY-101 Riser 49, Primary Tank, Knuckle/Concrete Insulating Ring Junction (2003)

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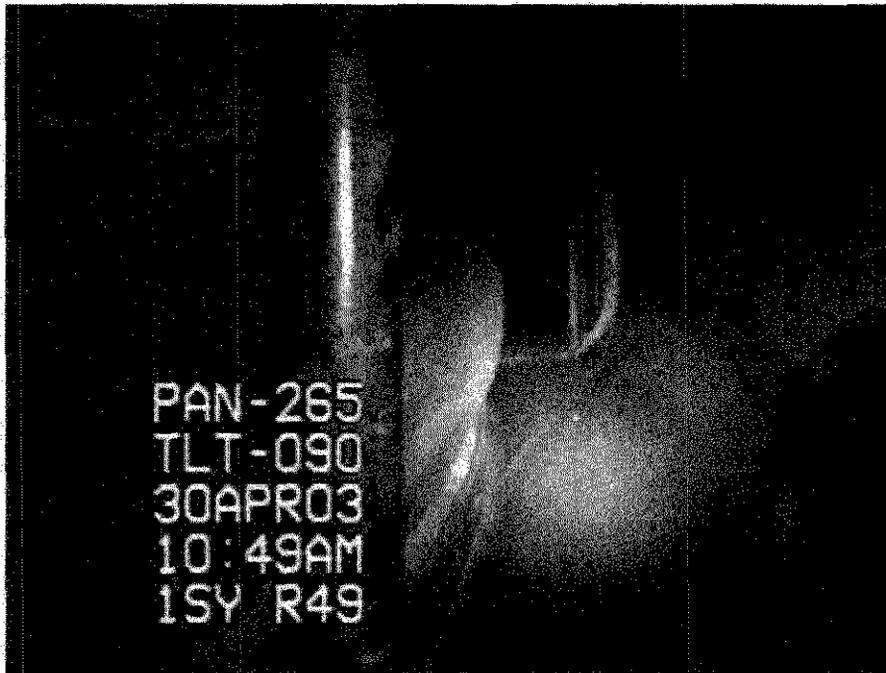


Figure 73 - SY-101 Riser 49, Primary Tank, Annulus Floor/Instrumentation (Right, 2003)

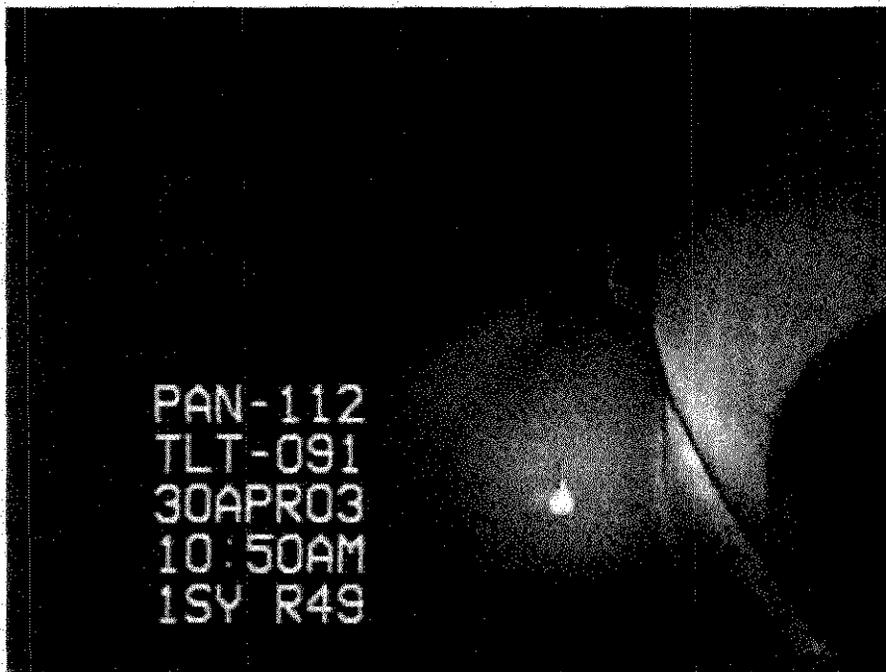


Figure 74 - SY-101 Riser 49, Primary Tank, Annulus Floor/Instrumentation (Left, 2003)

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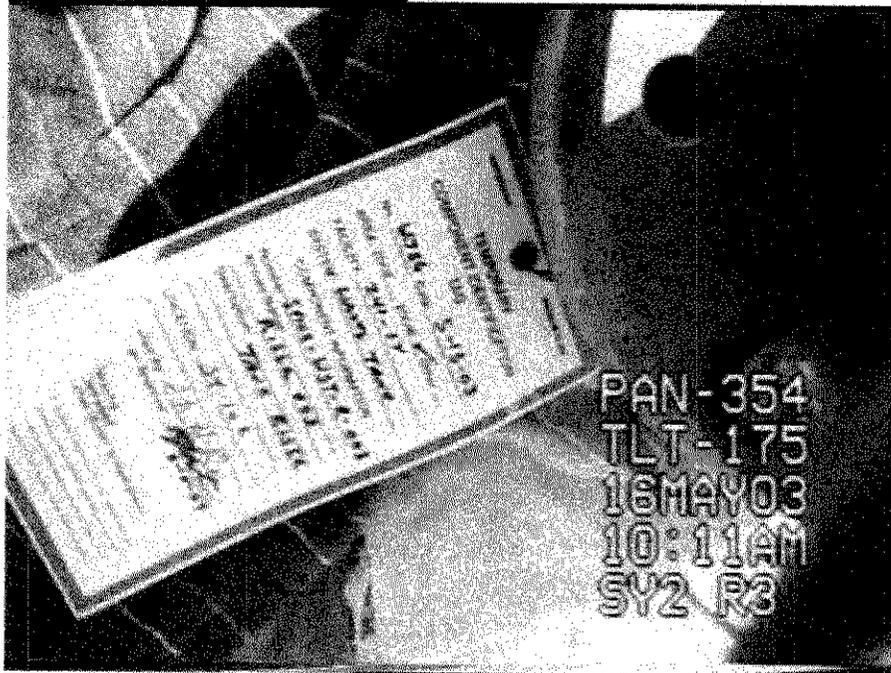


Figure 75 - SY-102 Riser 3, Identification Tag (2003)

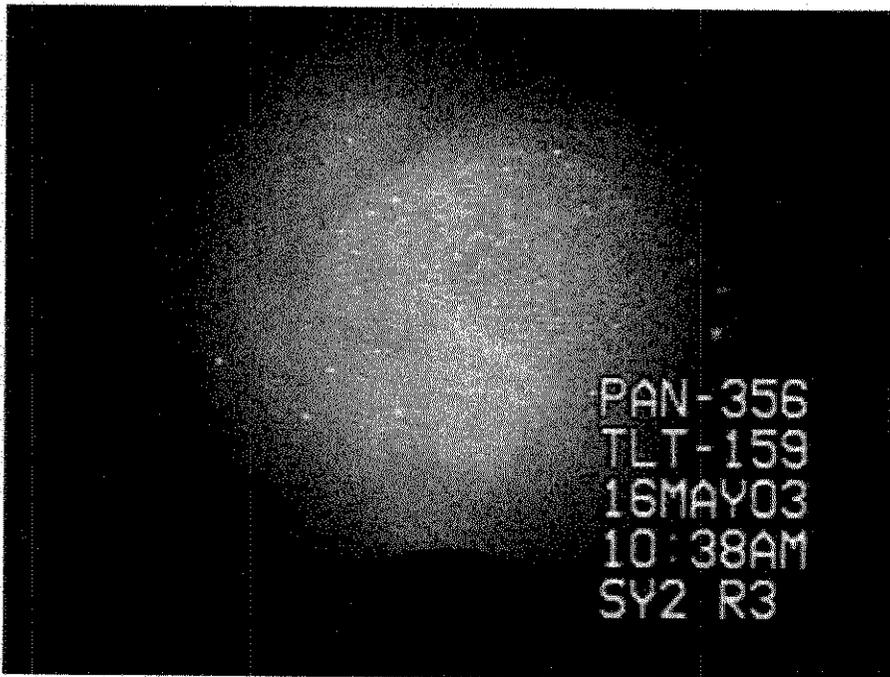


Figure 76 - SY-102 Riser 3, Primary Tank Interior, View of Waste Surface from Riser 3 (2003)

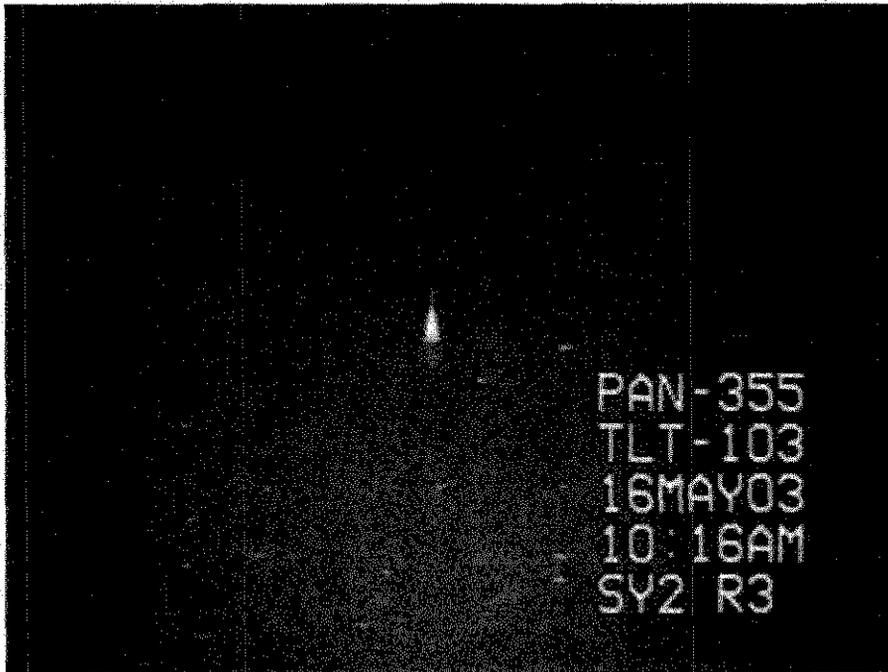


Figure 77 - SY-102 Riser 3, Primary Tank Interior, Waste Surface/Leak Detection Instrumentation (2003)

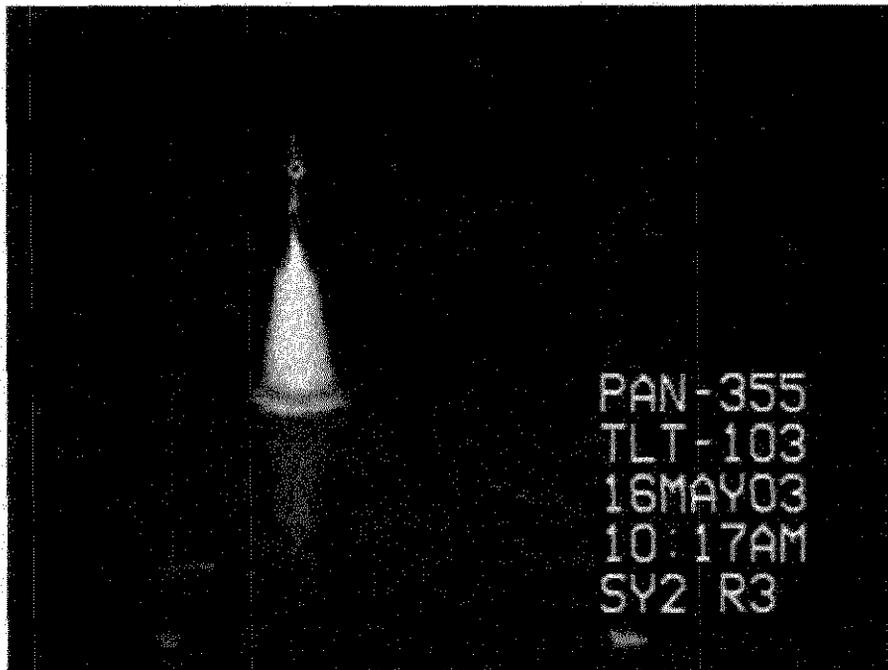


Figure 78 - SY-102 Riser 3, Primary Tank Interior, Waste Surface/Leak Detector Close-up (2003)

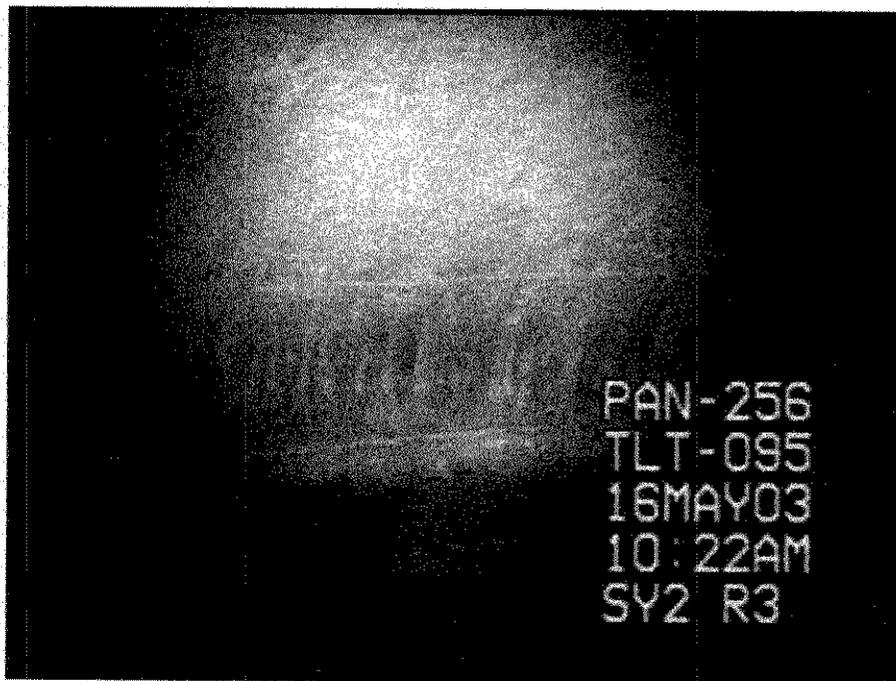


Figure 79 - SY-102 Riser 3, Primary Tank Interior, Corrosion on Interior Wall (2003)

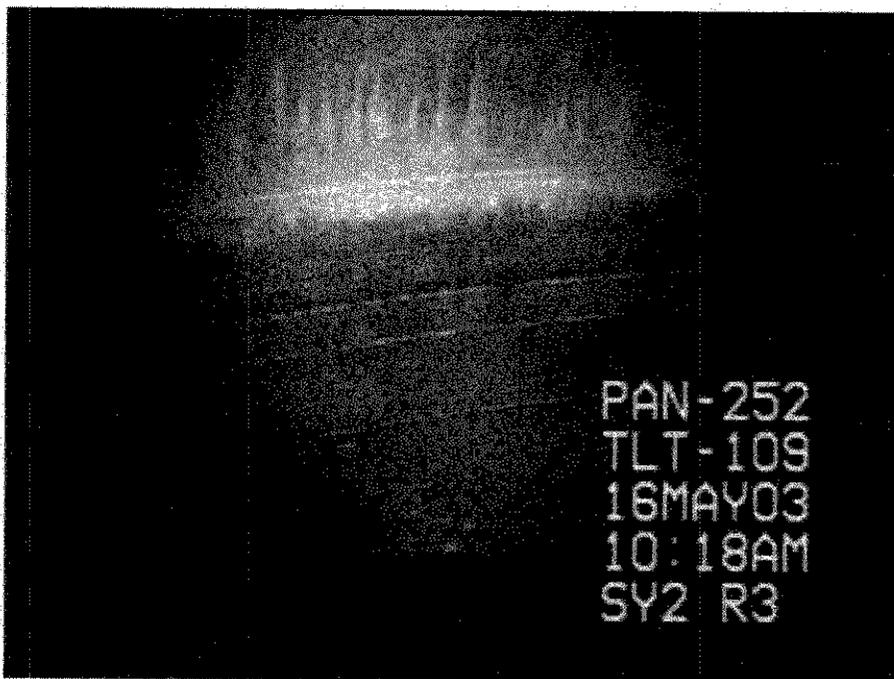


Figure 80 - SY-102 Riser 3, Primary Tank Interior, Waste Rings on Interior Wall (2003)

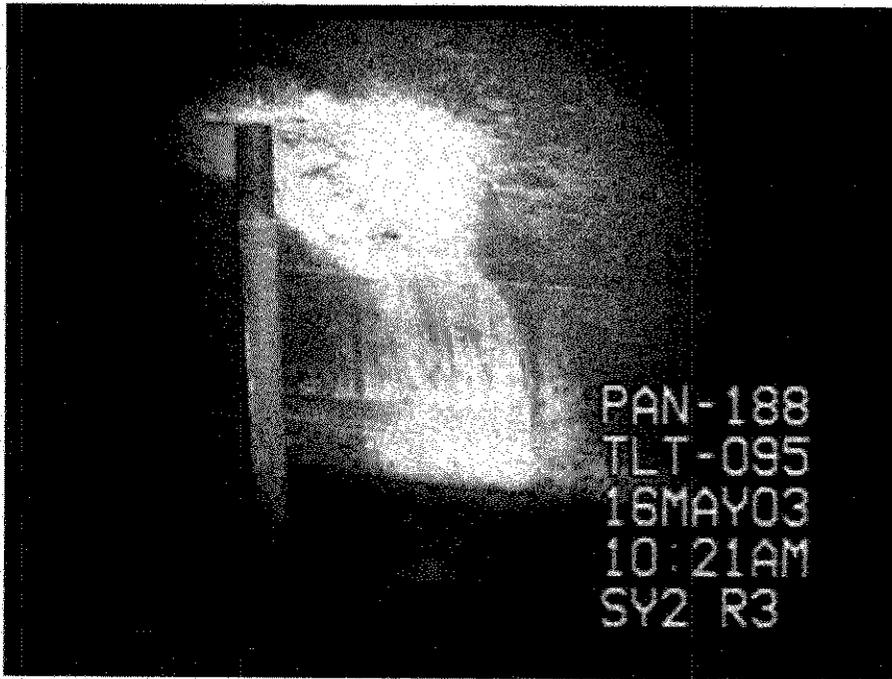


Figure 81 - SY-102 Riser 3, Primary Tank Interior, Stain on Interior Wall at Riser (2003)

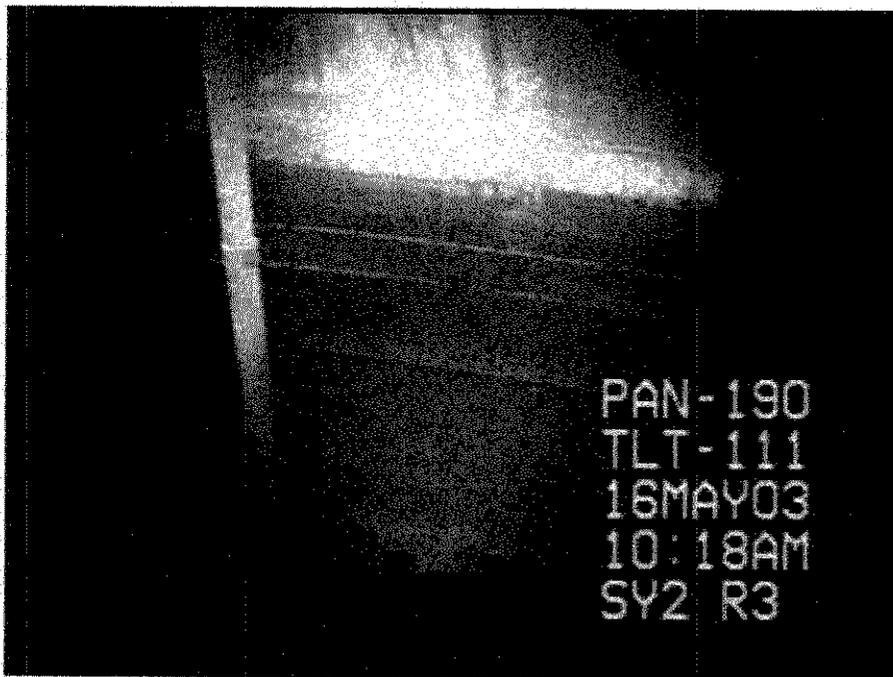


Figure 82 - SY-102 Riser 3, Primary Tank Interior, Waste Surface/Tank Wall/Haunch (2003)



Figure 83 - SY-102 Riser 3, Primary Tank Interior, Central Pump Pit Riser/Instrumentation (2003)

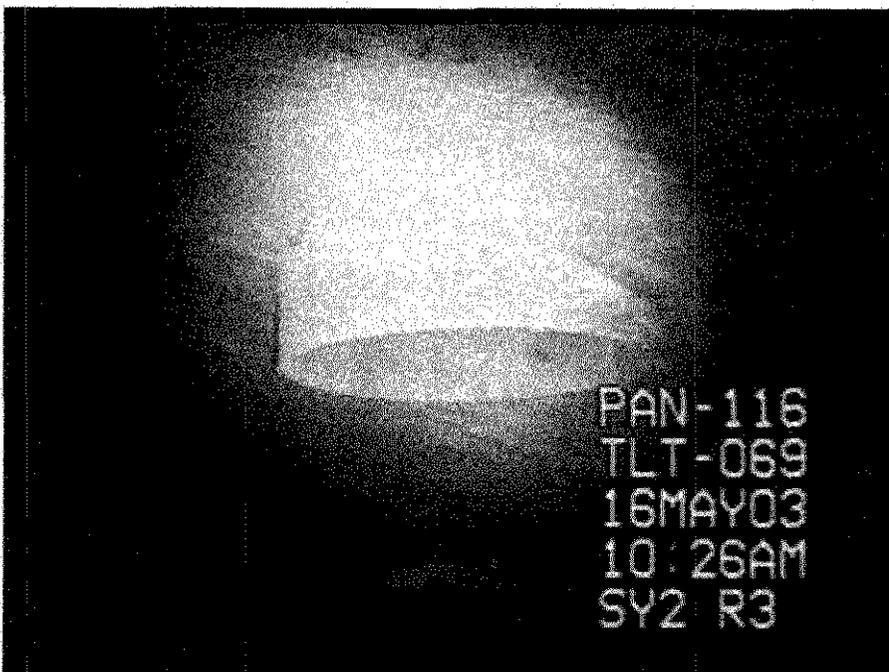


Figure 84 - SY-102 Riser 3, Primary Tank Interior, Dome Riser Close-up (2003)

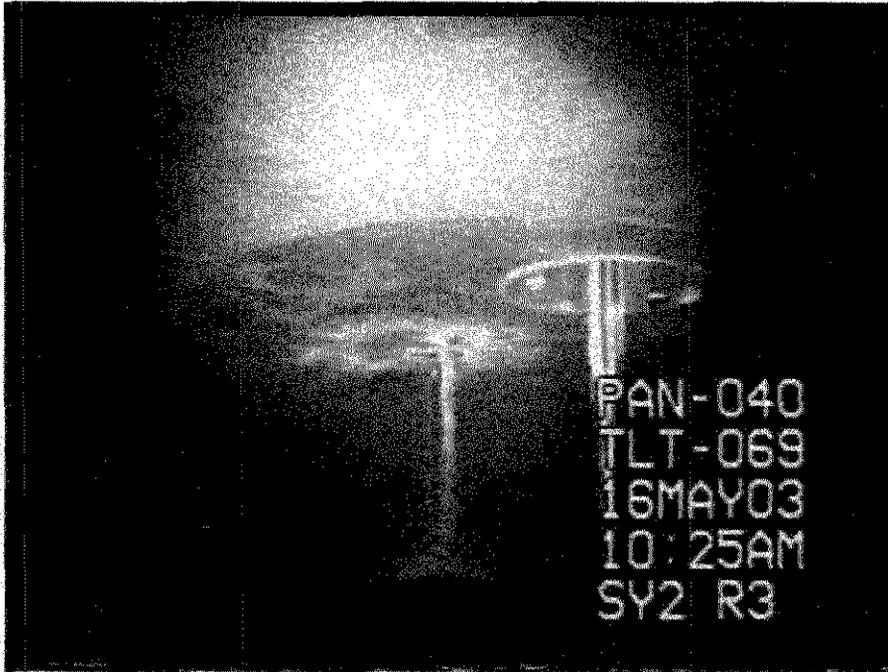


Figure 85 - SY-102 Riser 3, Primary Tank Interior, Stains at Central Pump Pit Risers (2003)

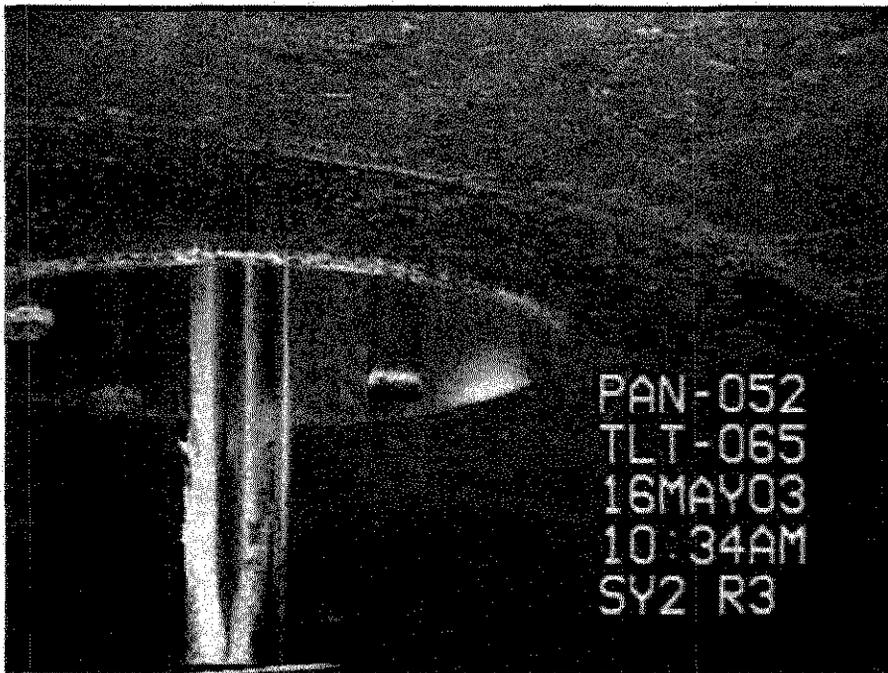


Figure 86 - SY-102 Riser 3, Primary Tank Interior, Central Pump Pit Riser/Instrumentation Close-up (2003)

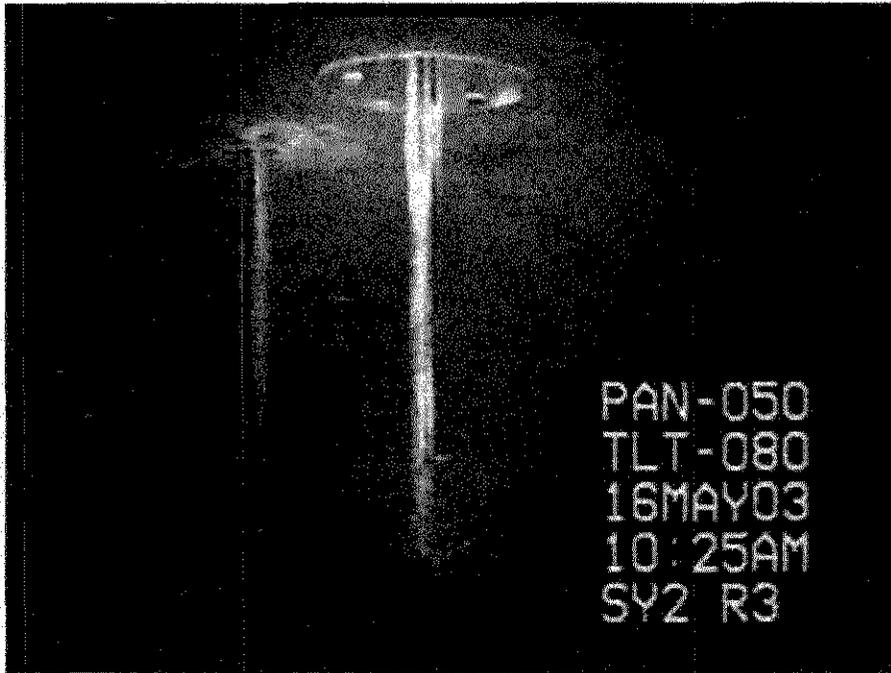


Figure 87 - SY-102 Riser 3, Primary Tank Interior, Instrumentation/Waste Surface (2003)

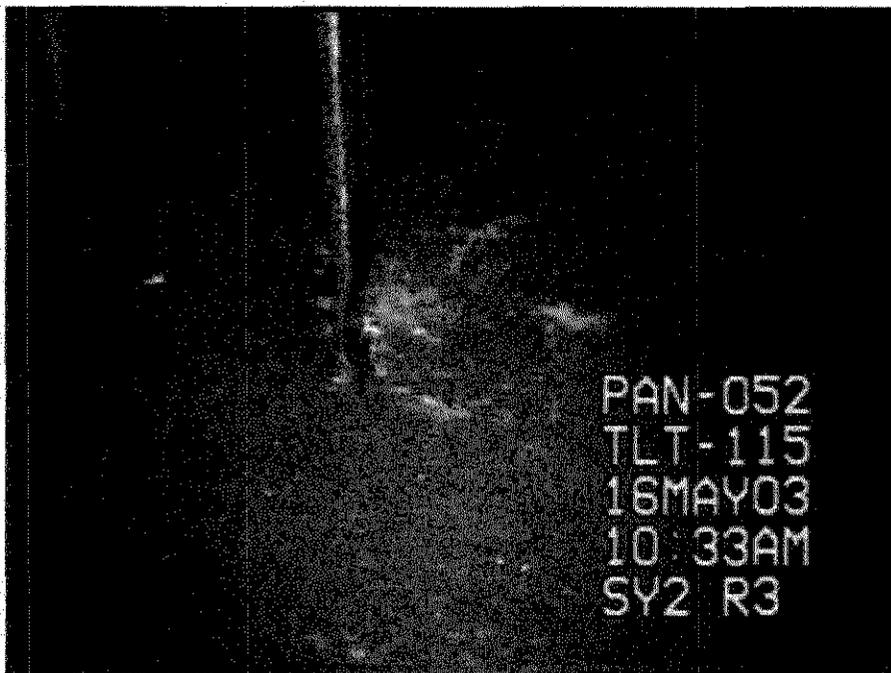


Figure 88 - SY-102 Riser 3, Primary Tank Interior, Liquid Waste During Pumping (2003)

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Figure 89 - SY-102 Riser 40, Identification Tag (2003)

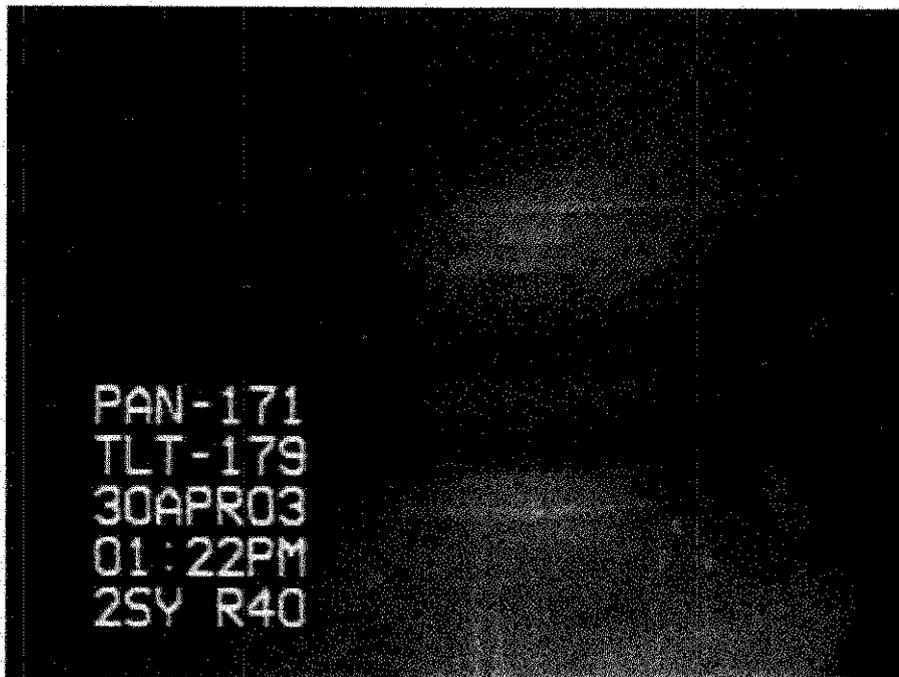


Figure 90 - SY-102 Riser 40, View of Annulus from Riser 40 (2003)

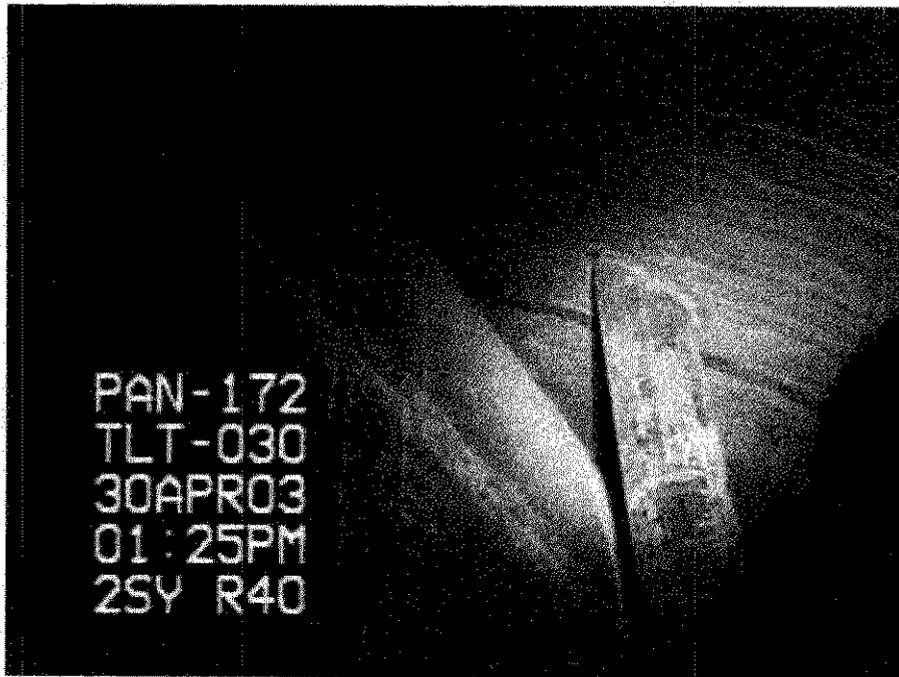


Figure 91 - SY-102 Riser 40, Primary Tank, Primary/Secondary Tank Junction (Right, 2003)

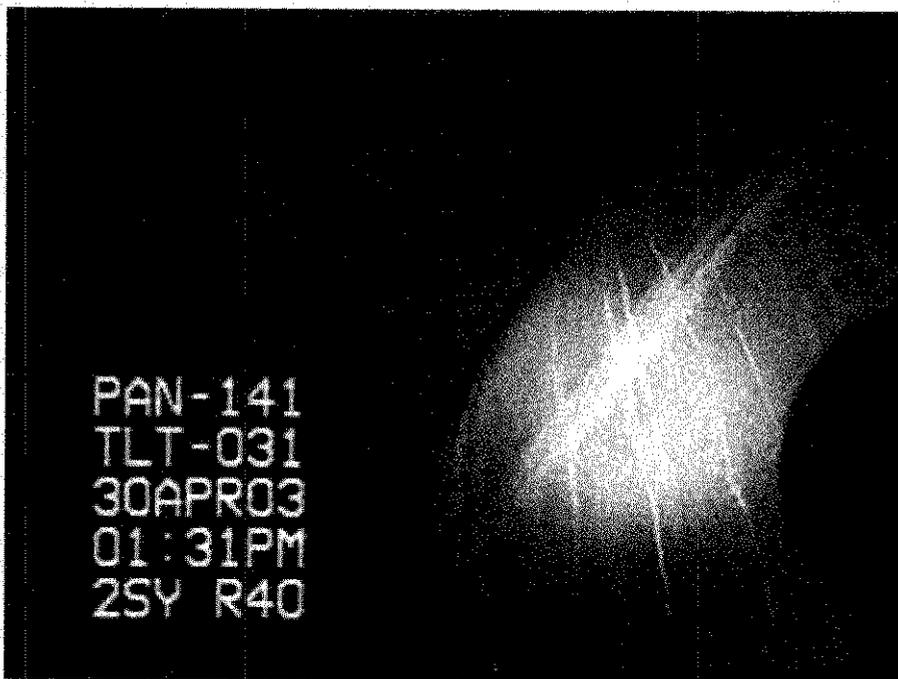


Figure 92 - SY-102 Riser 40, Primary Tank, Primary/Secondary Tank Junction (Left, 2003)

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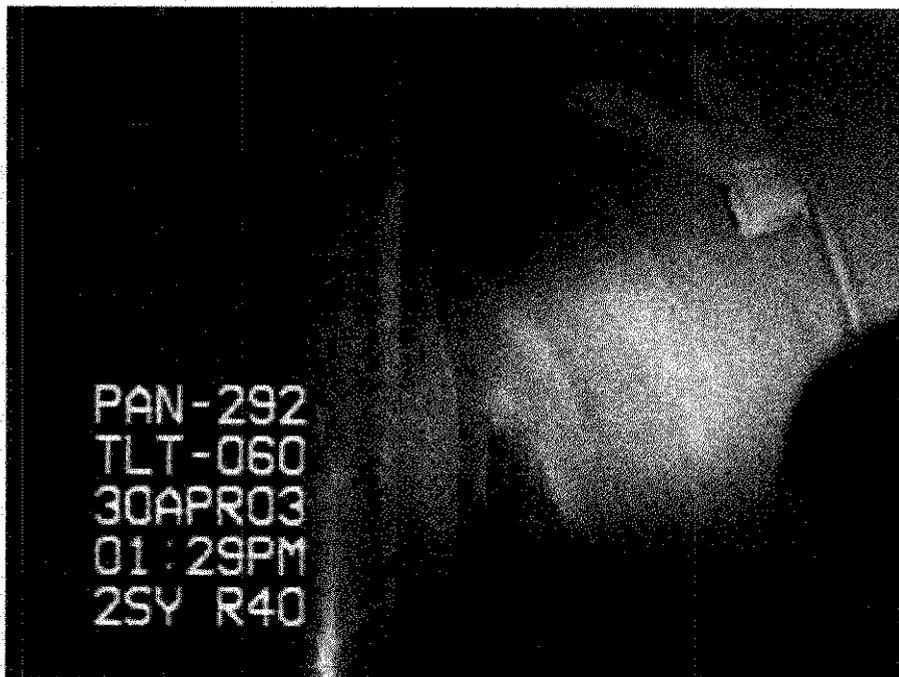


Figure 93 - SY-102 Riser 40, Primary Tank, Primary/Secondary Tanks/Dome (Right, 2003)

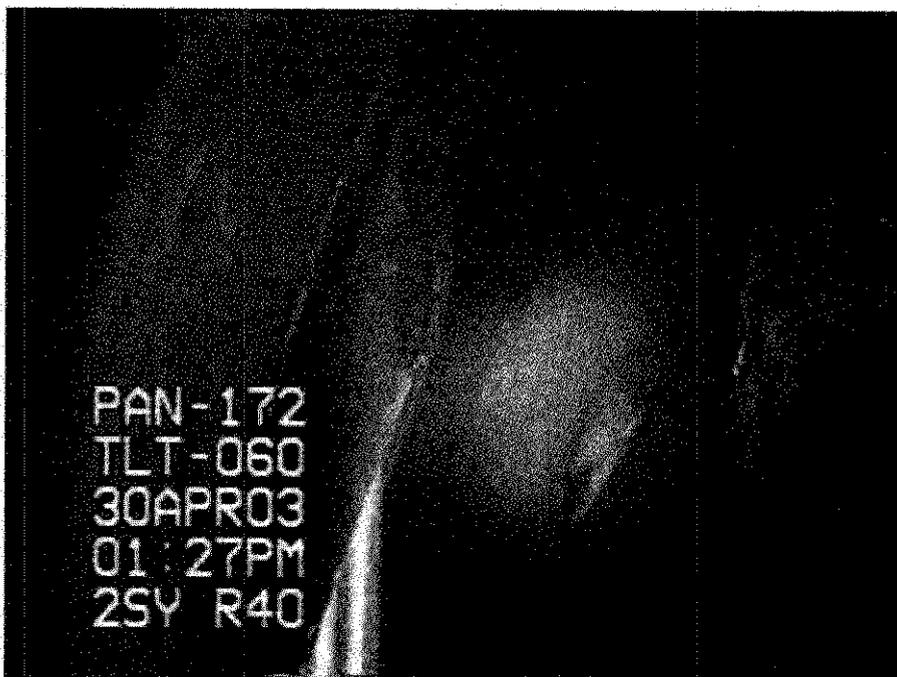


Figure 94 - SY-102 Riser 40, Primary Tank, Primary/Secondary Tanks/Dome (Left, 2003)

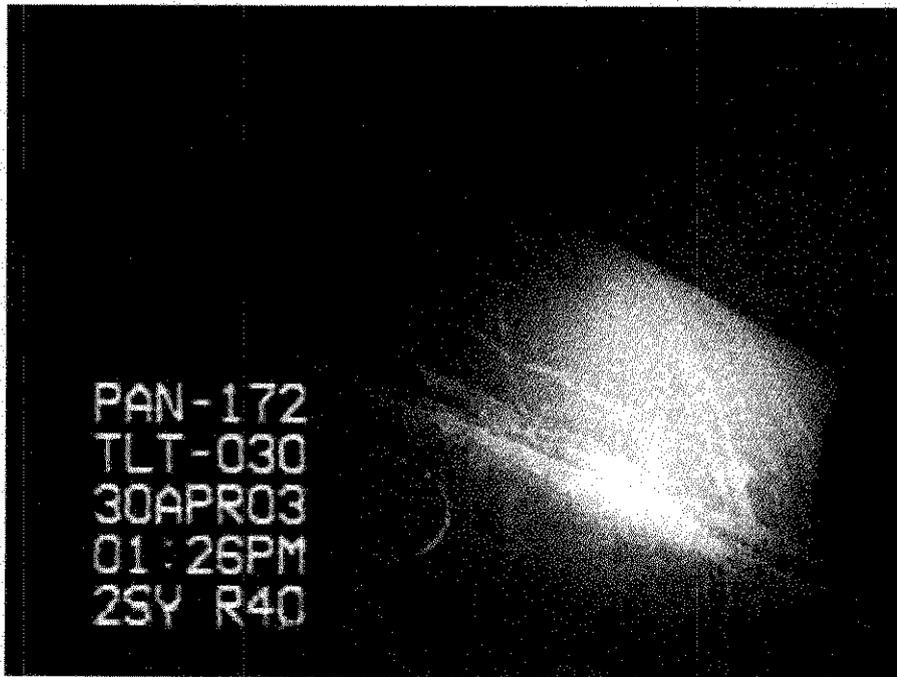


Figure 95 - SY-102 Riser 40, Primary Tank, Haunch/Vertical Weld/Construction Marks (2003)

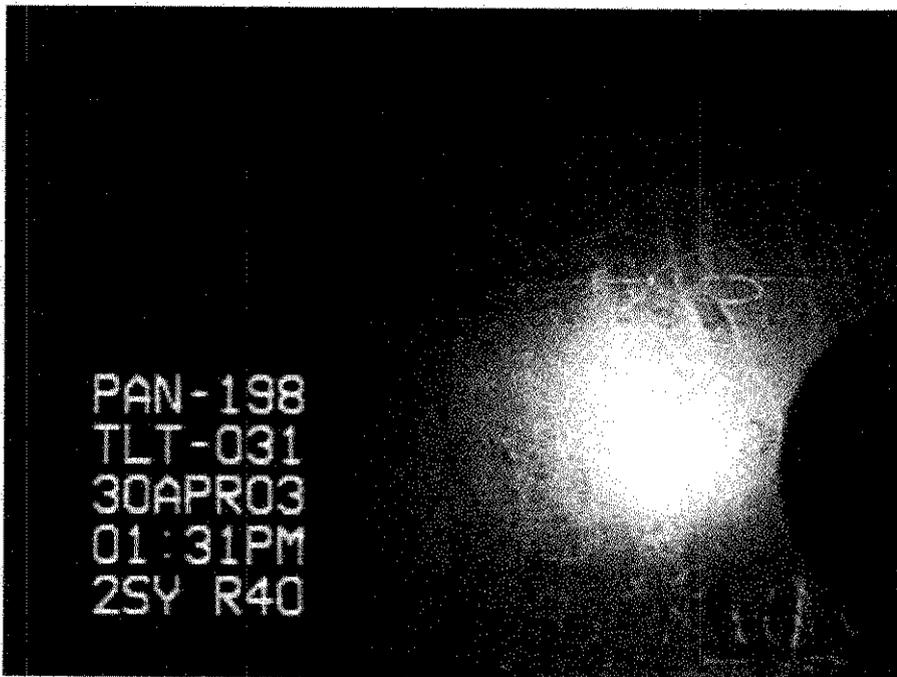


Figure 96 - SY-102 Riser 40, Primary Tank, Laitance Streaks/Mill Scale (2003)

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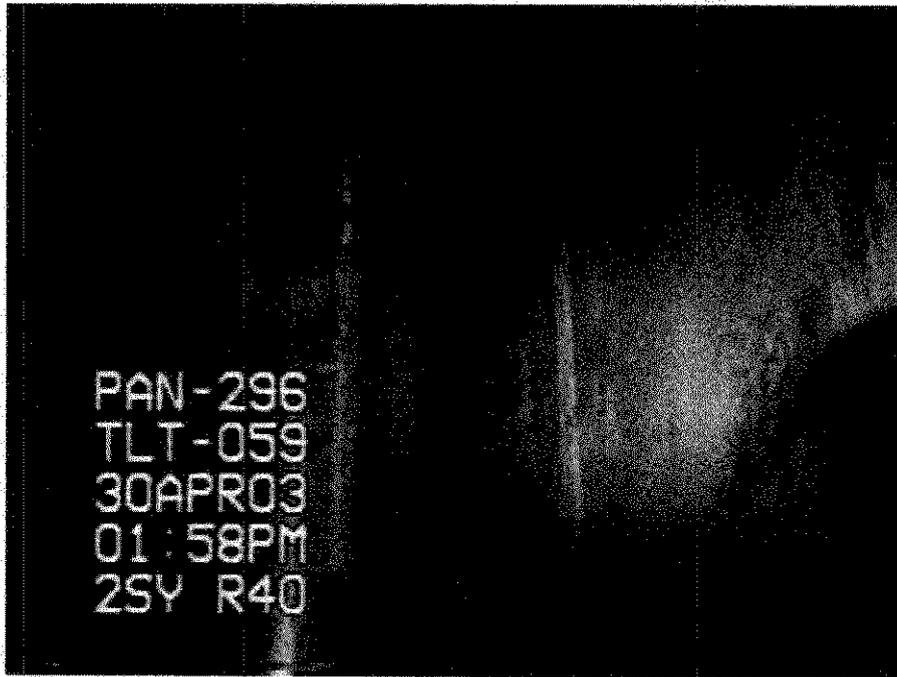


Figure 97 - SY-102 Riser 40, Secondary Tank Wall (Right, 2003)

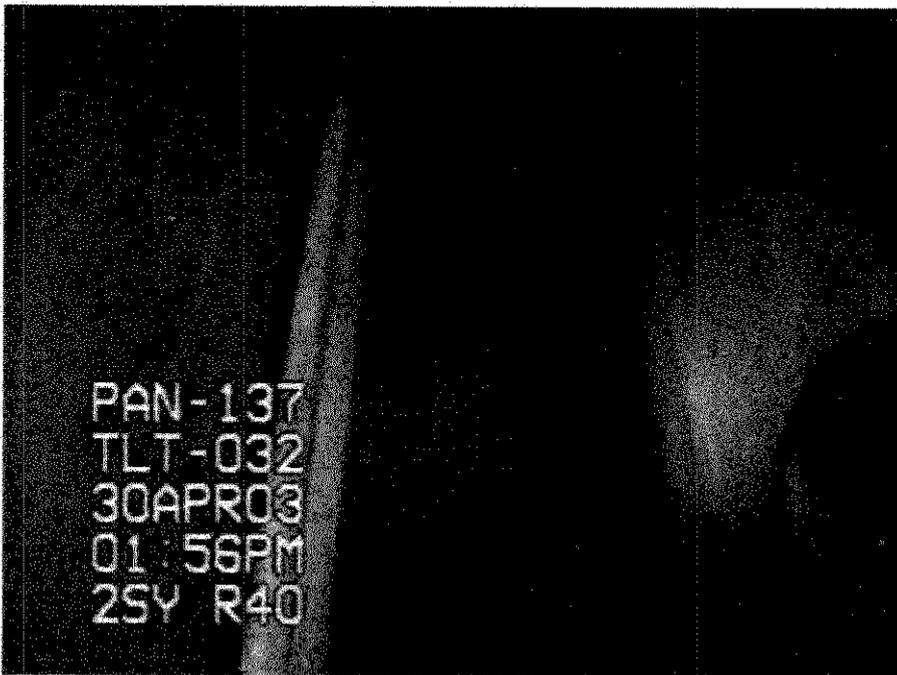


Figure 98 - SY-102 Riser 40, Secondary Tank Wall (Left, 2003)

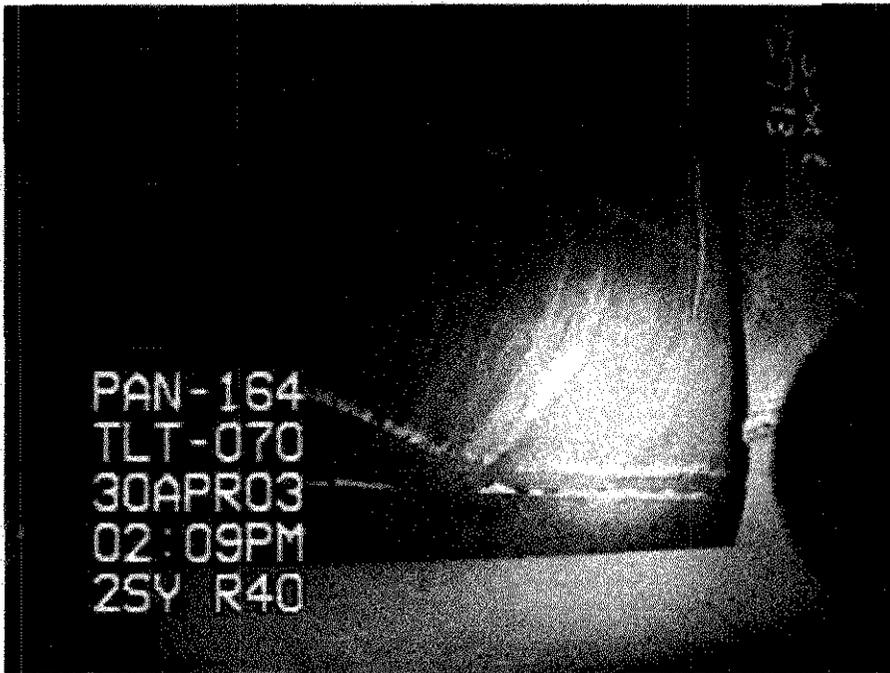


Figure 99 - SY-102 Riser 40, Primary Tank, Knuckle Weld (2003)

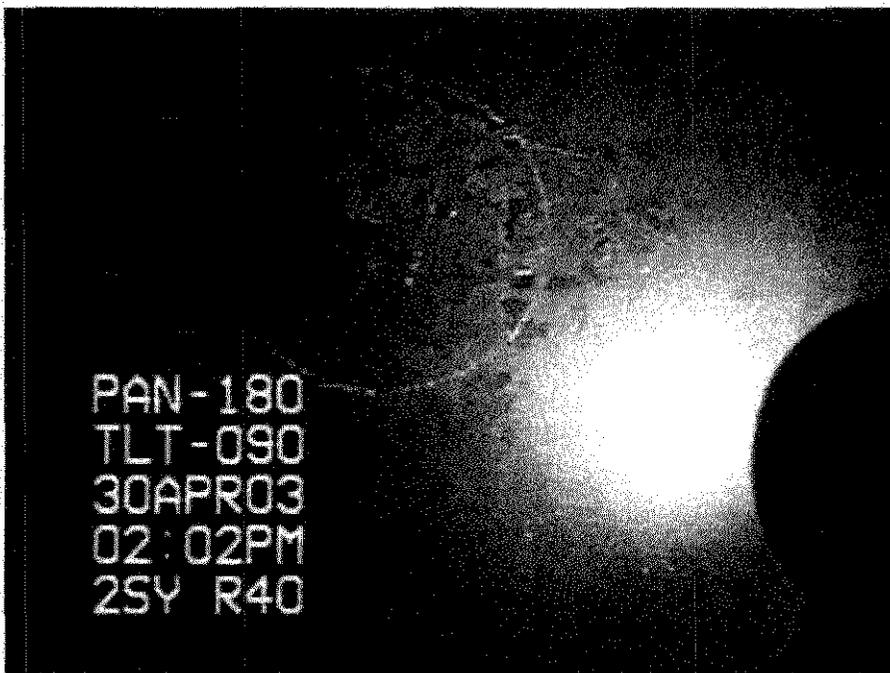


Figure 100 - SY-102 Riser 40, Primary Tank, Mill Scale/Construction Marks (2003)

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Figure 101 - SY-102 Riser 40, Primary Tank, Annulus Floor (Right, 2003)

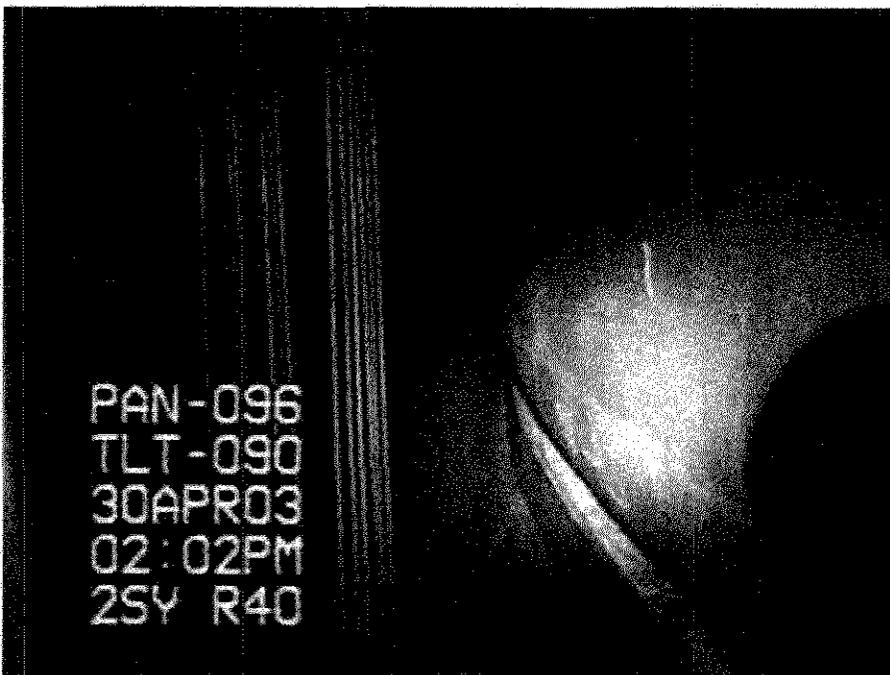


Figure 102 - SY-102 Riser 40, Primary Tank, Annulus Floor/Instrumentation/Concrete Insulating Ring (Left, 2003)

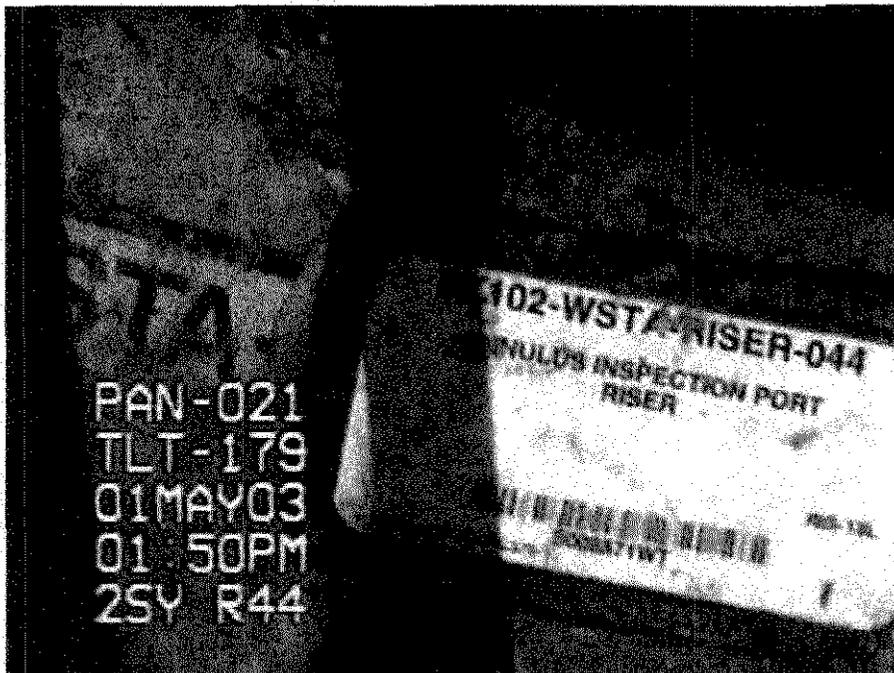


Figure 103 - SY-102 Riser 44, Identification Tag (2003)



Figure 104 - SY-102 Riser 44, View of Annulus from Riser 44 (2003)

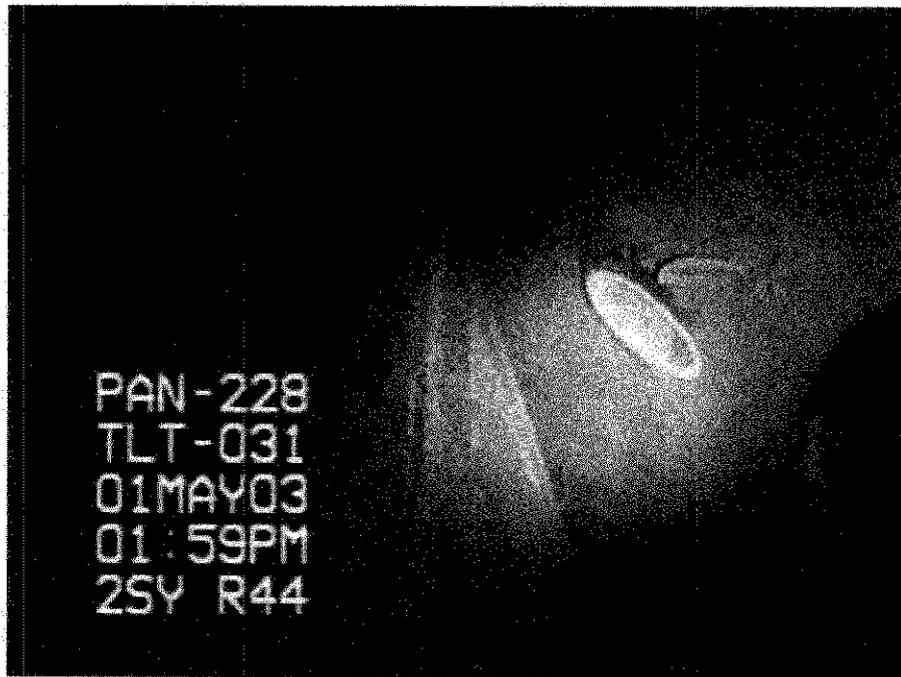


Figure 105 - SY-102 Riser 44, Primary Tank, Primary/Secondary Tank Junction (Right, 2003)

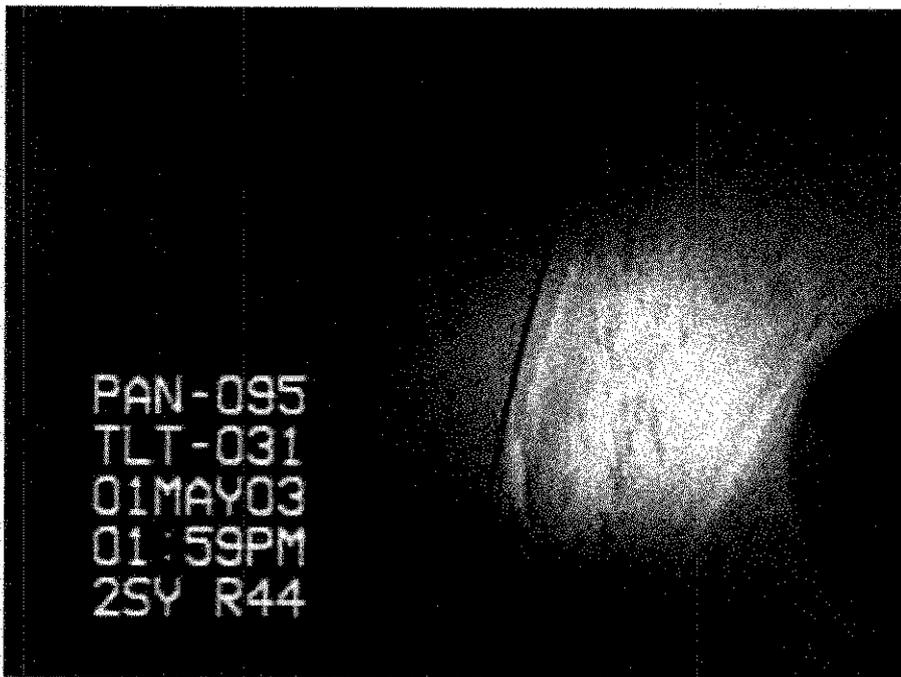


Figure 106 - SY-102 Riser 44, Primary Tank, Primary/Secondary Tank Junction (Left, 2003)

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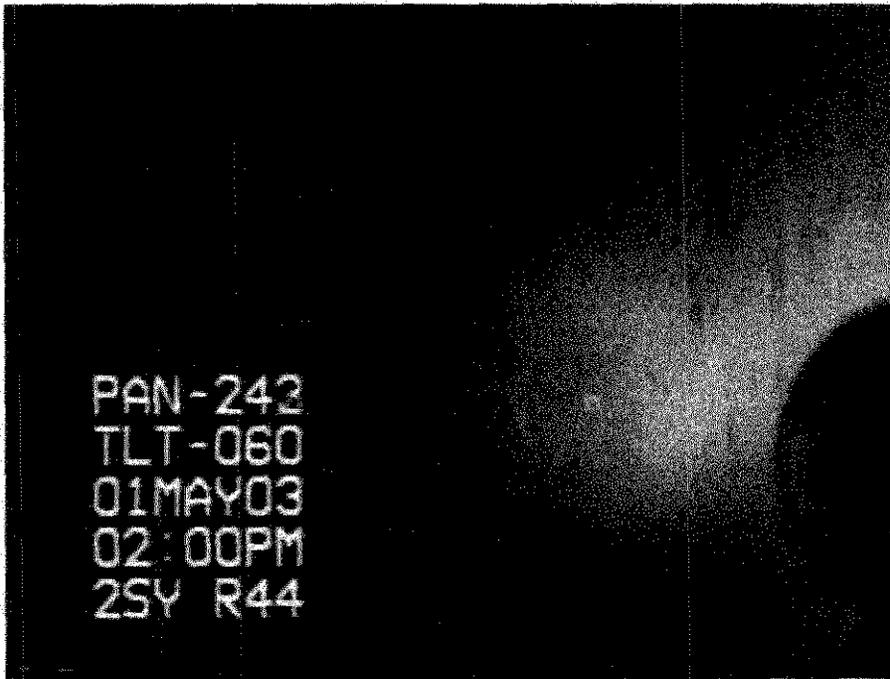


Figure 107 - SY-102 Riser 44, Primary Tank, Primary/Secondary Tanks/Dome (Right, 2003)

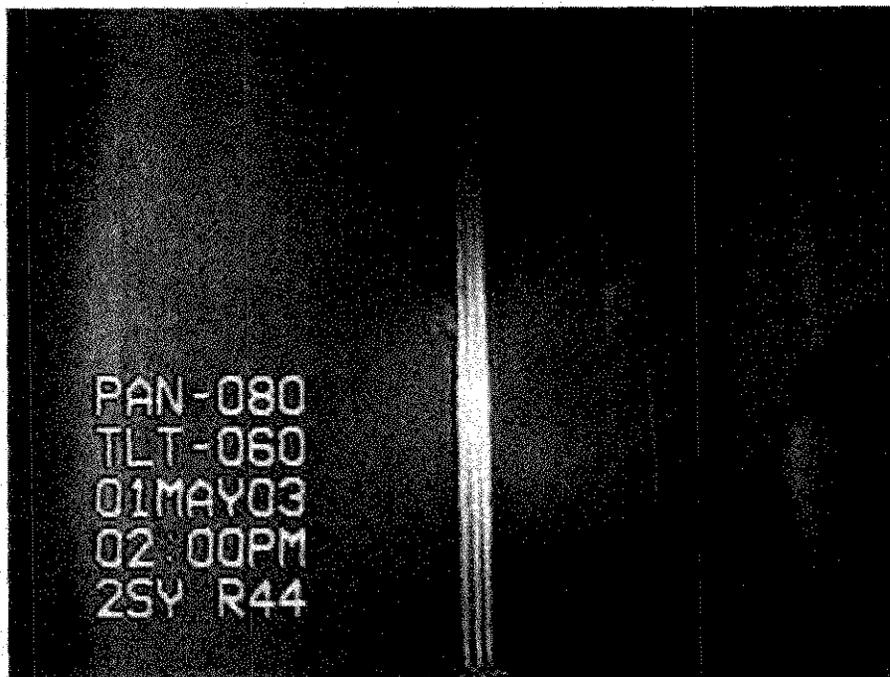


Figure 108 - SY-102 Riser 44, Primary Tank, Primary/Secondary Tanks/Dome (Left, 2003)

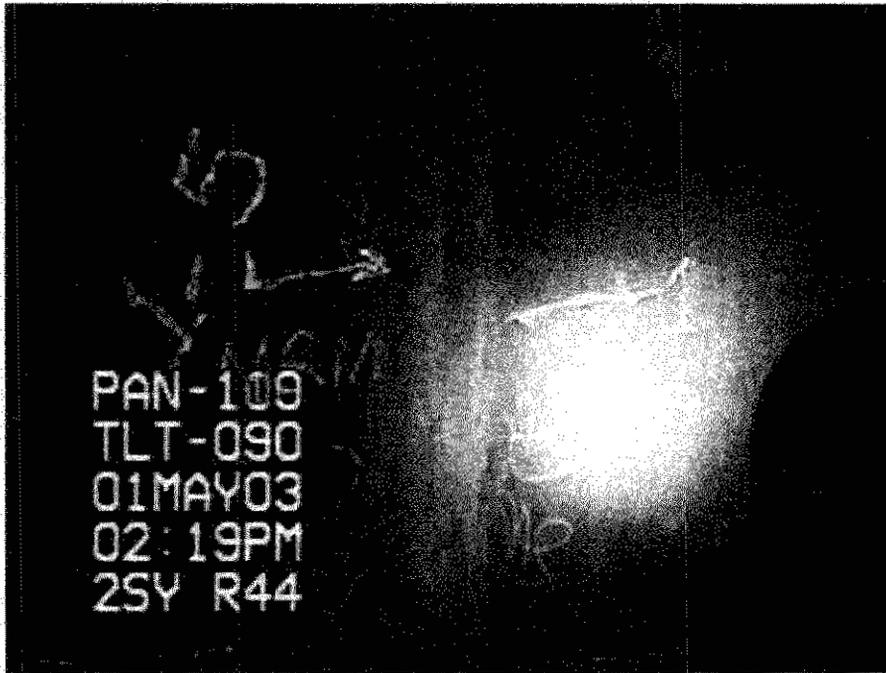


Figure 109 - SY-102 Riser 44, Primary Tank, Vertical Weld/Construction Marks (2003)

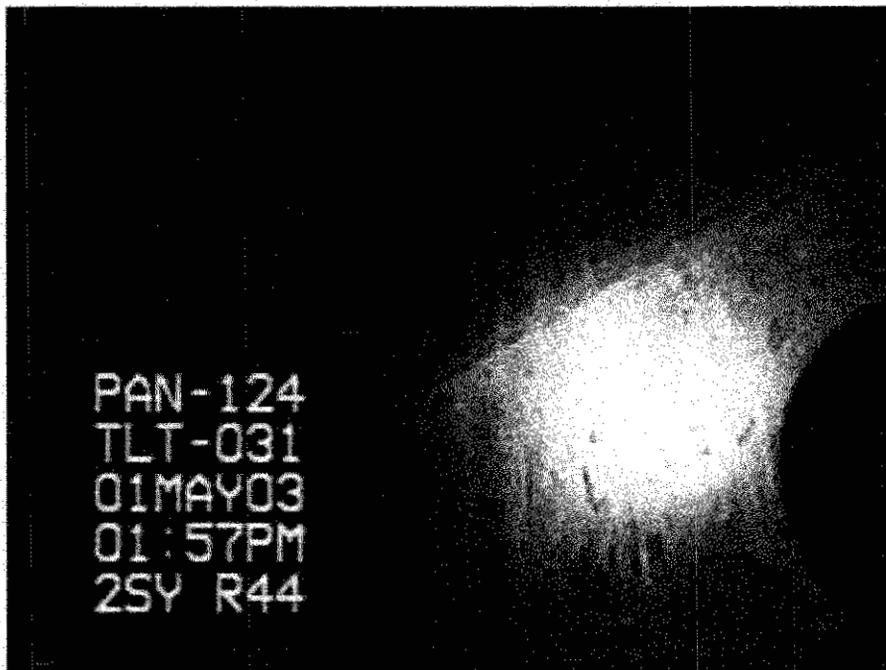


Figure 110 - SY-102 Riser 44, Primary Tank, Haunch/Laitance Streaks/Mill Scale (2003)

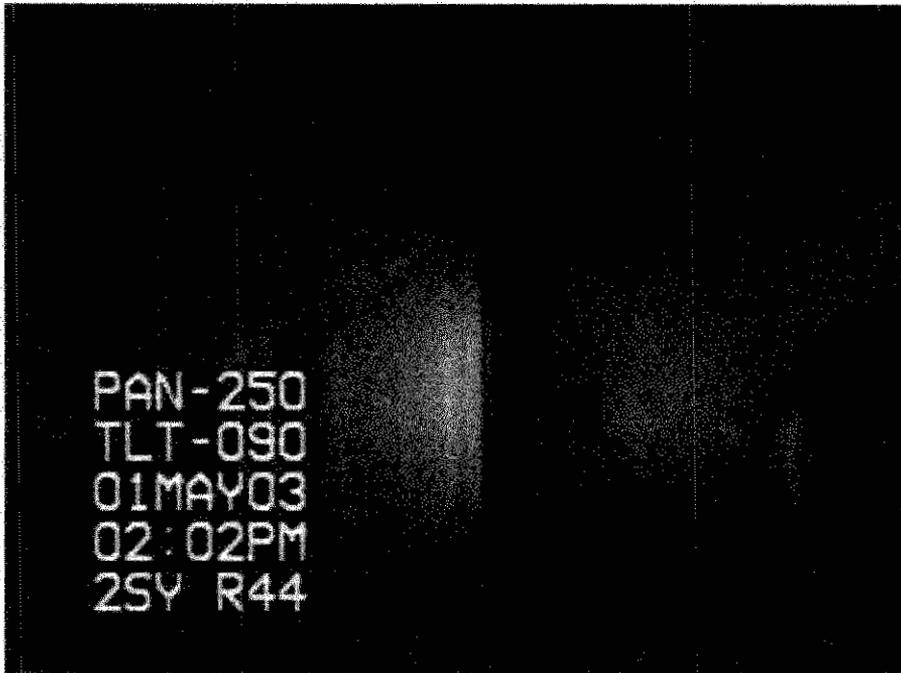


Figure 111 - SY-102 Riser 44, Secondary Tank Wall (Right, 2003)

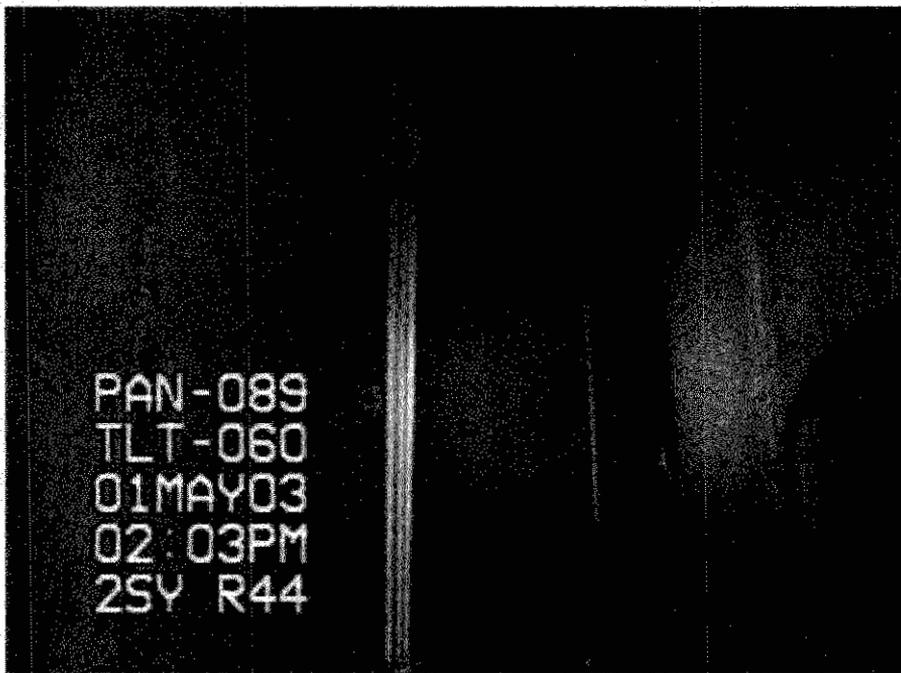


Figure 112 - SY-102 Riser 44, Secondary Tank Wall (Left, 2003)

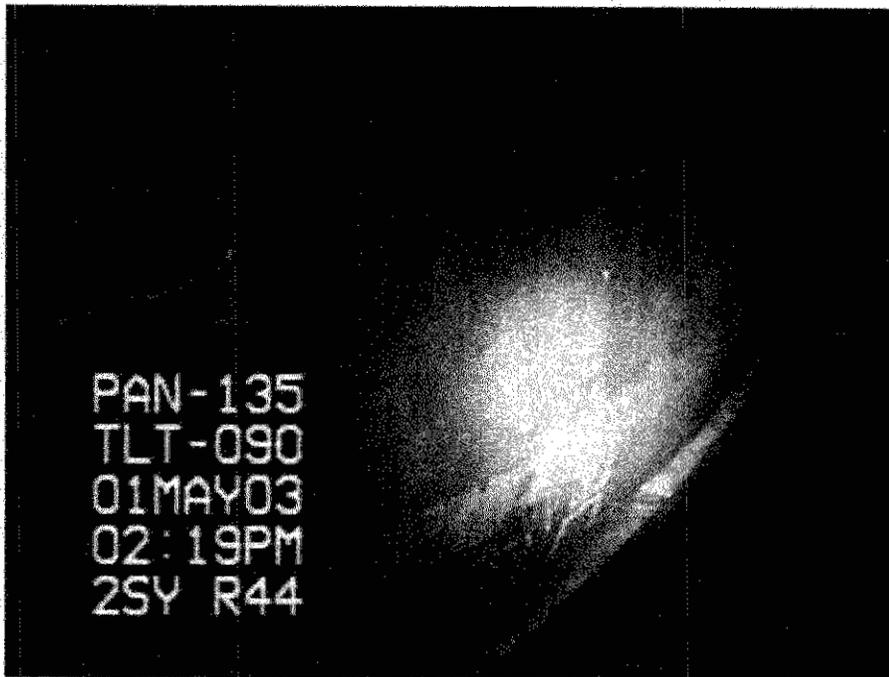


Figure 113 - SY-102 Riser 44, Primary Tank, Knuckle Weld/Concrete Insulating Ring (2003)

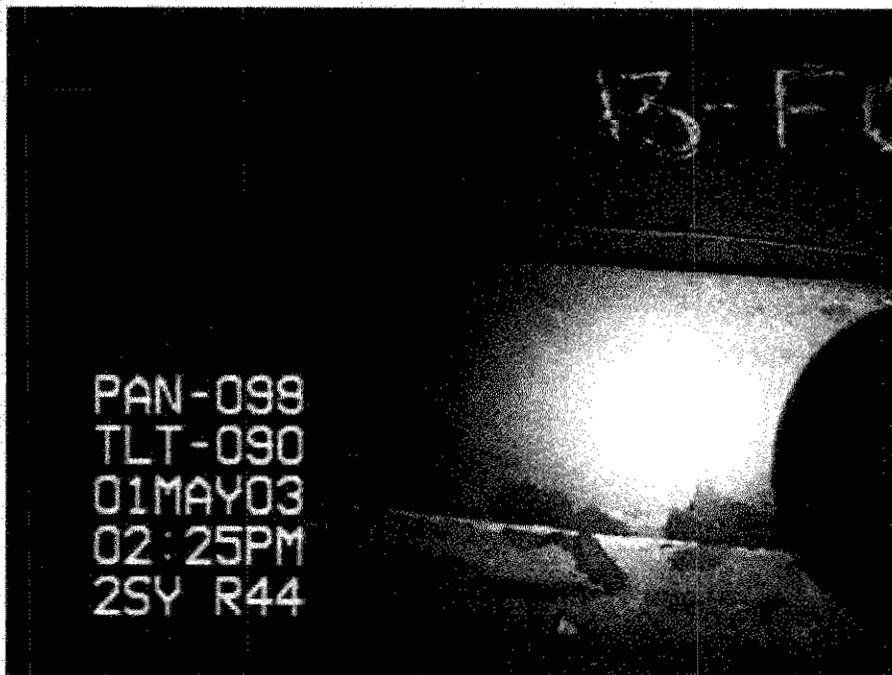


Figure 114 - SY-102 Riser 44, Primary Tank, Concrete Insulating Ring Close-up (2003)

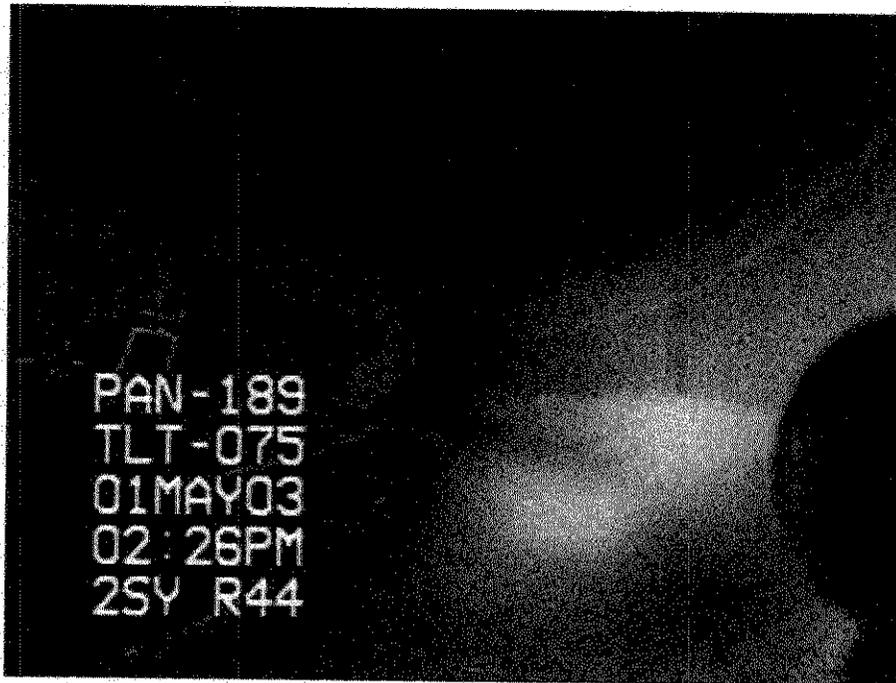


Figure 115 - SY-102 Riser 44, Primary Tank, Annulus Floor (Right, 2003)

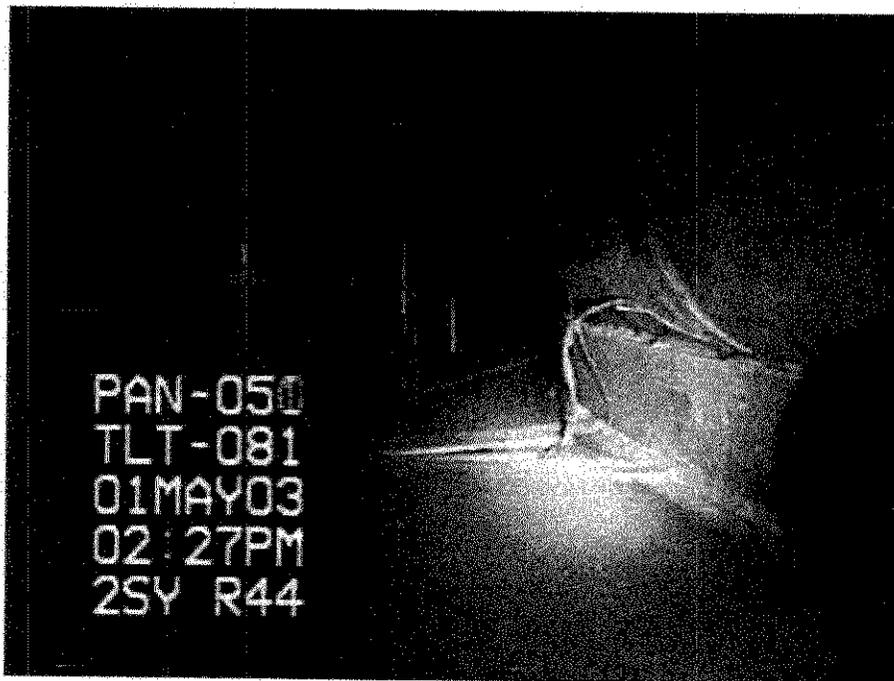


Figure 116 - SY-102 Riser 44, Primary Tank, Annulus Floor/Instrumentation (Left, 2003)

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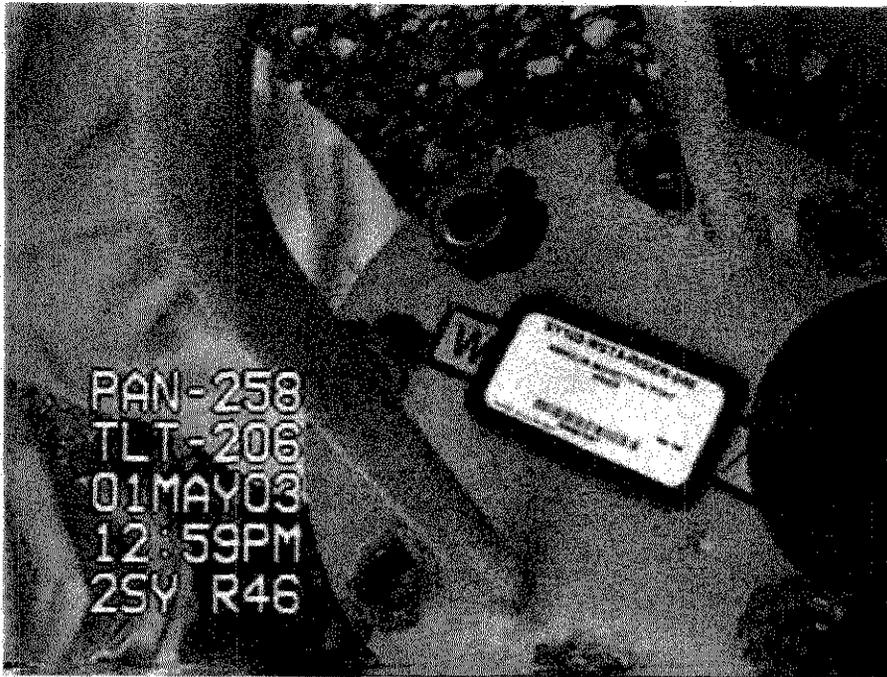


Figure 117 - SY-102 Riser 46, Identification Tag (2003)

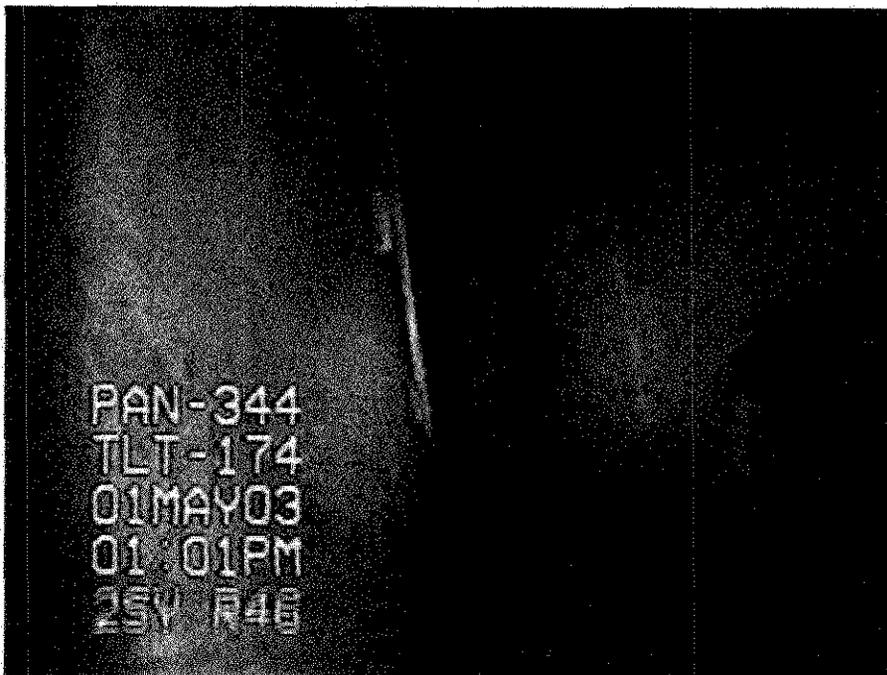


Figure 118 - SY-102 Riser 46, View of Annulus from Riser 46 (2003)

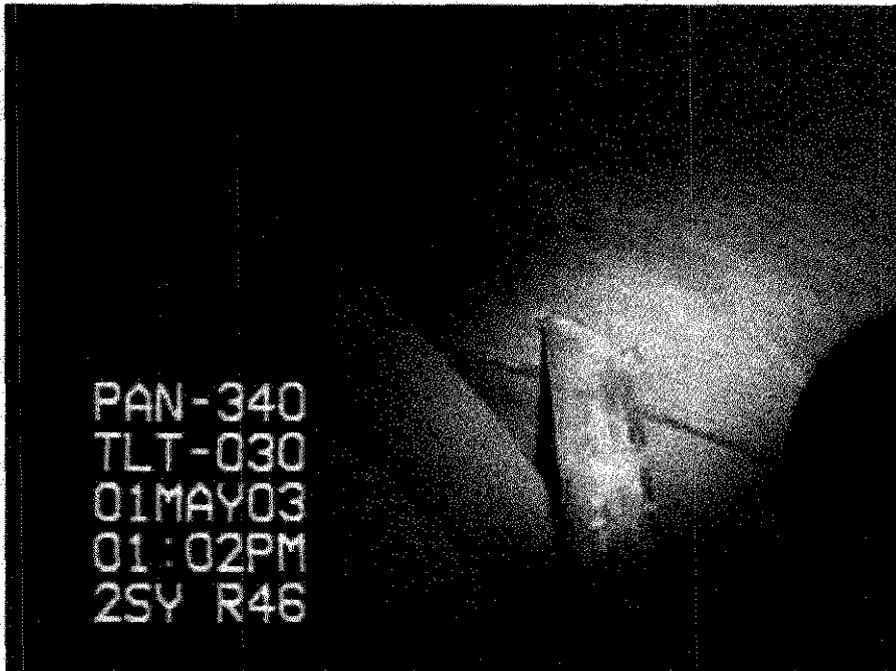


Figure 119 - SY-102 Riser 46, Primary Tank, Primary/Secondary Tank Junction (Right, 2003)

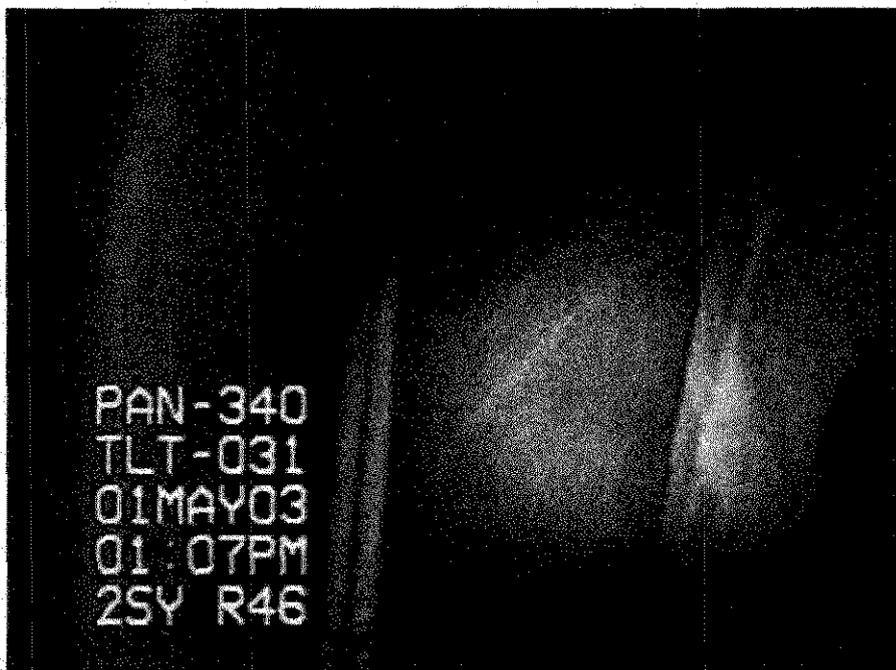


Figure 120 - SY-102 Riser 46, Primary Tank, Primary/Secondary Tank Junction (Left, 2003)

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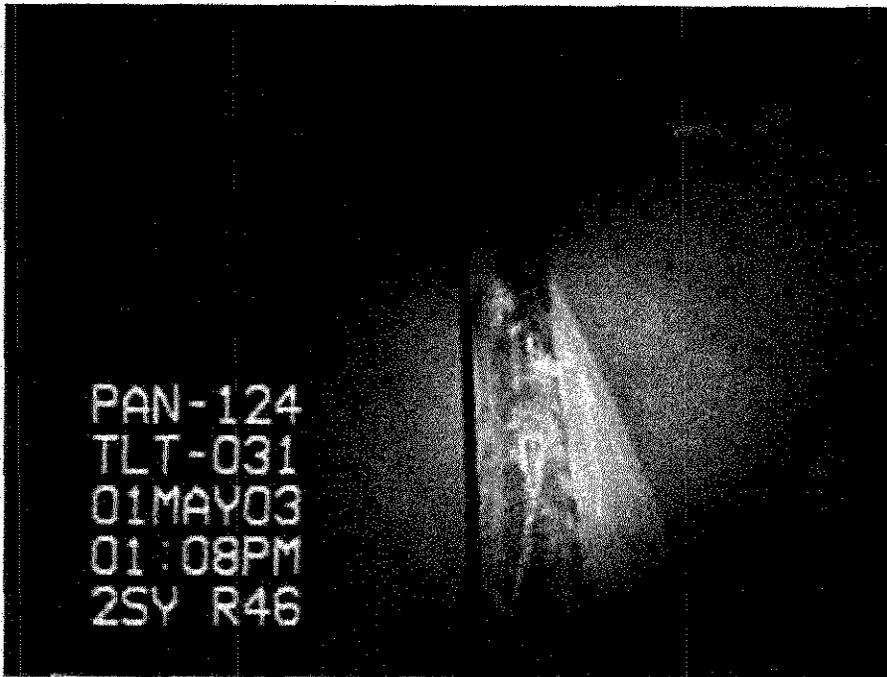


Figure 121 - SY-102 Riser 46, Primary Tank, Primary/Secondary Tanks/Dome (Right, 2003)

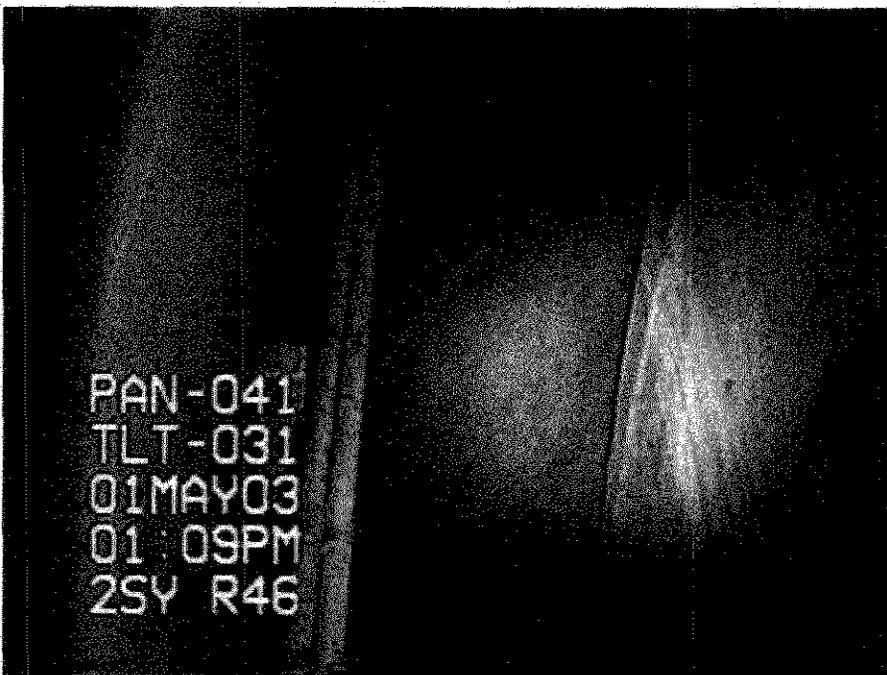


Figure 122 - SY-102 Riser 46, Primary Tank, Primary/Secondary Tanks/Dome (Left, 2003)



Figure 123 - SY-102 Riser 46, Primary Tank, Haunch/Horizontal Weld/Construction Marks (2003)

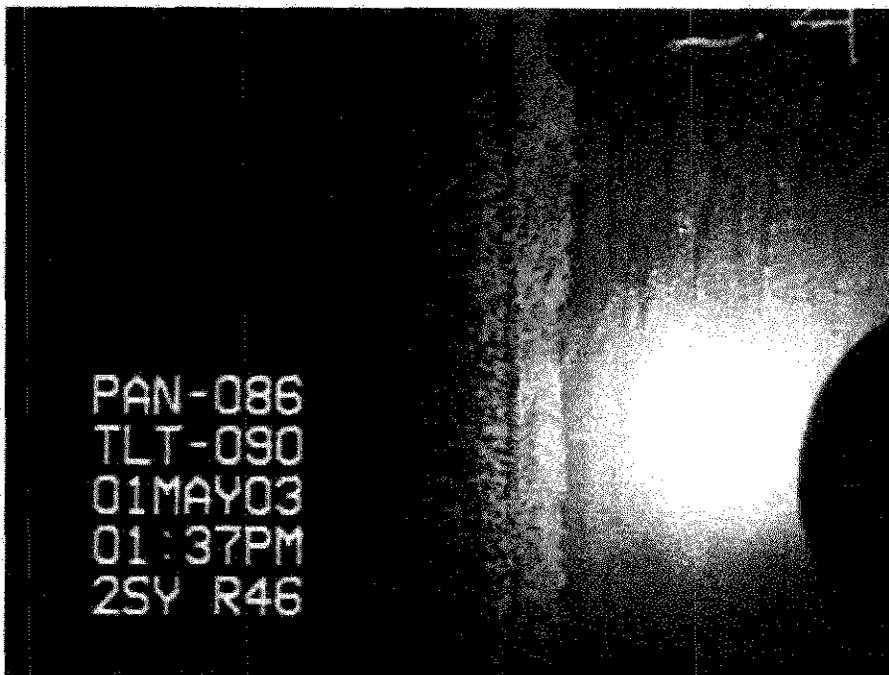


Figure 124 - SY-102 Riser 46, Primary Tank, Vertical Weld/Laitance Streaks (2003)

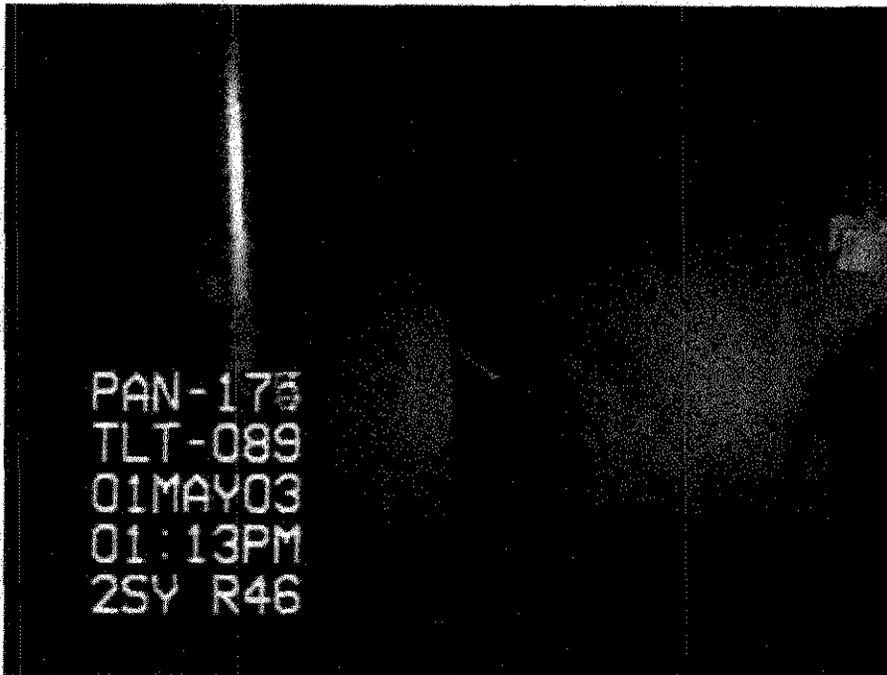


Figure 125 - SY-102 Riser 46, Secondary Tank Wall (Right, 2003)

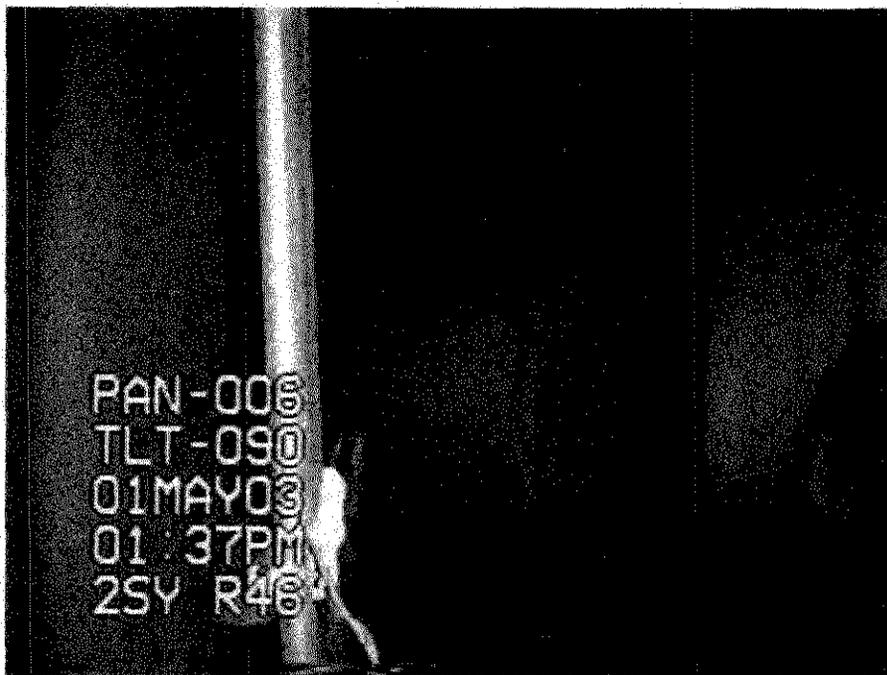


Figure 126 - SY-102 Riser 46, Secondary Tank Wall (Left, 2003)

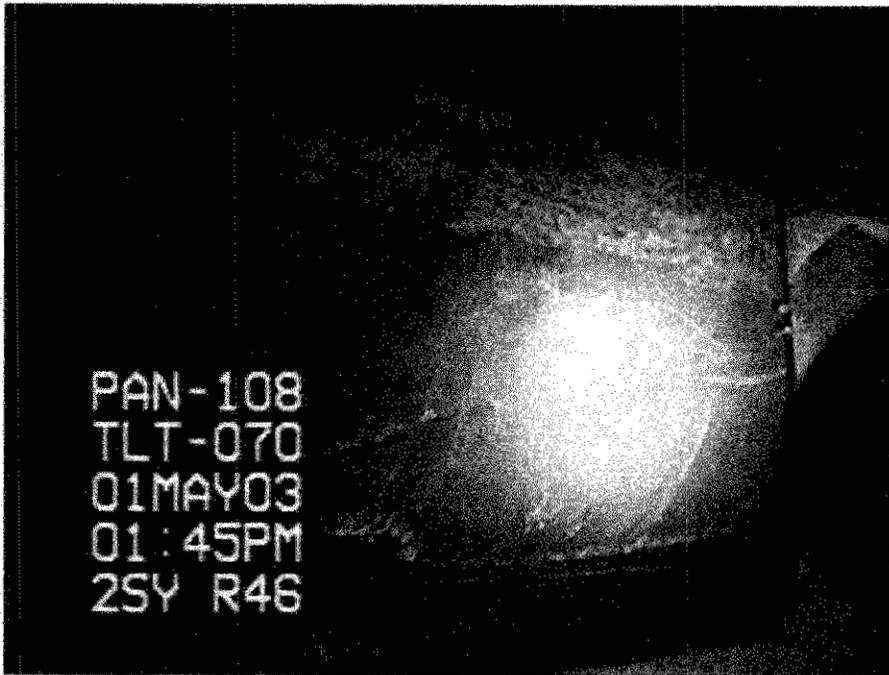


Figure 127 - SY-102 Riser 46, Primary Tank, Knuckle Weld (2003)

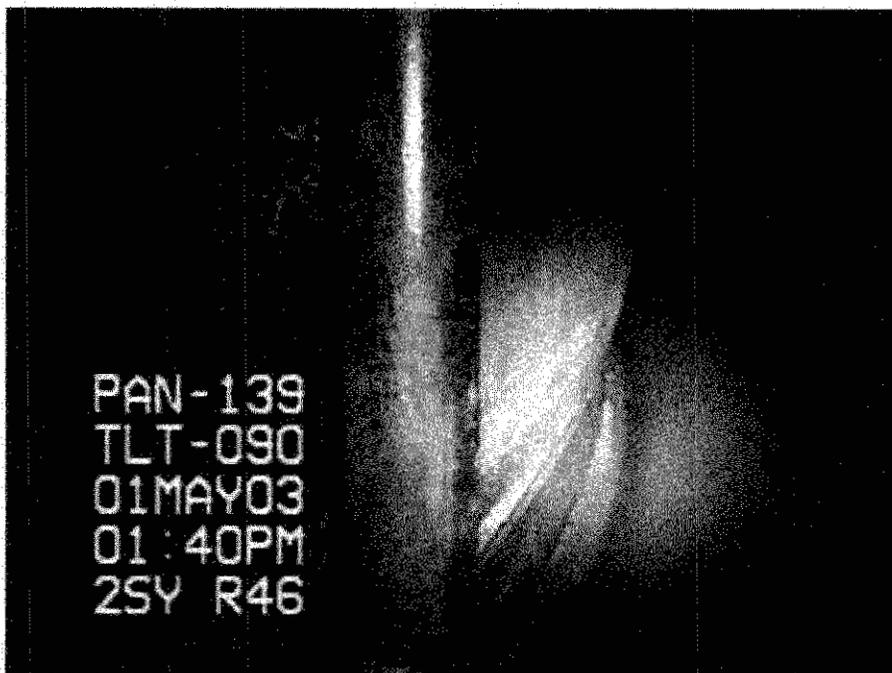


Figure 128 - SY-102 Riser 46, Primary Tank, Knuckle/Concrete Insulating Ring Junction (2003)

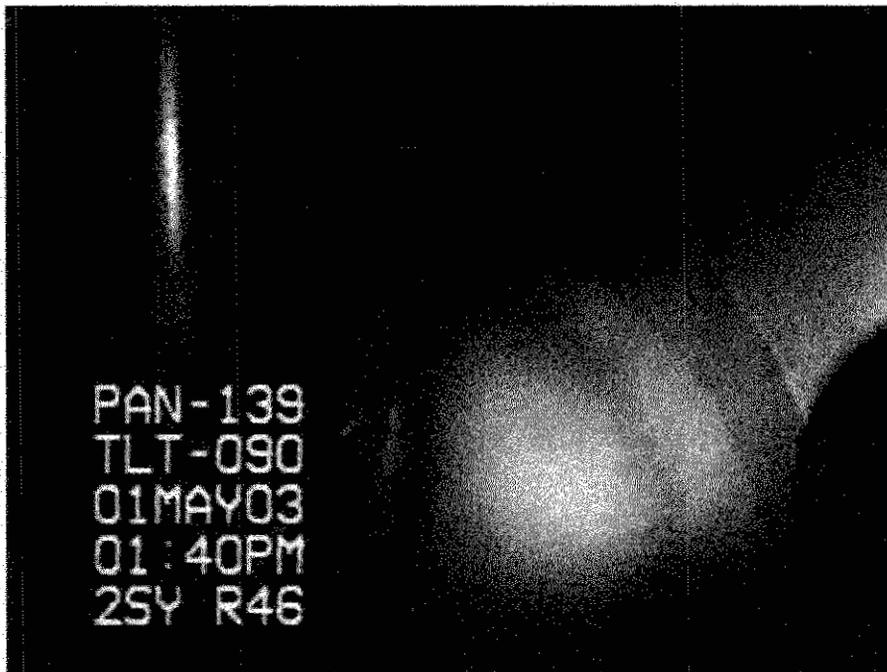


Figure 129 - SY-102 Riser 46, Primary Tank, Annulus Floor (Right, 2003)

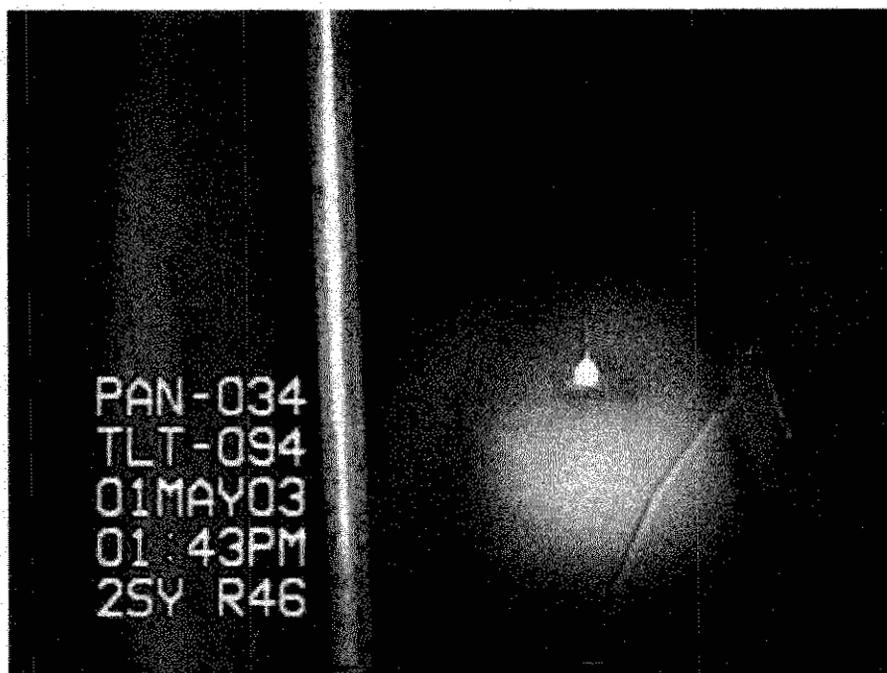


Figure 130 - SY-102 Riser 46, Primary Tank, Annulus Floor/Instrumentation (Left, 2003)

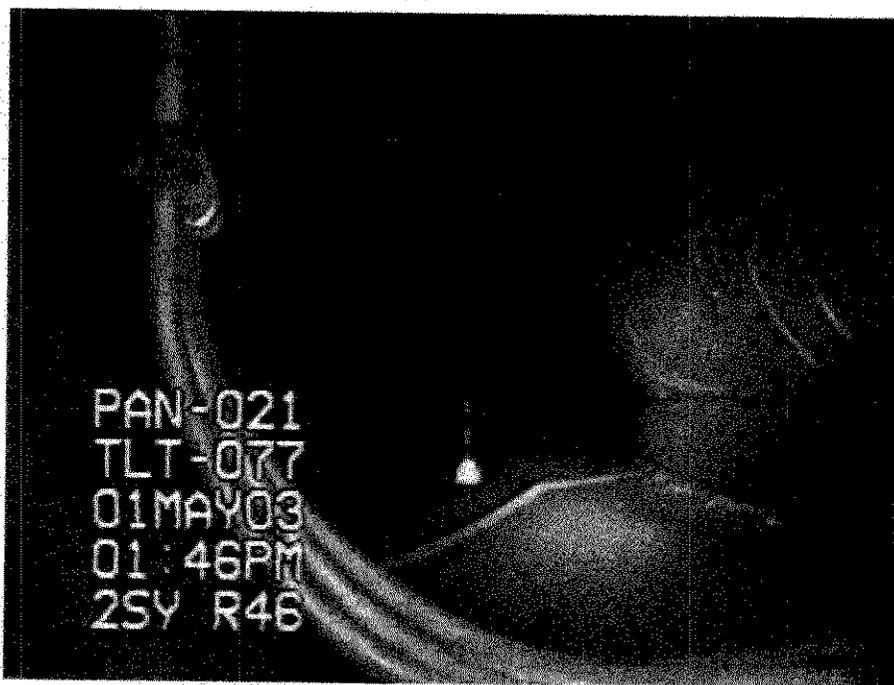


Figure 131 - SY-102 Riser 46, Primary Tank, Annulus Instrumentation (2003)

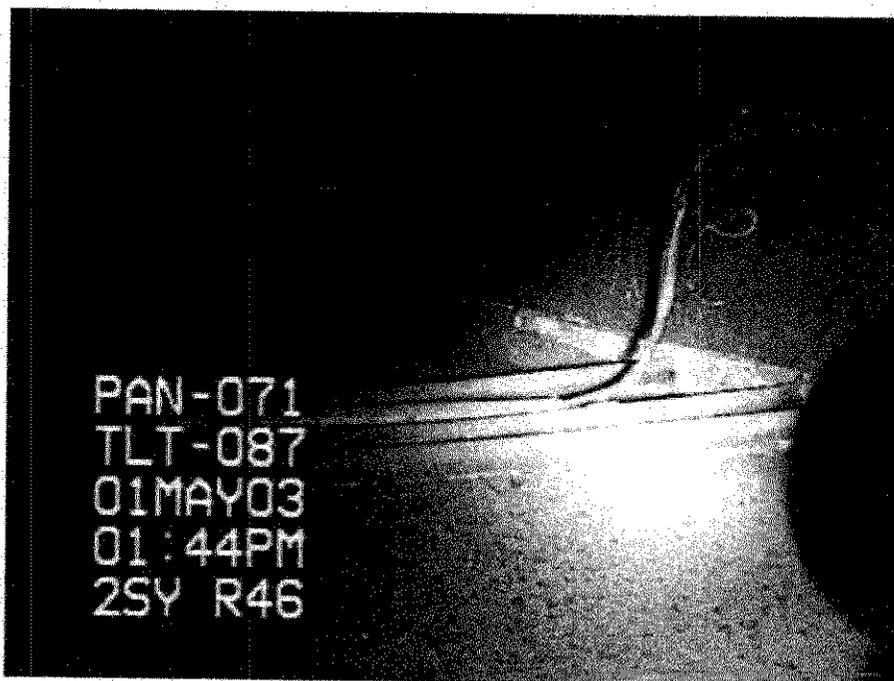


Figure 132 - SY-102 Riser 46, Primary Tank, Thermocouple Close-up (2003)



Figure 133 - SY-102 Riser 49, Identification Tag (2003)

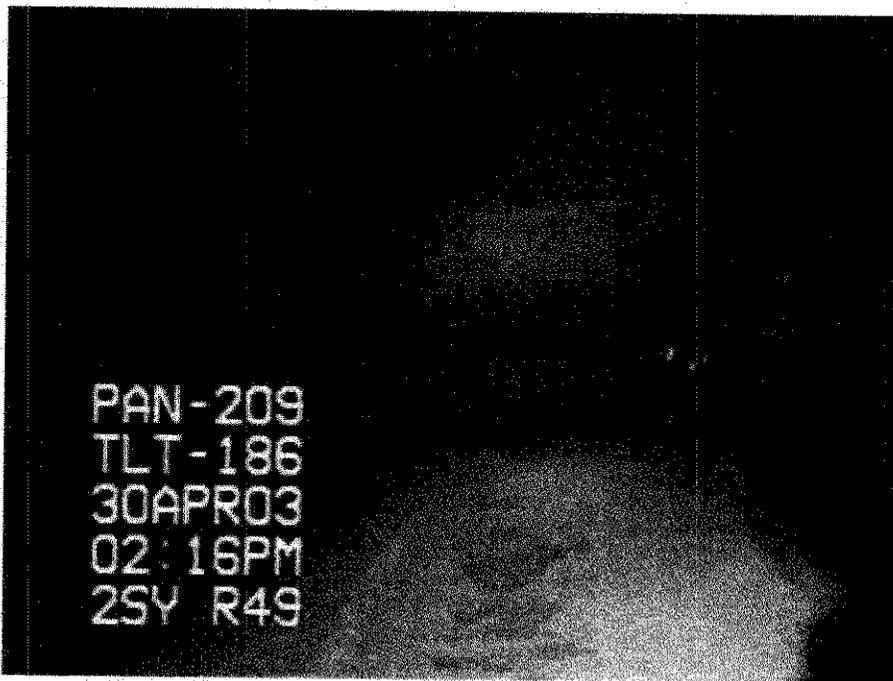


Figure 134 - SY-102 Riser 49, View of Annulus from Riser 49 (2003)



Figure 135 - SY-102 Riser 49, Primary Tank, Primary/Secondary Tank Junction (Right, 2003)

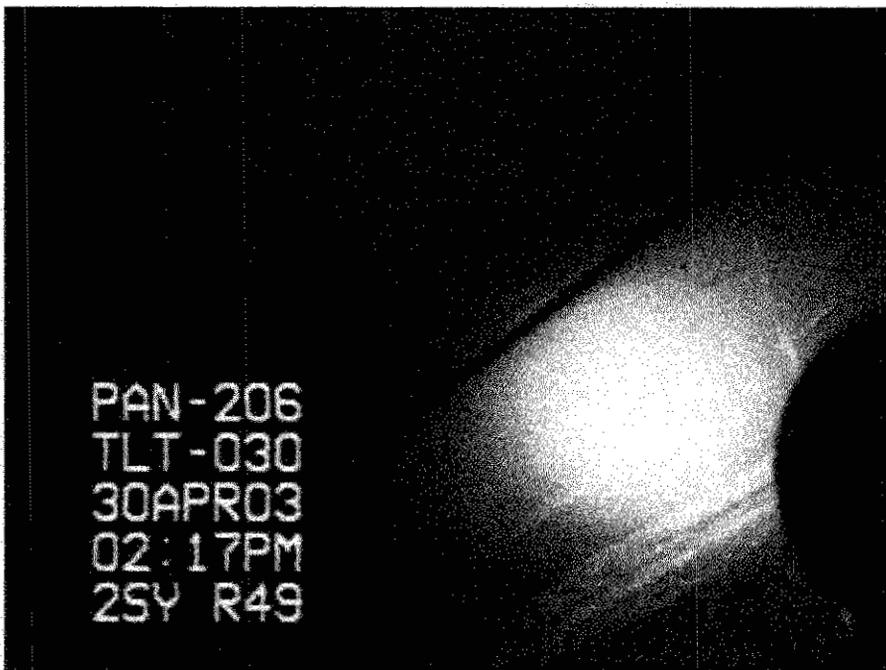


Figure 136 - SY-102 Riser 49, Primary Tank, Primary/Secondary Tank Junction (Left, 2003)

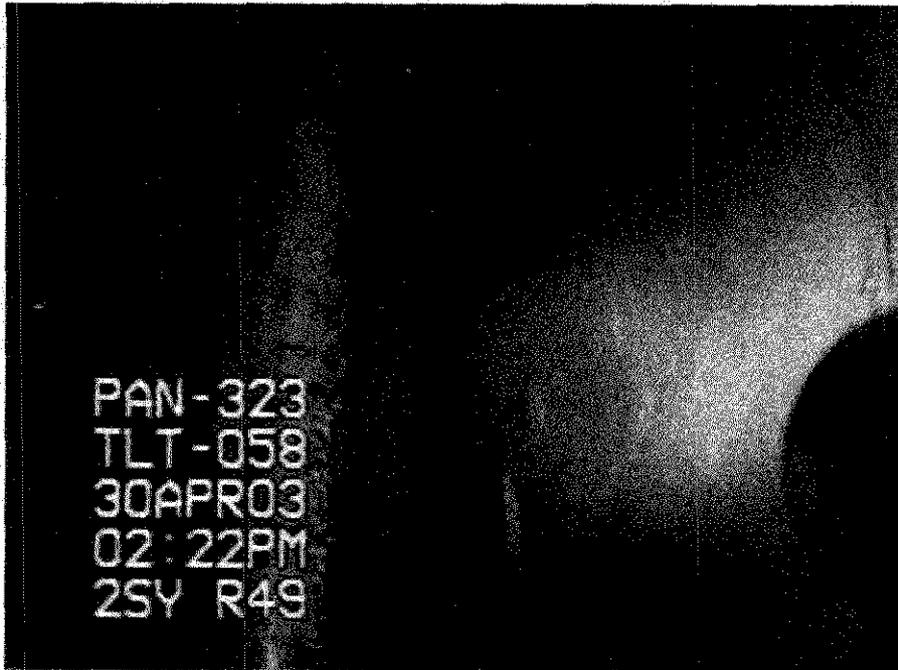


Figure 137 - SY-102 Riser 49, Primary Tank, Primary/Secondary Tanks/Dome (Right, 2003)

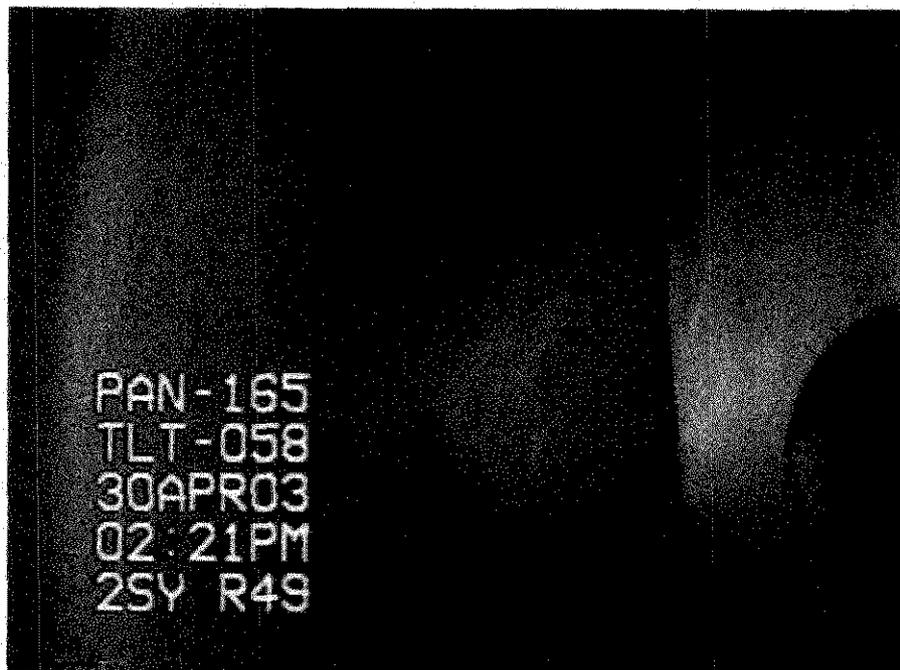


Figure 138 - SY-102 Riser 49, Primary Tank, Primary/Secondary Tanks/Dome (Left, 2003)

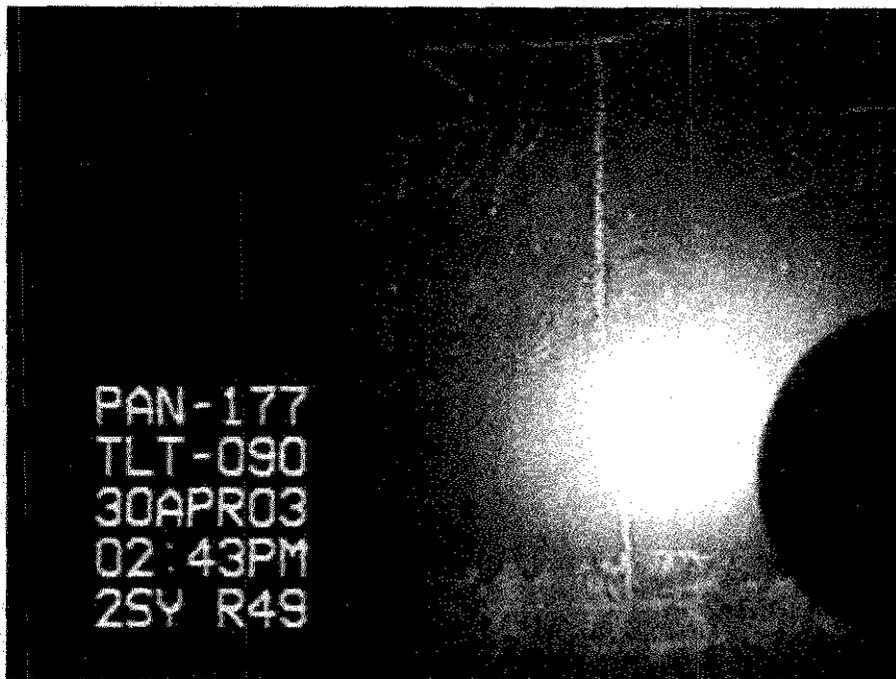


Figure 139 - SY-102 Riser 49, Primary Tank, Horizontal Weld/Construction Marks (2003)

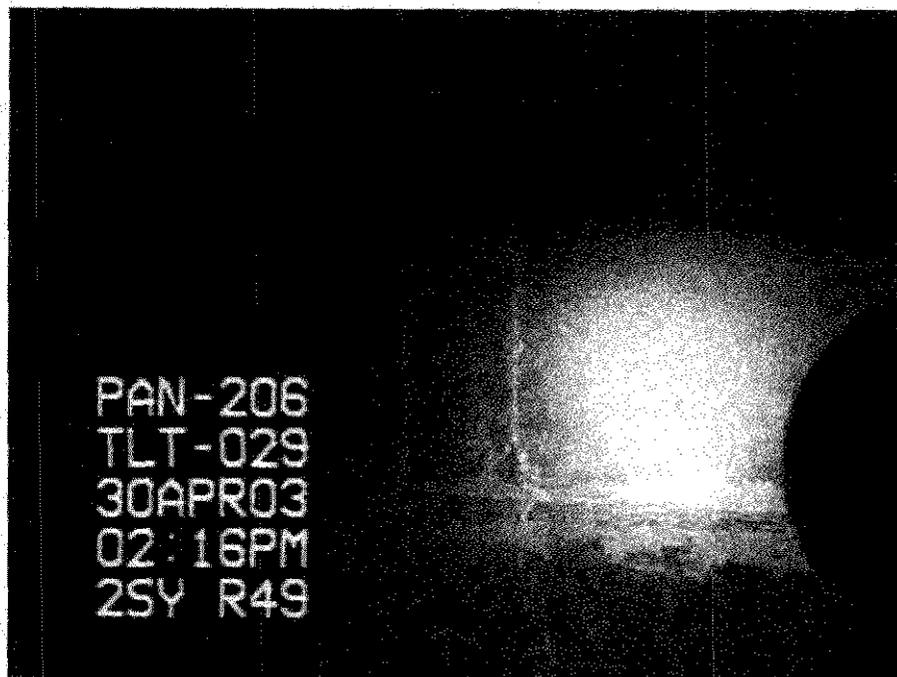


Figure 140 - SY-102 Riser 49, Primary Tank, Haunch/Laitance Streaks/Mill Scale (2003)

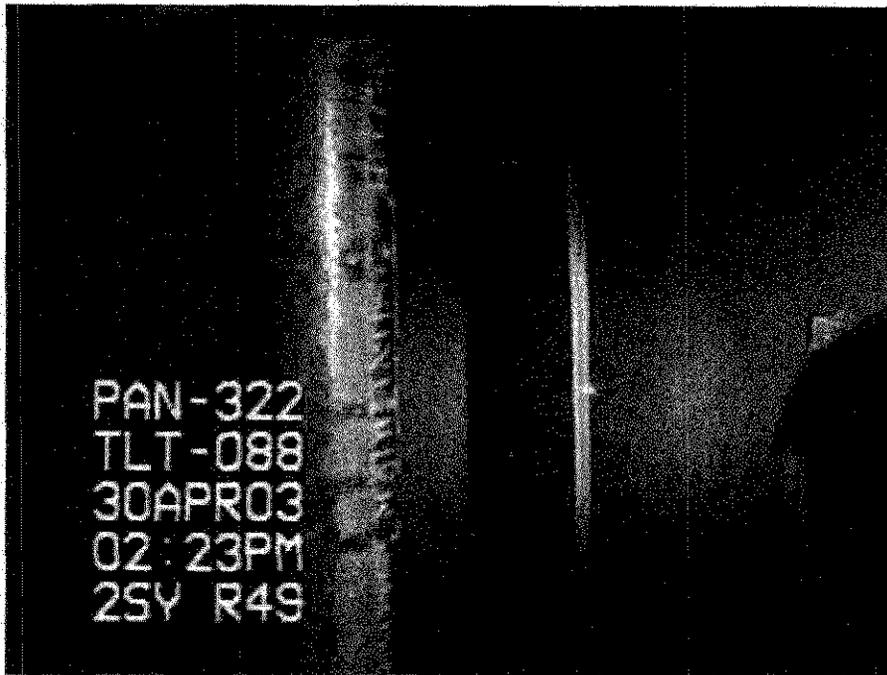


Figure 141 - SY-102 Riser 49, Secondary Tank Wall (Right, 2003)

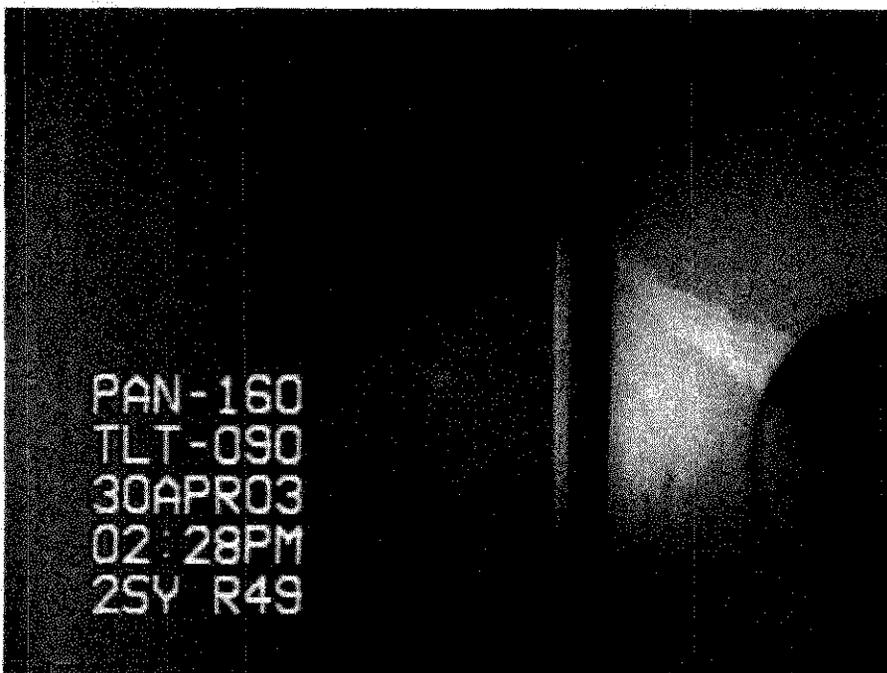


Figure 142 - SY-102 Riser 49, Secondary Tank Wall (Left, 2003)

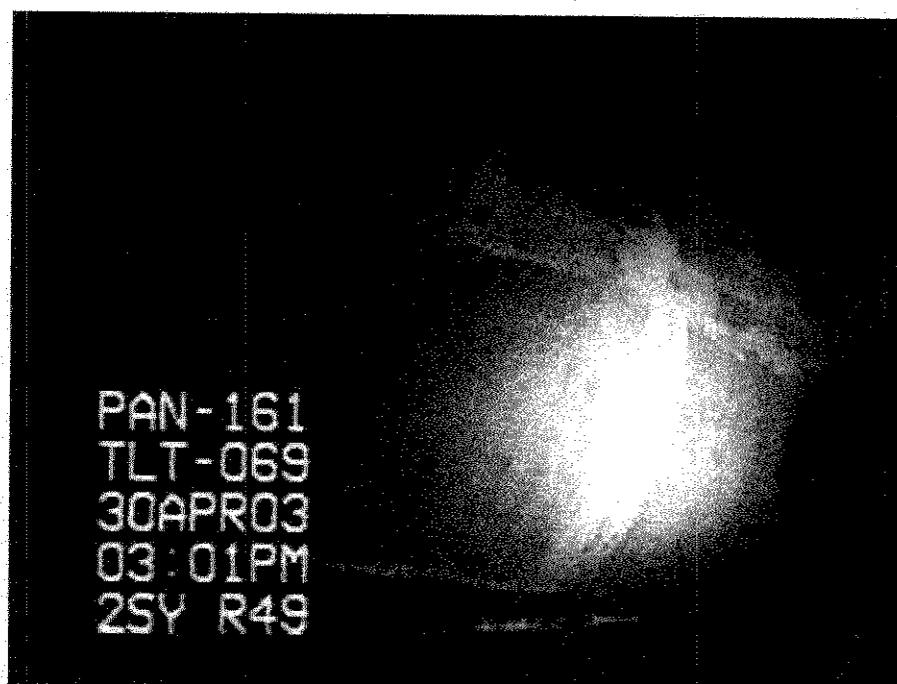


Figure 143 - SY-102 Riser 49, Primary Tank, Knuckle Weld (2003)



Figure 144 - SY-102 Riser 49, Primary Tank, Knuckle/Mill Scale/Construction Marks (2003)

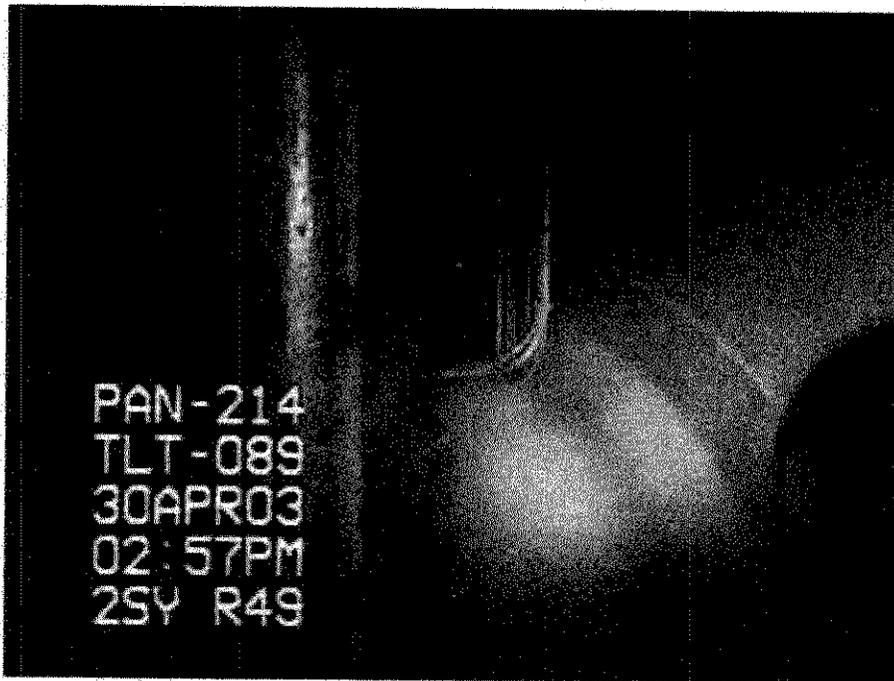


Figure 145 - SY-102 Riser 49, Primary Tank, Annulus Floor/Instrumentation (Right, 2003)

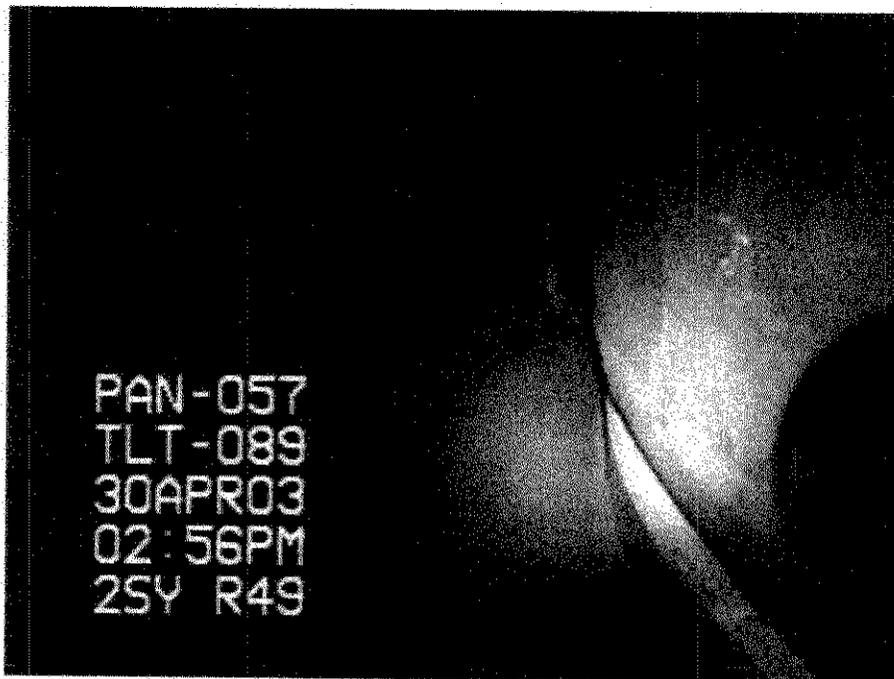


Figure 146 - SY-102 Riser 49, Primary Tank, Annulus Floor/Instrumentation/Concrete Insulating Ring (Left, 2003)

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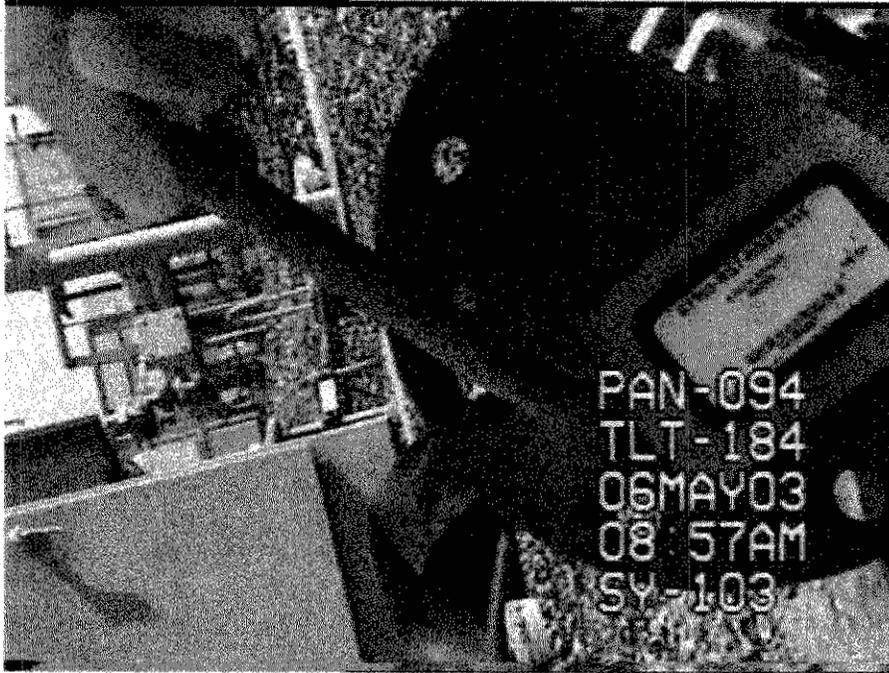


Figure 147 - SY-103 Riser 15, Identification Tag (2003)

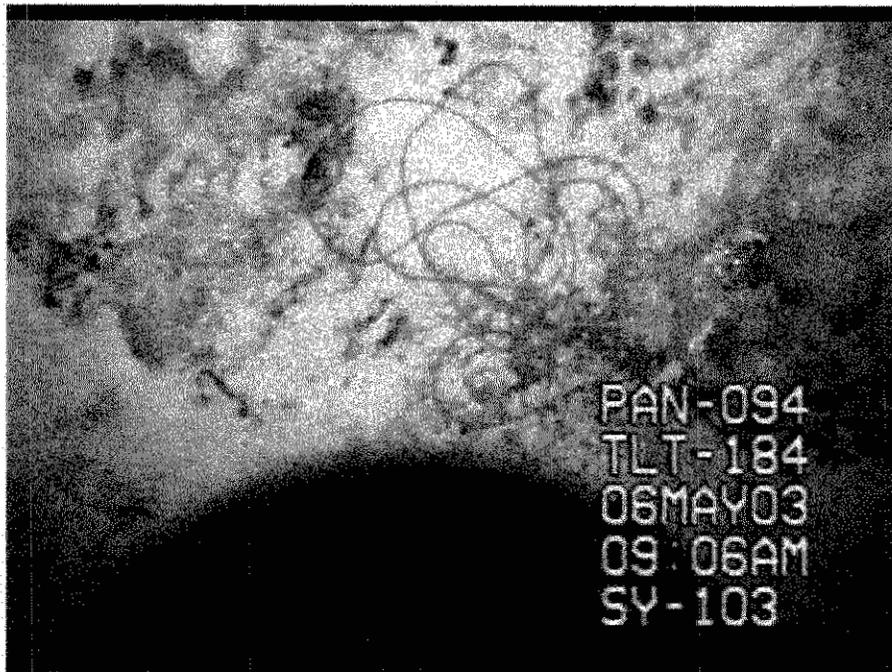


Figure 148 - SY-103 Riser 15, Primary Tank Interior, View of Waste Surface below Riser 15 (2003)

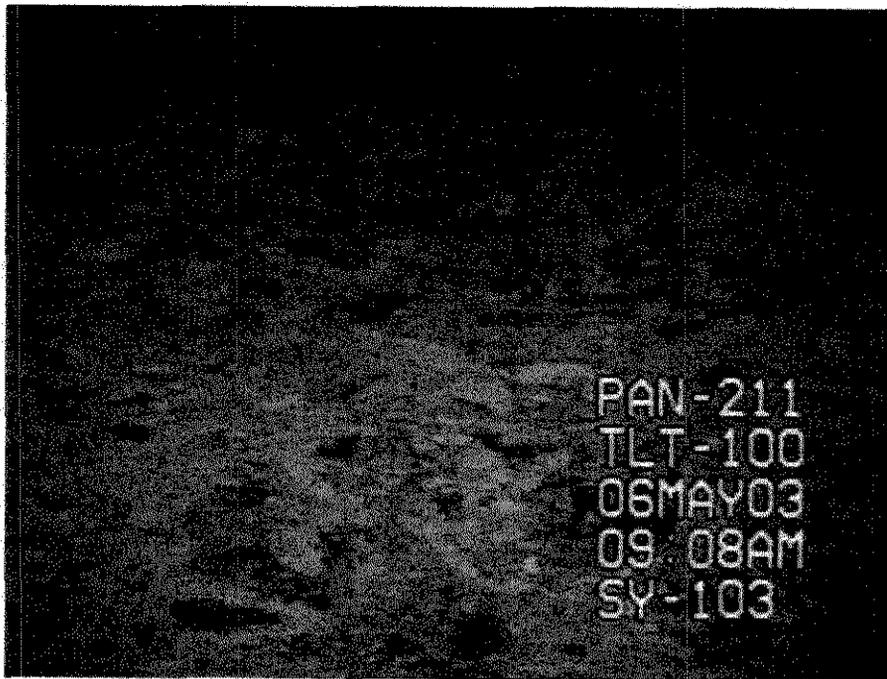


Figure 149 - SY-103 Riser 15, Primary Tank Interior, Waste Surface (2003)

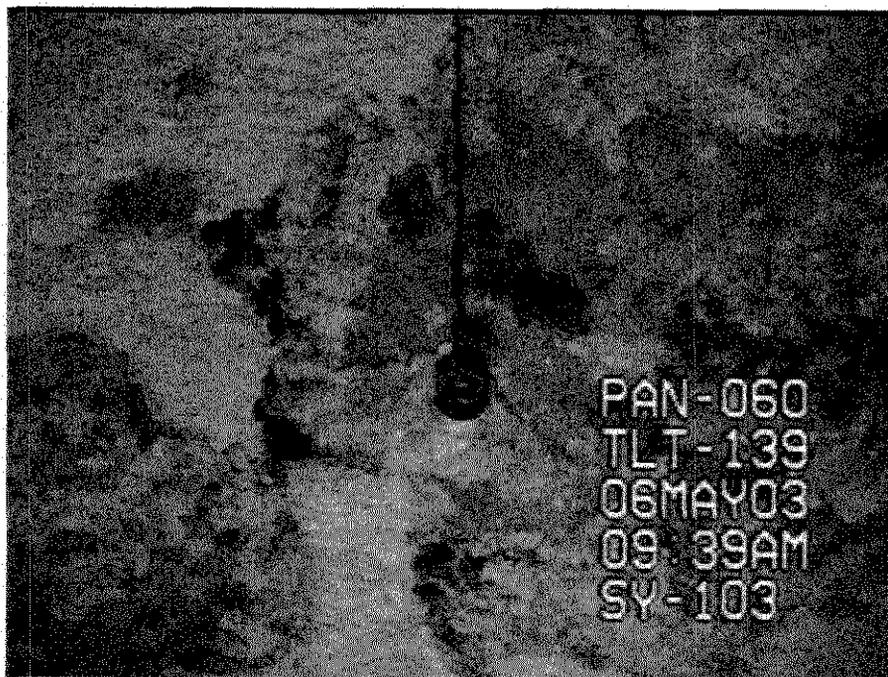


Figure 150 - SY-103 Riser 15, Primary Tank Interior, Level Detector on Waste Surface (2003)

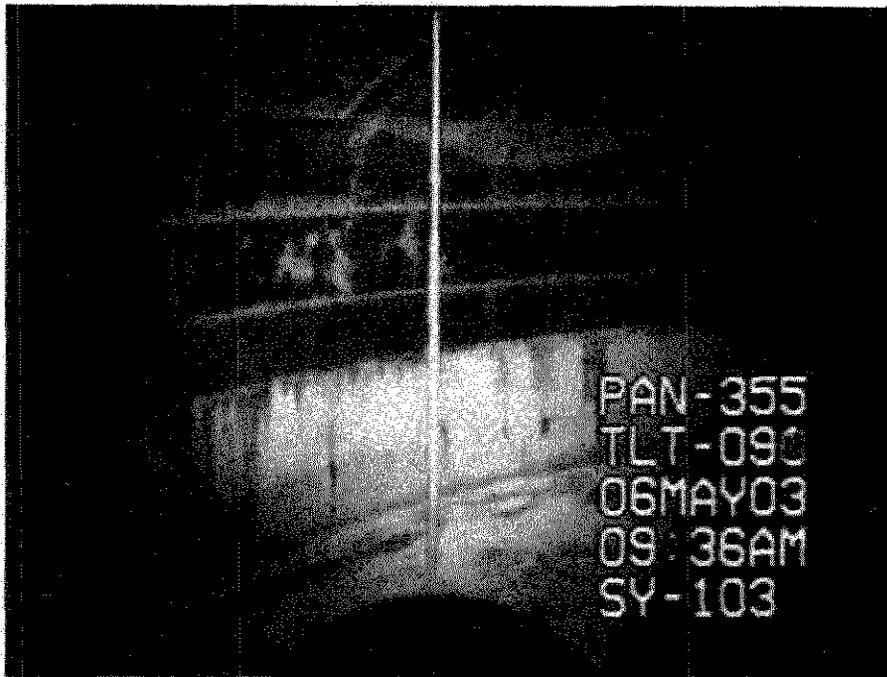


Figure 151 - SY-103 Riser 15, Primary Tank Interior, Waste Ring on Tank Wall (2003)



Figure 152 - SY-103 Riser 15, Primary Tank Interior, Waste Surface/Instrumentation (2003)

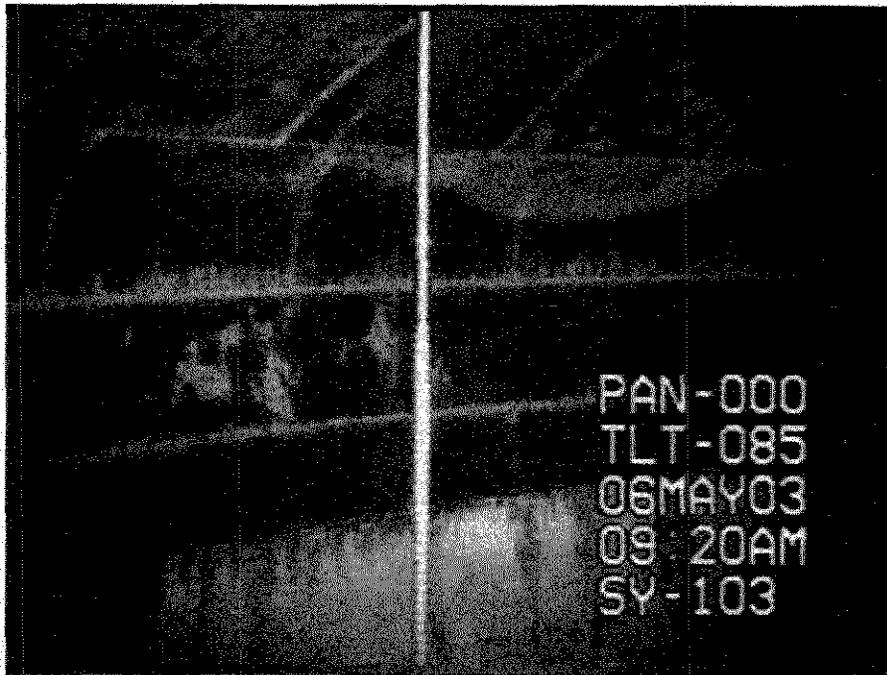


Figure 153 - SY-103 Riser 15, Primary Tank Interior, Dome/Haunch/Top Plate (2003)

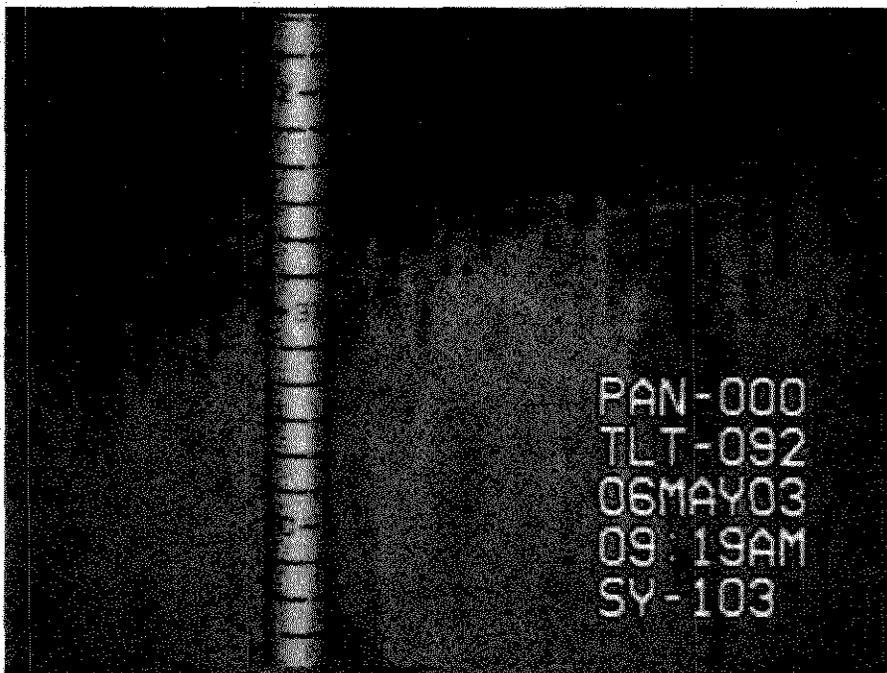


Figure 154 - SY-103 Riser 15, Primary Tank Interior, Close-up of Tank Interior/Waste (2003)

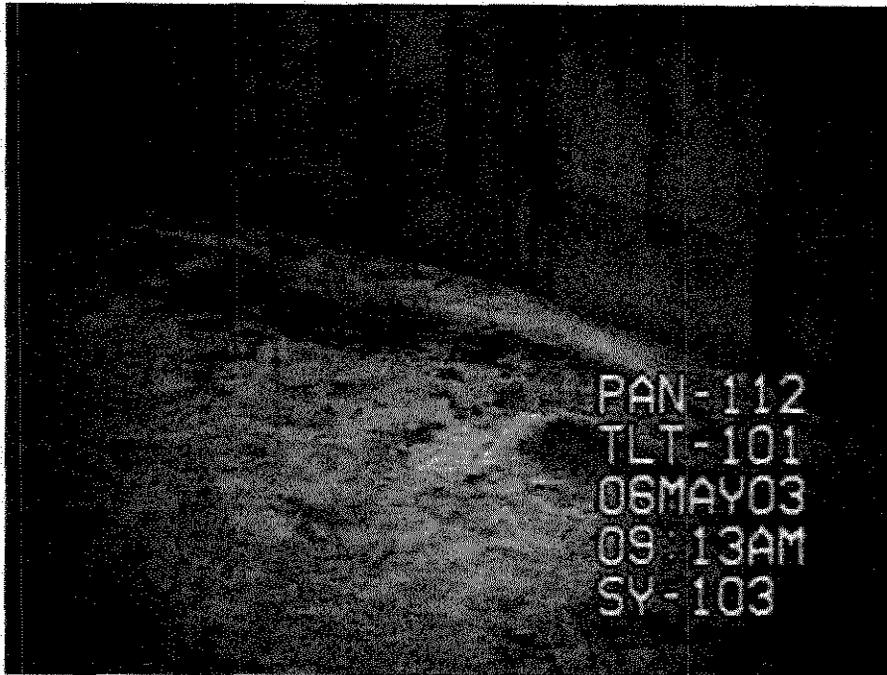


Figure 155 - SY-103 Riser 15, Primary Tank Interior, Waste Ring Ledge (2003)



Figure 156 - SY-103 Riser 15, Primary Tank Interior, Waste Ring Ledge at Tank Wall (2003)

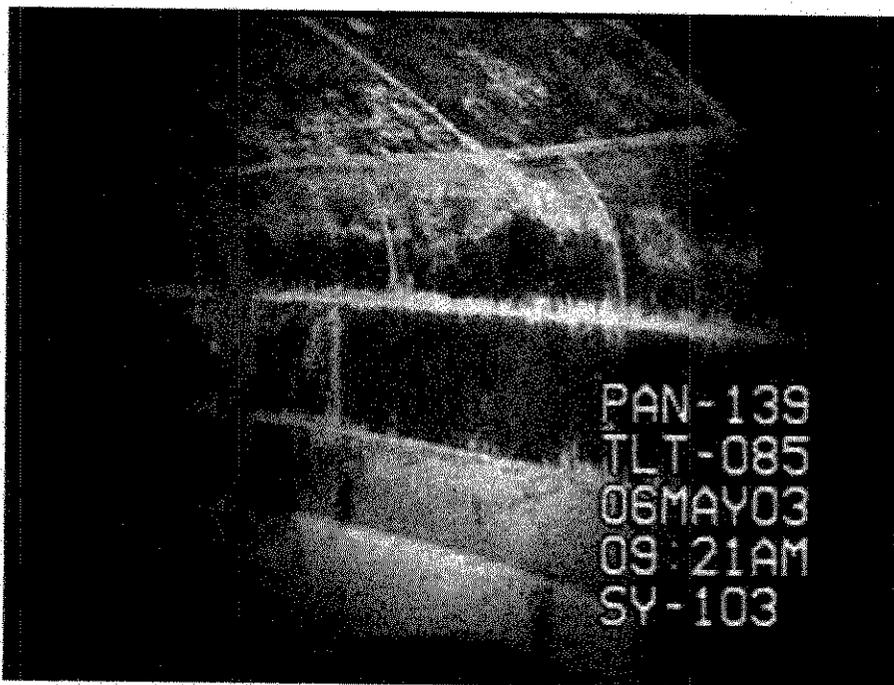


Figure 157 - SY-103 Riser 15, Primary Tank Interior, Dome/Haunch/Tank Wall (2003)



Figure 158 - SY-103 Riser 15, Primary Tank Interior, Dome Welds/Stain on Wall (2003)

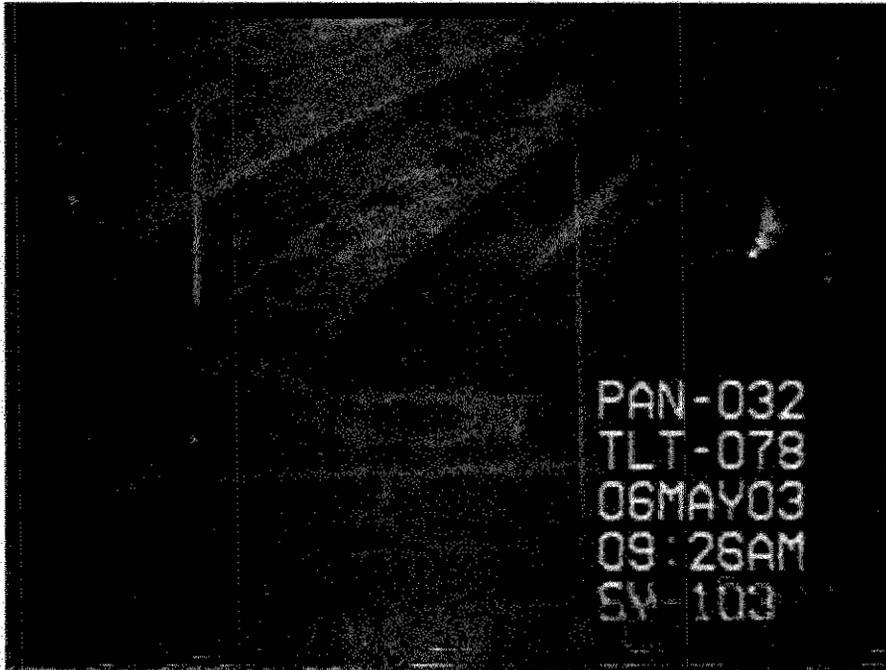


Figure 159 - SY-103 Riser 15, Primary Tank Interior, Dome Welds (2003)

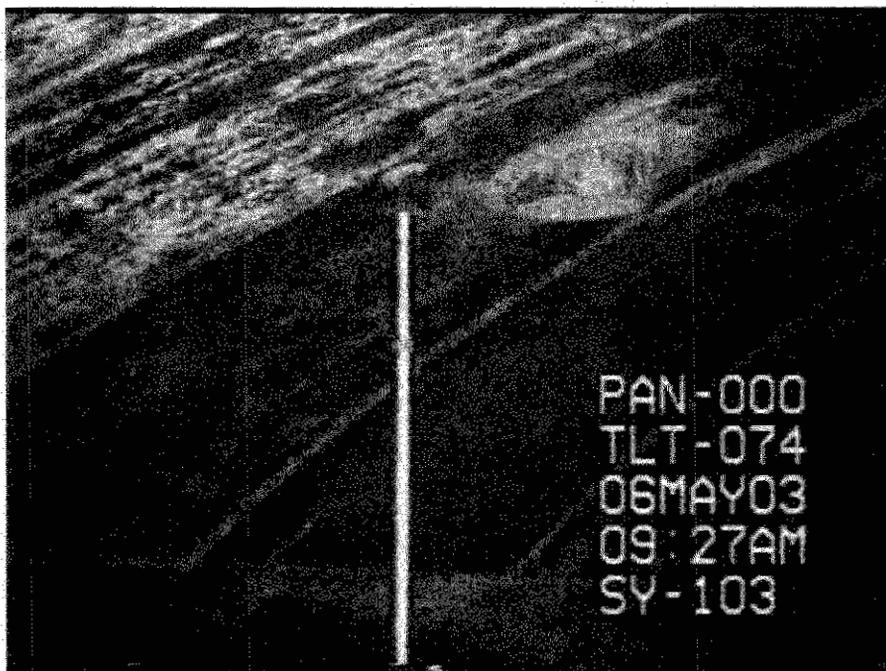


Figure 160 - SY-103 Riser 15, Primary Tank Interior, Dome Risers (2003)

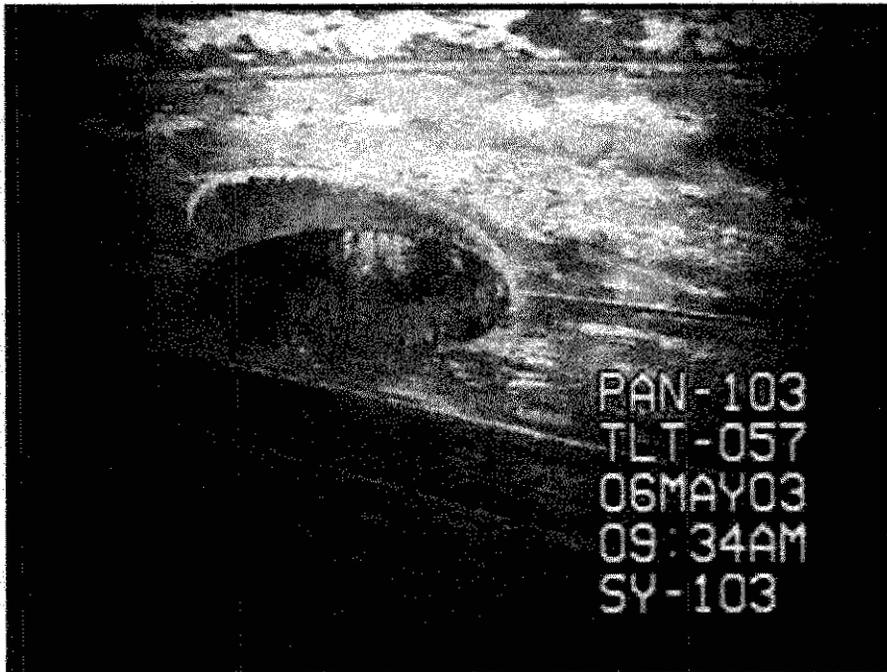


Figure 161 - SY-103 Riser 15, Primary Tank Interior, Dome Riser Close-up (2003)



Figure 162 - SY-103 Riser 15, Primary Tank Interior, Stain at Dome Riser (2003)

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Figure 163 - SY-103 Riser 15, Primary Tank Interior, Dome/Central Pump Pit Risers (2003)

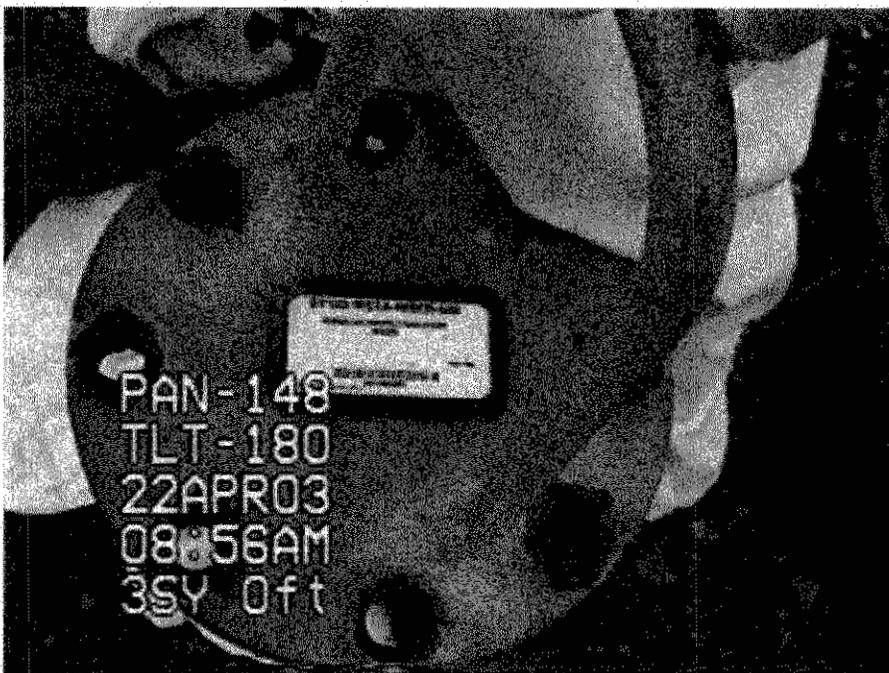


Figure 164 - SY-103 Riser 40, Identification Tag (2003)

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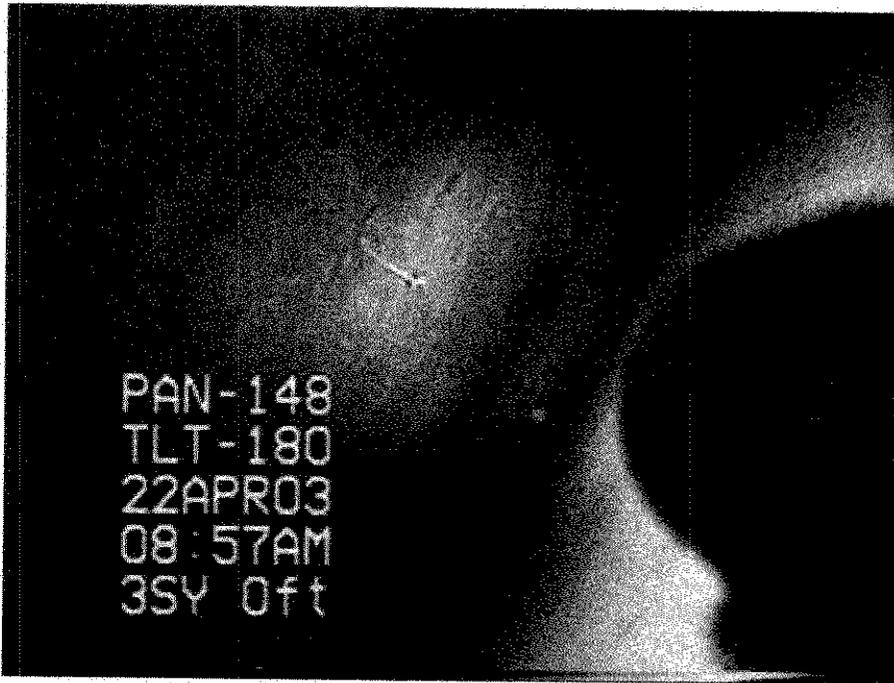


Figure 165 - SY-103 Riser 40, Primary Tank, View of Annulus from Riser 40 (2003)



Figure 166 - SY-103 Riser 40 (18G), Primary Tank, View of Annulus from Riser 40 (1992)

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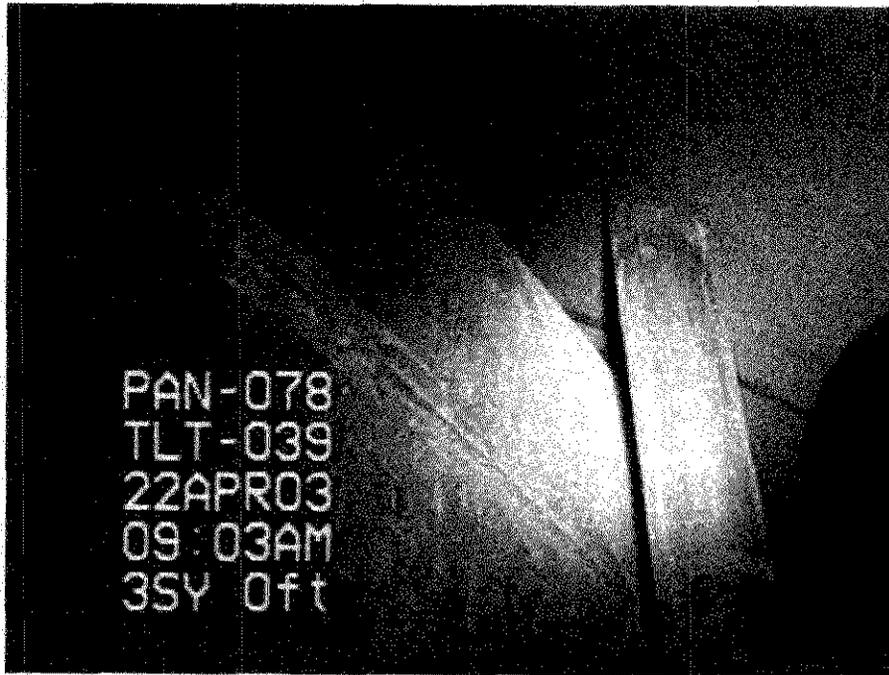


Figure 167 - SY-103 Riser 40, Primary Tank, Primary/Secondary Tank Junction (Right, 2003)



Figure 168 - SY-103 Riser 40 (18G), Primary Tank, Primary/Secondary Tank Junction (Right, 1992)

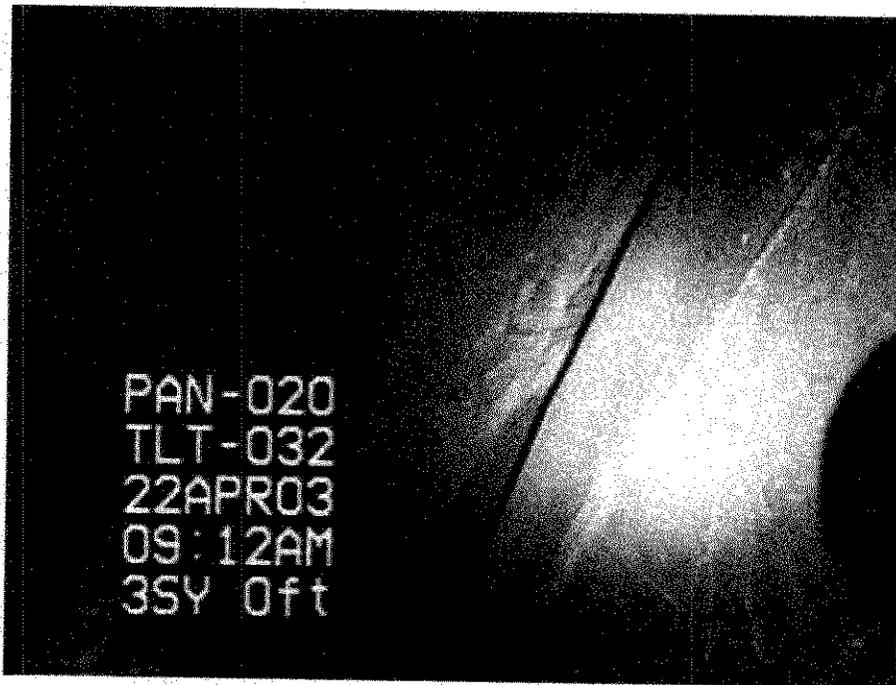


Figure 169 - SY-103 Riser 40, Primary Tank, Primary/Secondary Tank Junction (Left, 2003)

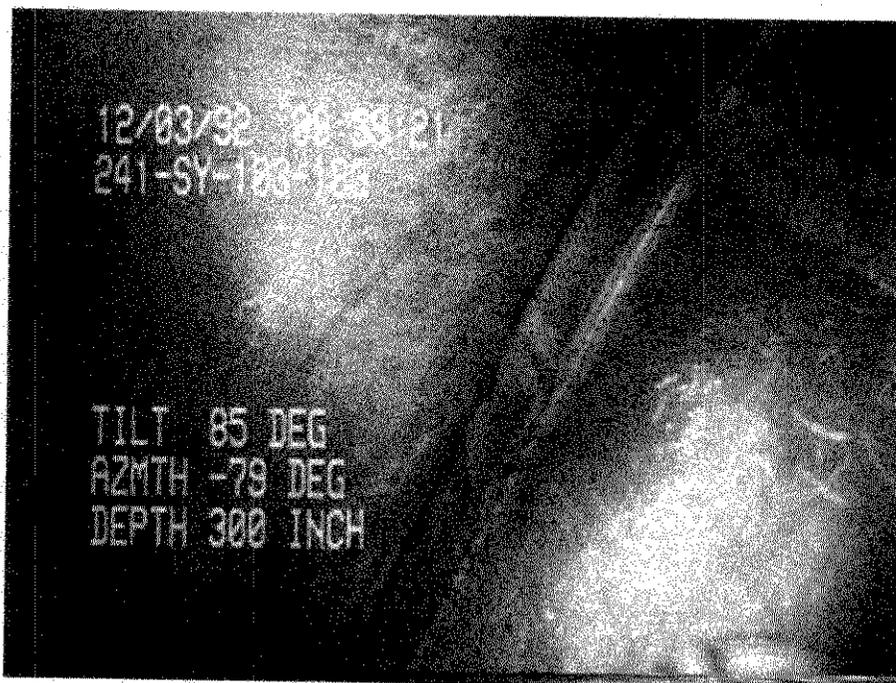


Figure 170 - SY-103 Riser 40 (18G), Primary Tank, Primary/Secondary Tank Junction (Left, 1992)

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Figure 171 - SY-103 Riser 40, Primary Tank, Primary/Secondary Walls/Dome (Right, 2003)



Figure 172 - SY-103 Riser 40 (18G), Primary Tank, Primary/Secondary Walls/Dome (Right, 1992)

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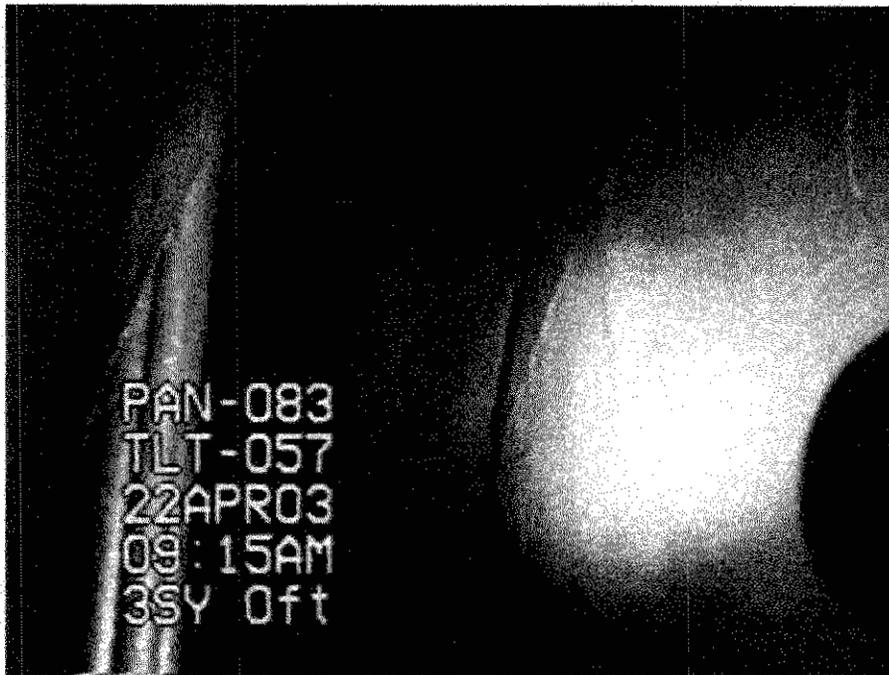


Figure 173 - SY-103 Riser 40, Primary Tank, Primary/Secondary Walls/Dome (Left, 2003)



Figure 174 - SY-103 Riser 40 (18G), Primary Tank, Primary/Secondary Walls/Dome (Left, 1992)

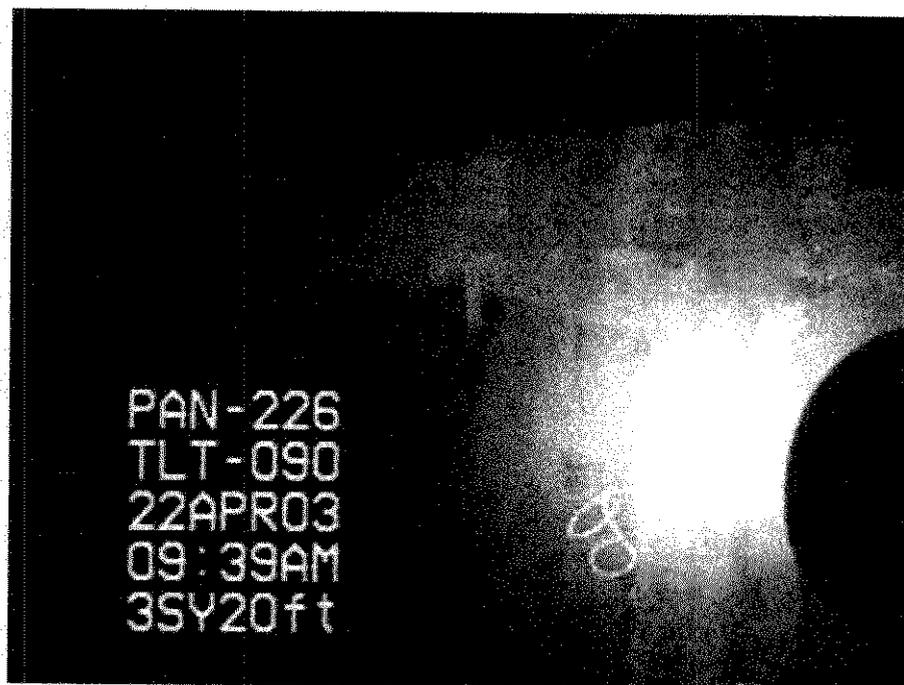


Figure 175 - SY-103 Riser 40, Primary Tank, Construction Marks/Horizontal Weld (2003)

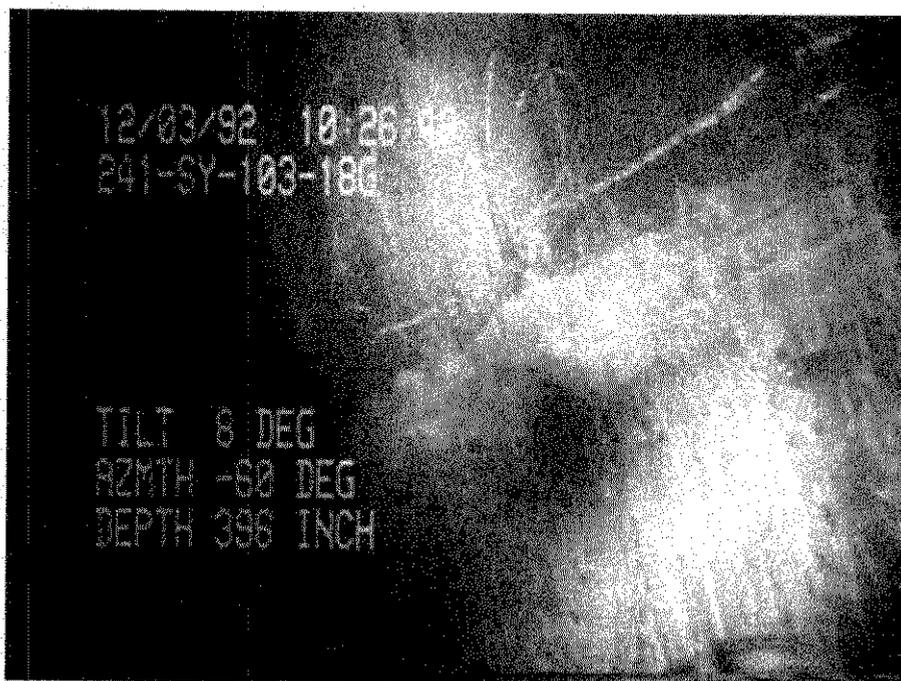


Figure 176 - SY-103 Riser 40 (18G), Primary Tank, Construction Marks/Horizontal Weld (1992)

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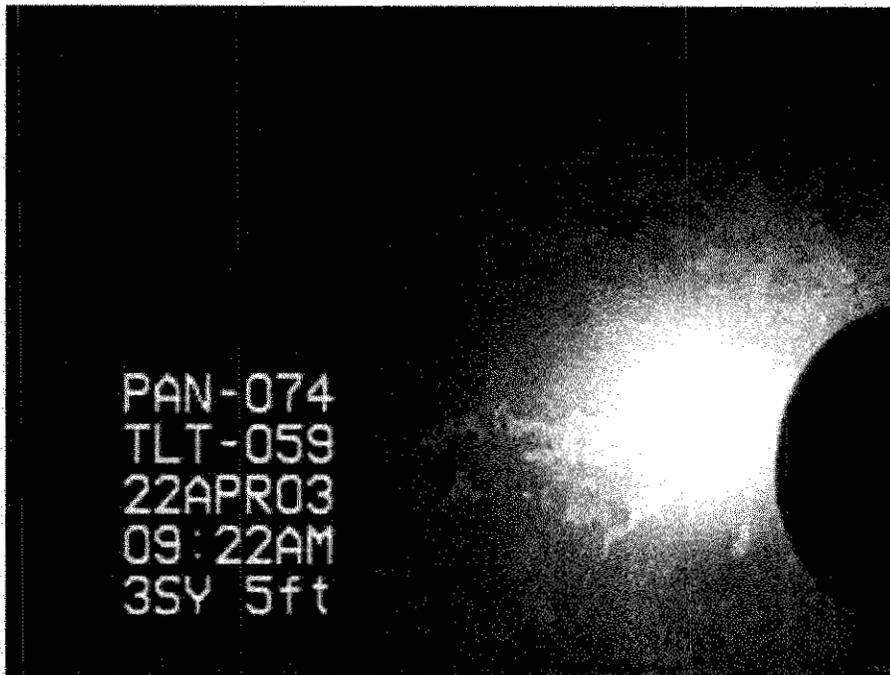


Figure 177 - SY-103 Riser 40, Primary Tank, Mill Scale (2003)

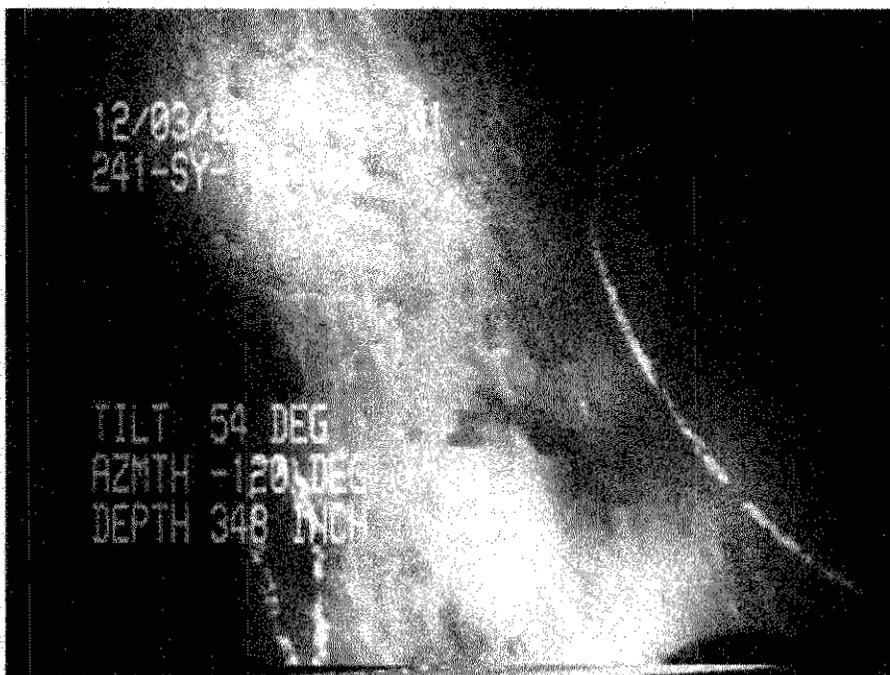


Figure 178 - SY-103 Riser 40 (18G), Primary Tank, Mill Scale (1992)

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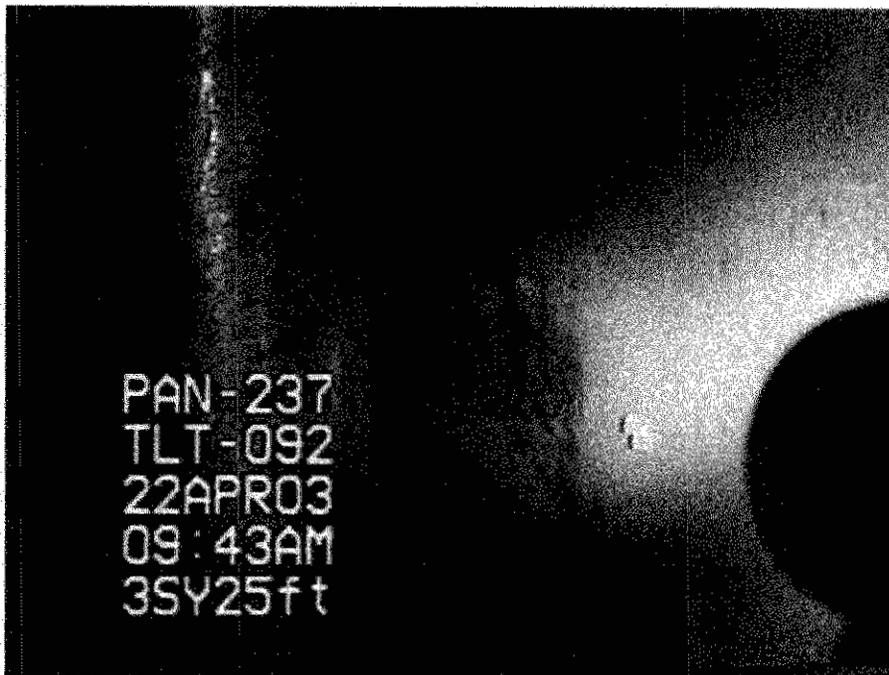


Figure 179 - SY-103 Riser 40, Secondary Tank Wall (Right, 2003)



Figure 180 - SY-103 Riser 40 (18G), Secondary Tank Wall (Right, 1992)

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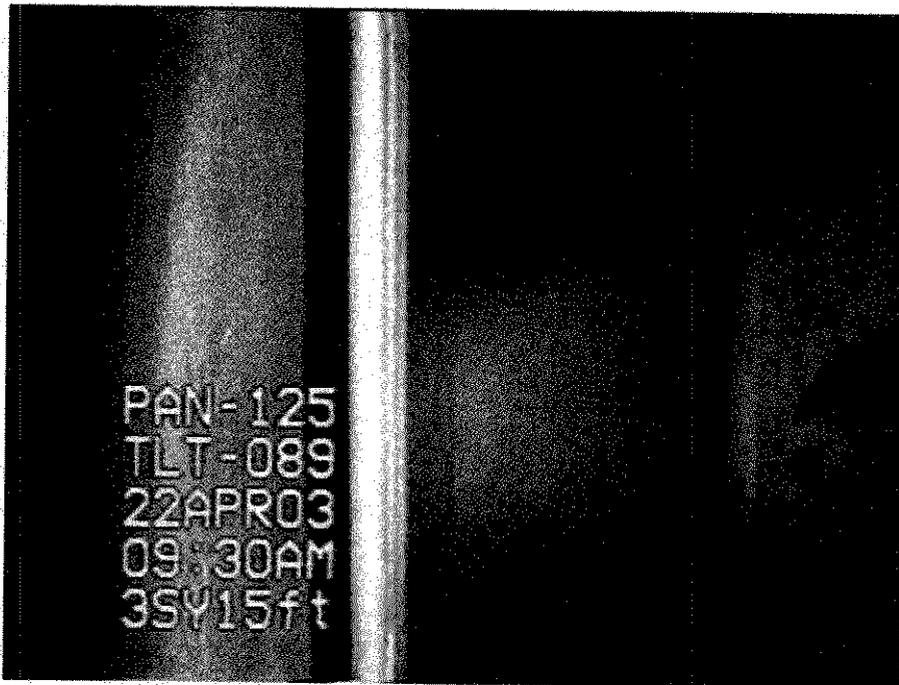


Figure 181 - SY-103 Riser 40, Secondary Tank Wall (Left, 2003)



Figure 182 - SY-103 Riser 40 (18G), Secondary Tank Wall (Left, 1992)

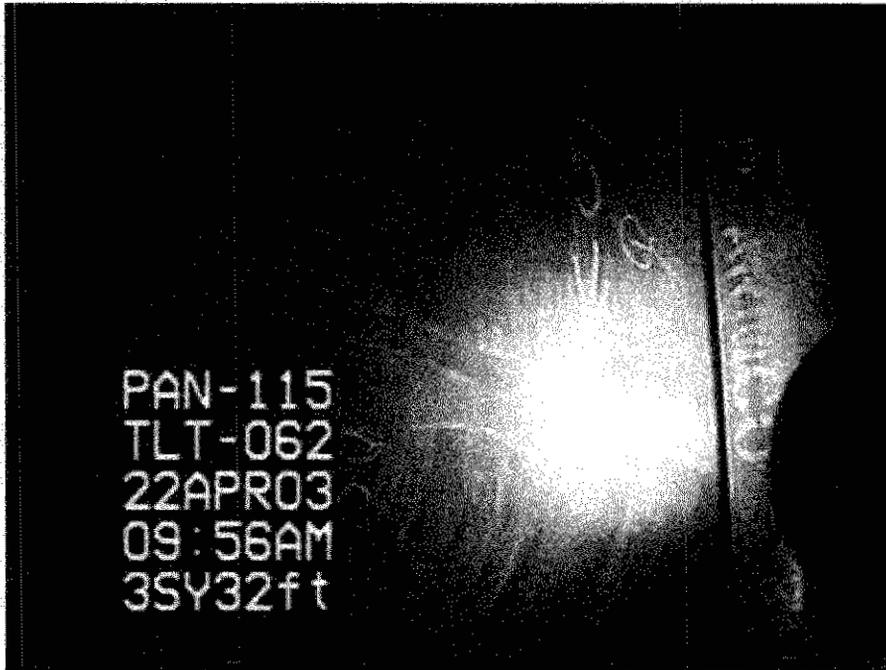


Figure 183 - SY-103 Riser 40, Primary Tank, Knuckle Weld (2003)

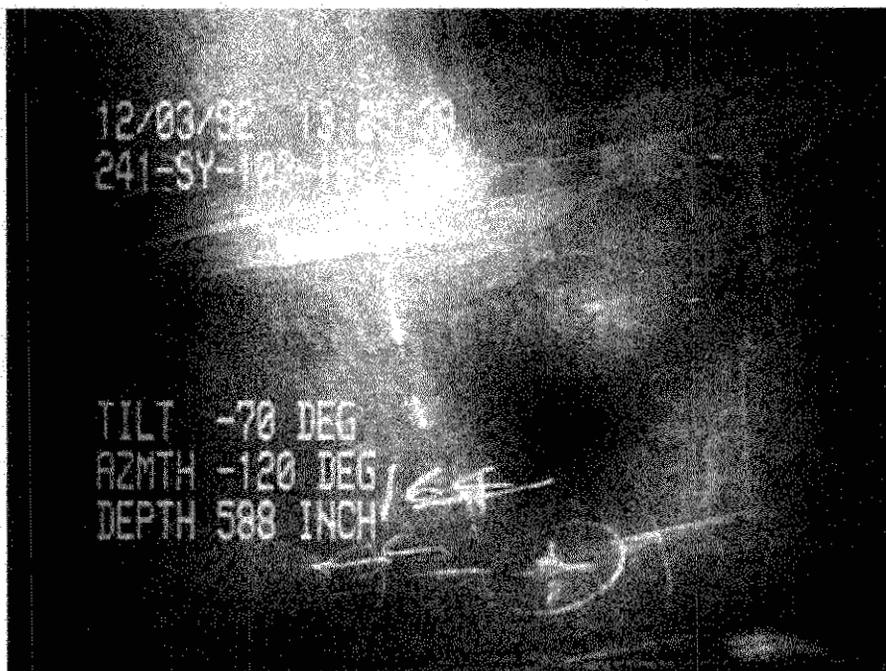


Figure 184 - SY-103 Riser 40 (18G), Primary Tank, Knuckle Weld (1992)

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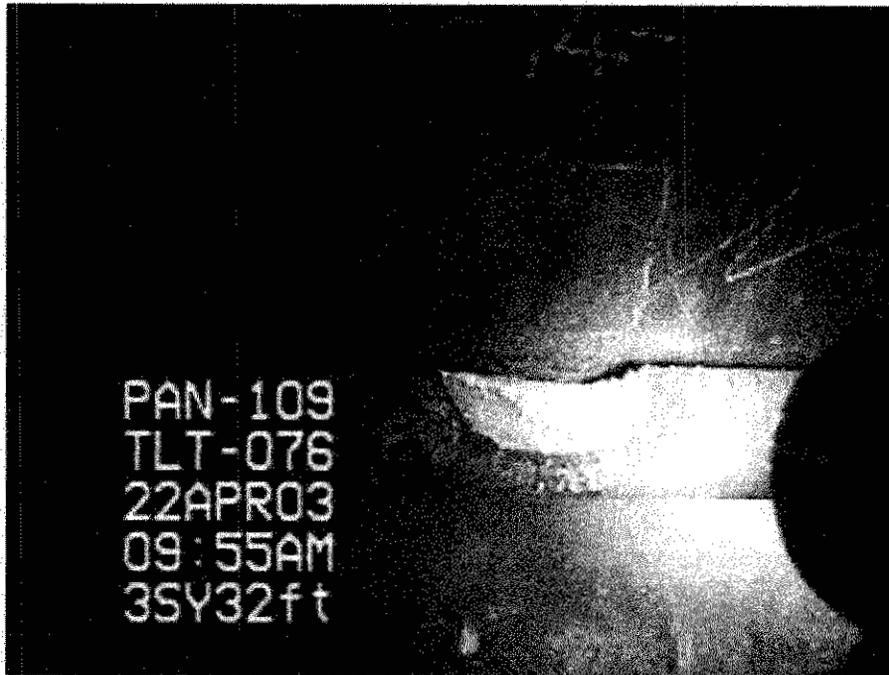


Figure 185 - SY-103 Riser 40, Primary Tank, Concrete Insulating Ring Air Slot (2003)

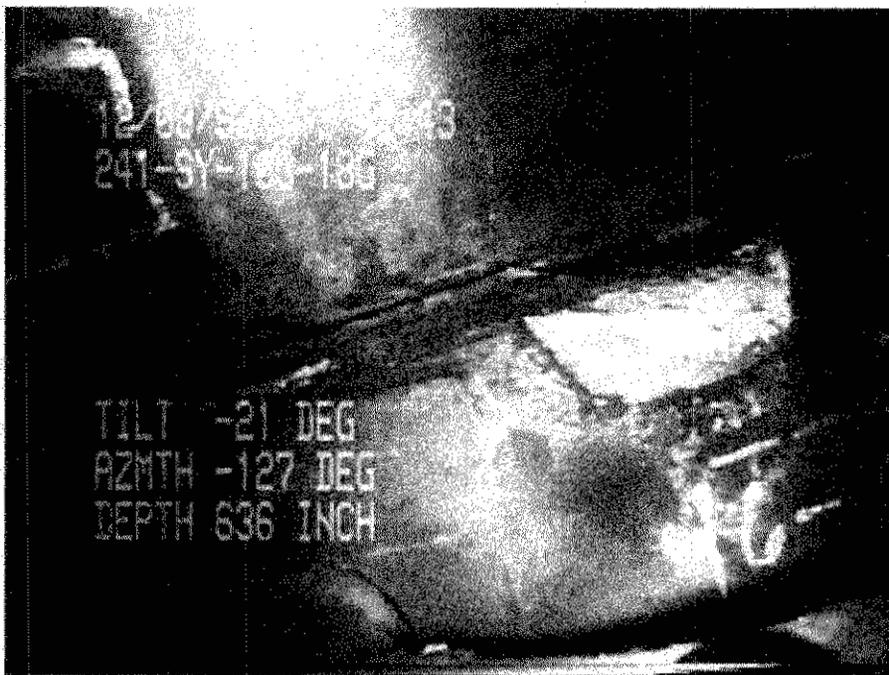


Figure 186 - SY-103 Riser 40 (18G), Primary Tank, Concrete Insulating Ring Air Slot (1992)

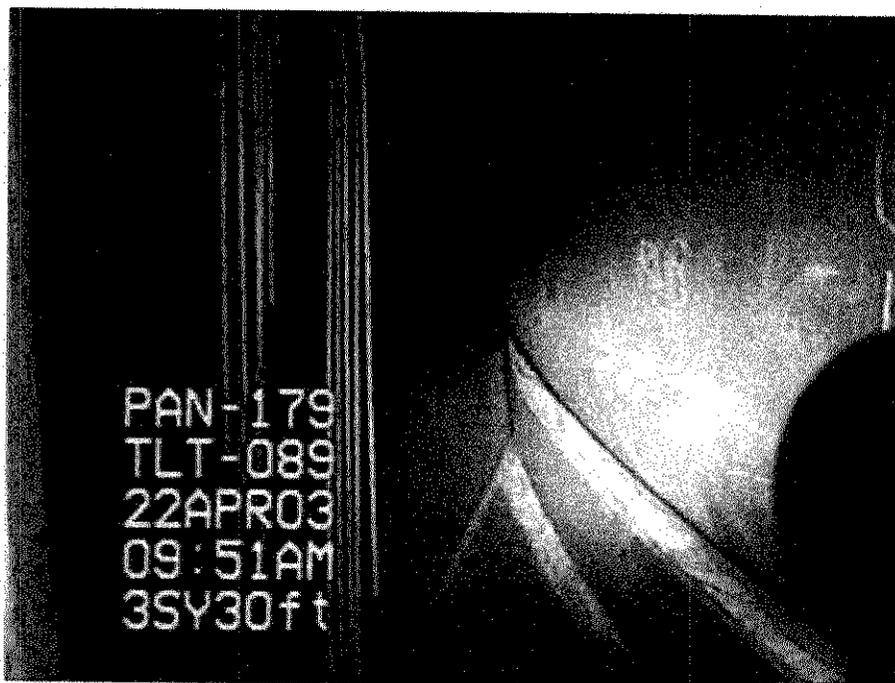


Figure 187 - SY-103 Riser 40, Primary Tank, Knuckle/Concrete Insulating Ring Junction (2003)



Figure 188 - SY-103, Riser 40 (18G), Primary Tank, Knuckle/Concrete Insulating Ring Junction (1992)

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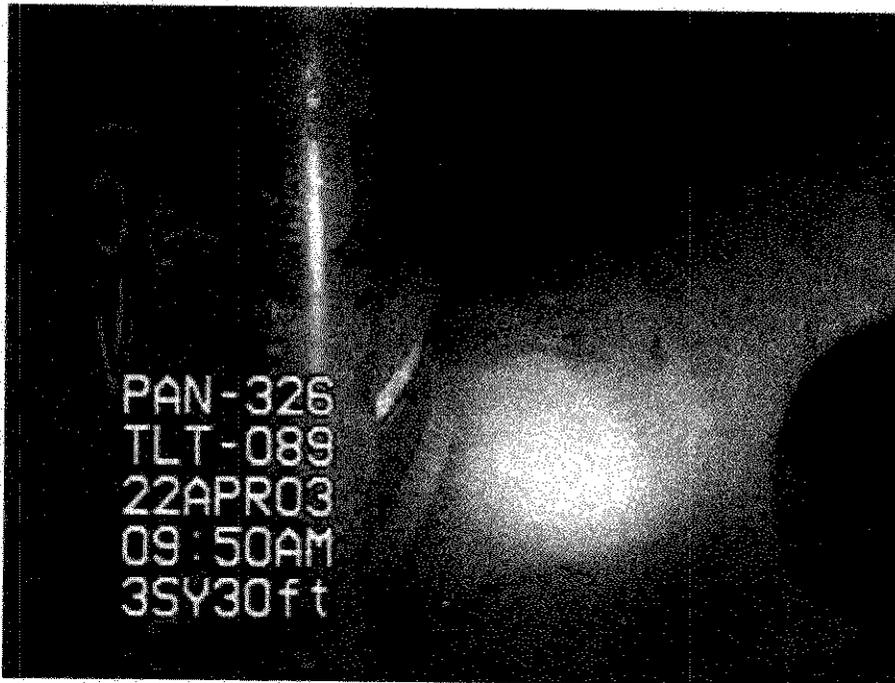


Figure 189 - SY-103 Riser 40, Primary Tank, Annulus Floor (Right, 2003)



Figure 190 - SY-103 Riser 40 (18G), Primary Tank, Annulus Floor (Right, 1992)

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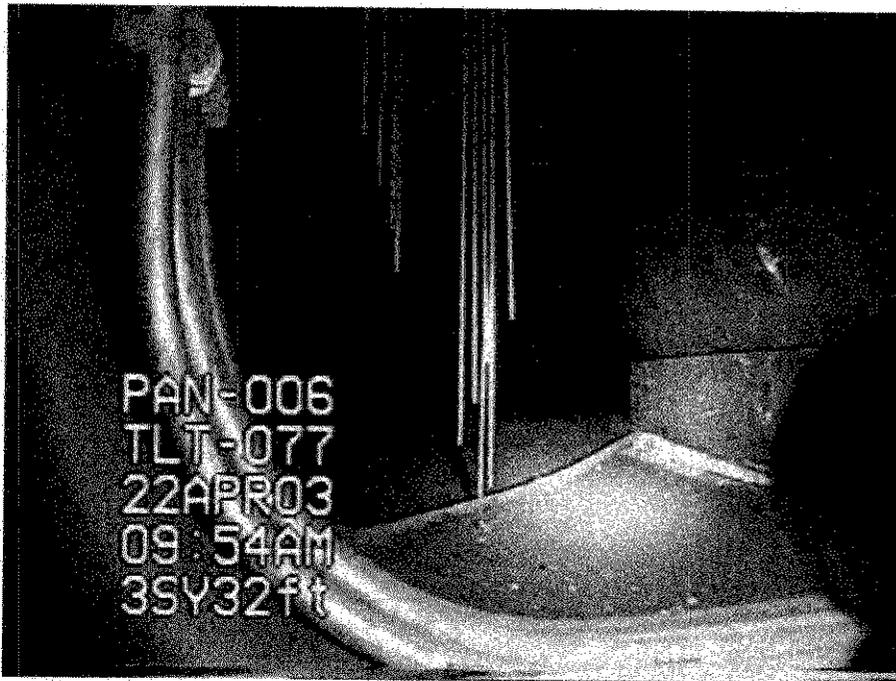


Figure 191 - SY-103 Riser 40, Primary Tank, Annulus Floor (Left, 2003)

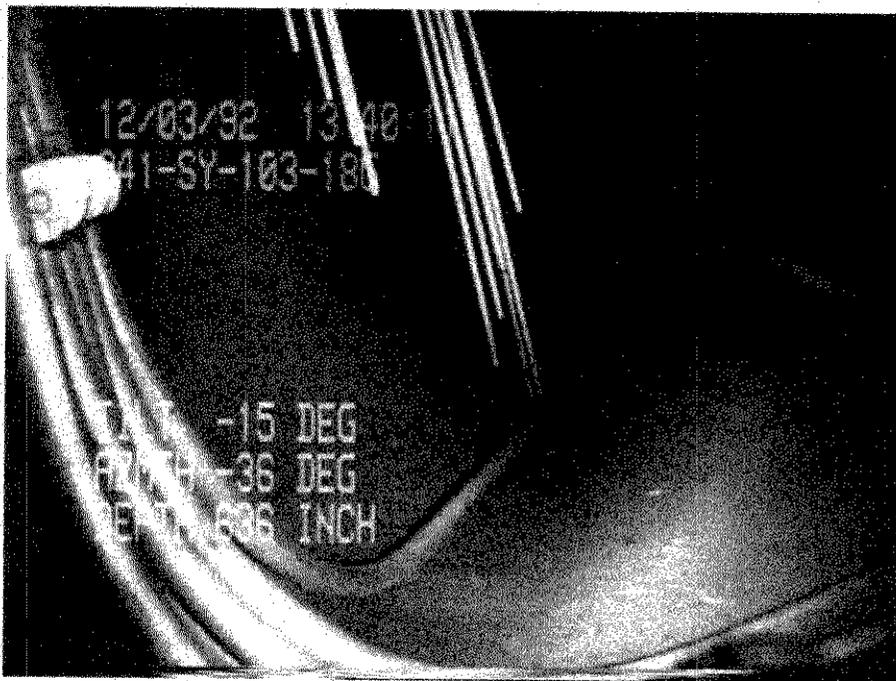


Figure 192 - SY-103 Riser 40 (18G), Primary Tank, Annulus Floor (Left, 1992)



Figure 193 - SY-103 Riser 43, Identification Tag (2003)

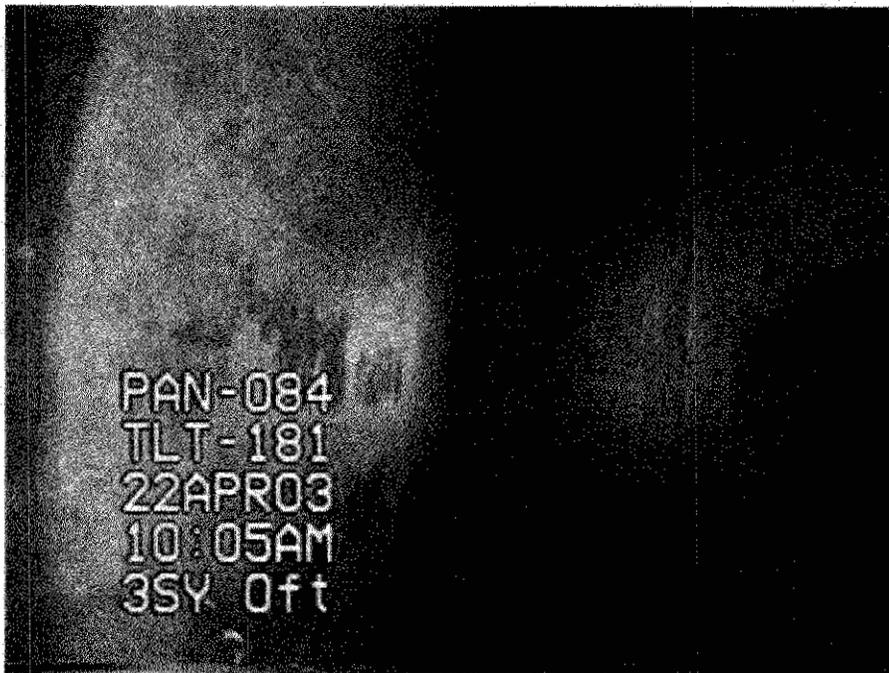


Figure 194 - SY-103 Riser 43, View of Annulus from Riser 43 (2003)

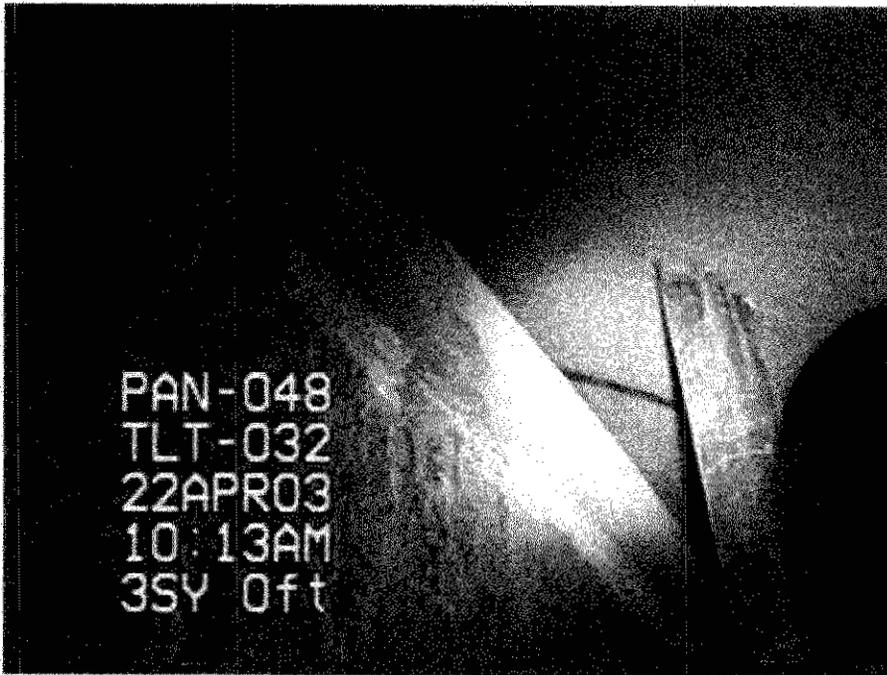


Figure 195 - SY-103 Riser 43, Primary Tank, Primary/Secondary Tank Junction (Right, 2003)



Figure 196 - SY-103 Riser 43, Primary Tank, Primary/Secondary Tank Junction (Left, 2003)

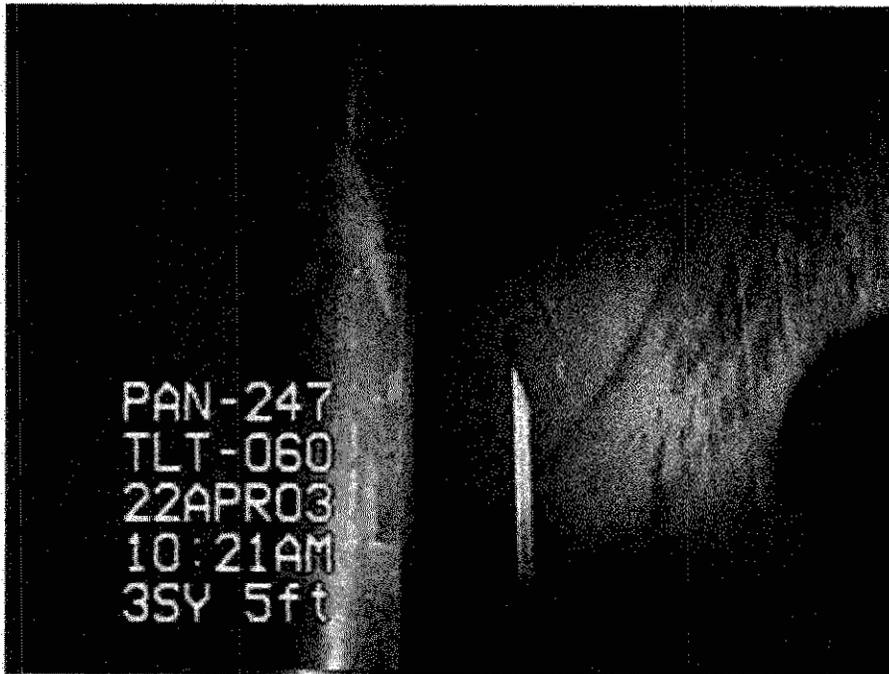


Figure 197 - SY-103 Riser 43, Primary Tank, Primary/Secondary Tanks/Dome (Right, 2003)

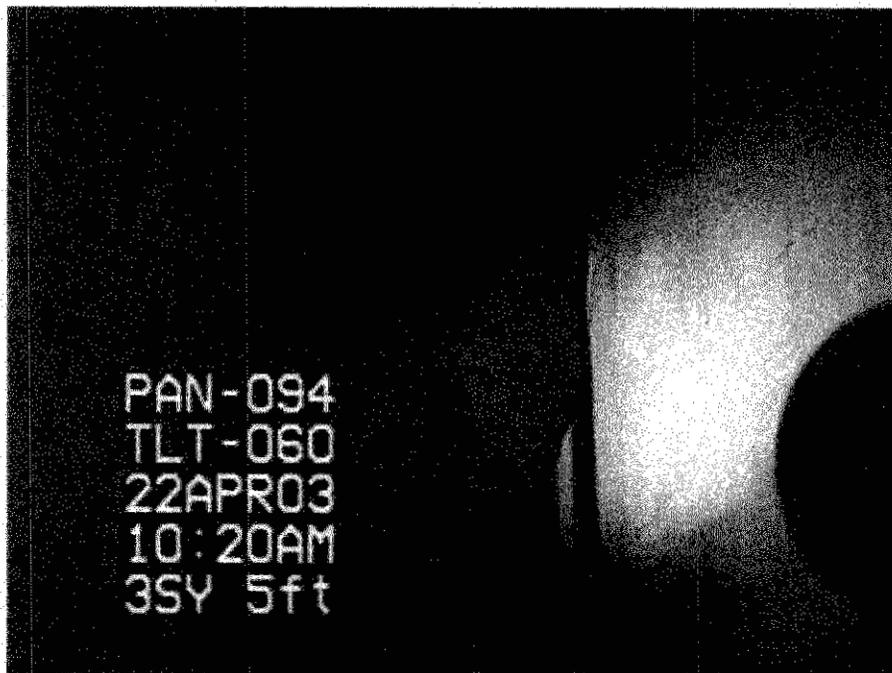


Figure 198 - SY-103 Riser 43, Primary Tank, Primary/Secondary Tanks/Dome (Left, 2003)

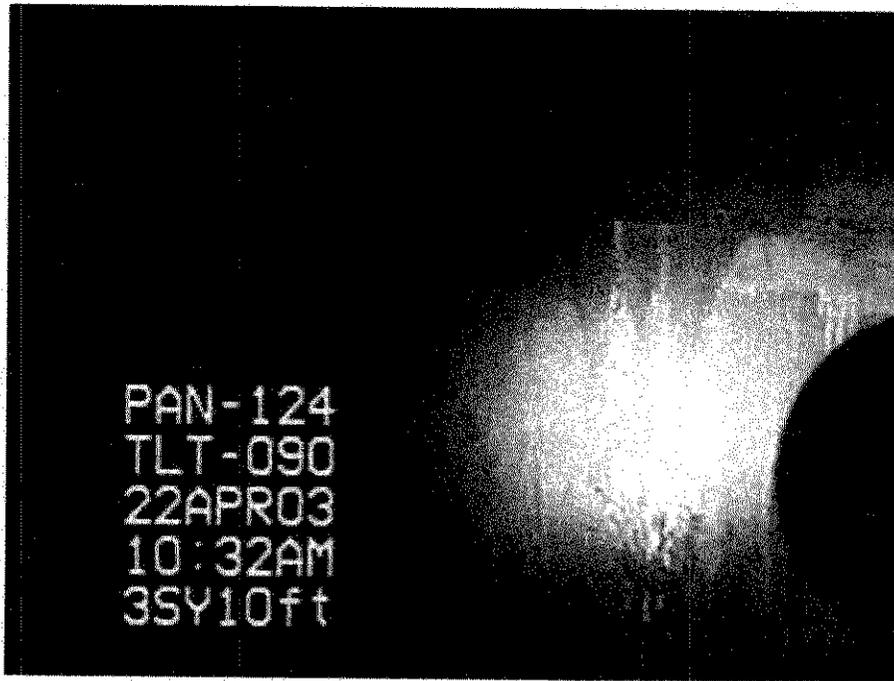


Figure 199 - SY-103 Riser 43, Primary Tank, Weld/Laitance Flow/Construction Marks (2003)

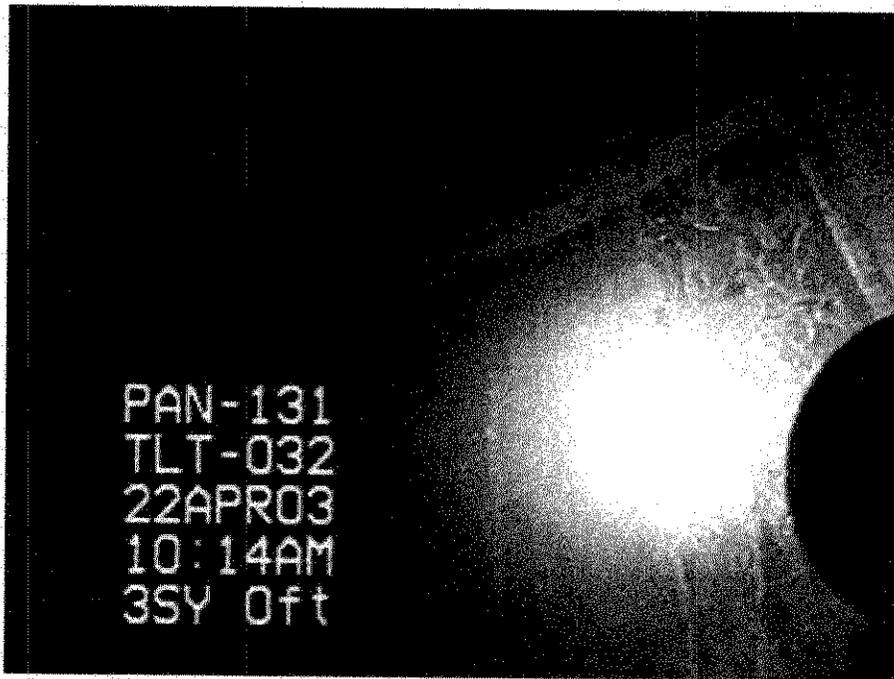


Figure 200 - SY-103 Riser 43, Primary Tank, Laitance Streaks/Mill Scale (2003)

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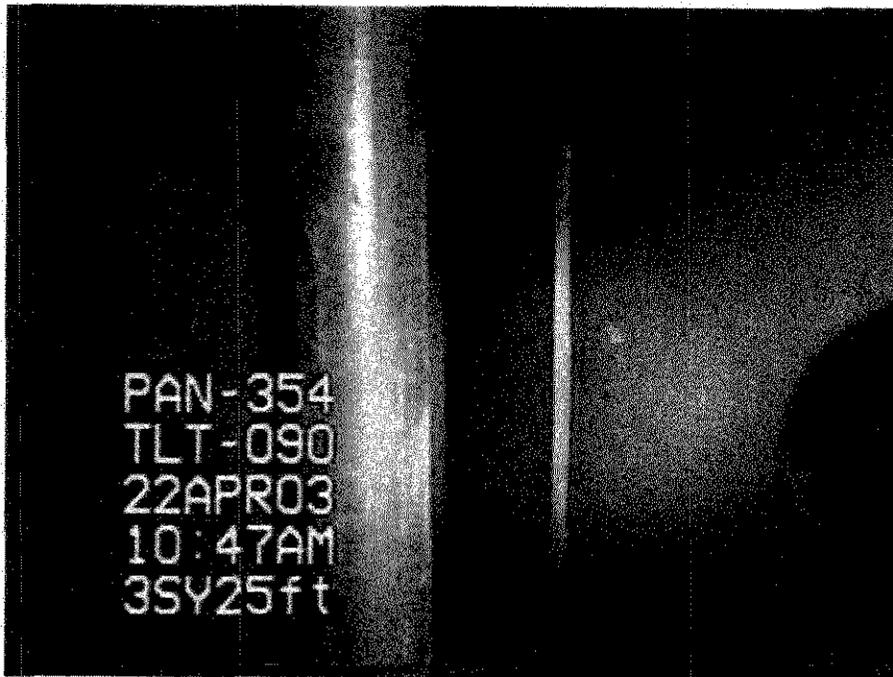


Figure 201 - SY-103 Riser 43, Secondary Tank Wall (Right, 2003)

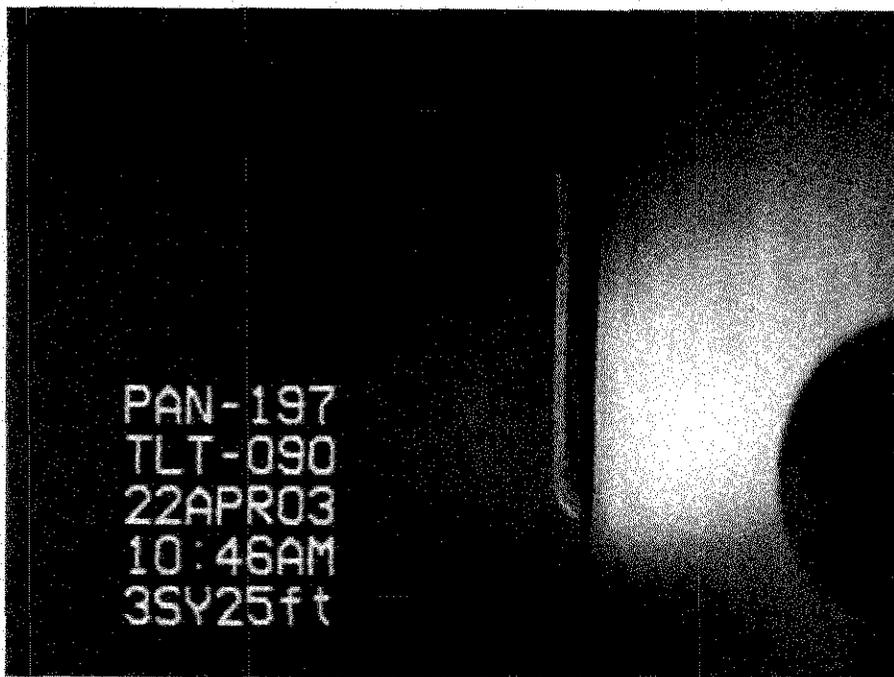


Figure 202 - SY-103 Riser 43, Secondary Tank Wall (Left, 2003)

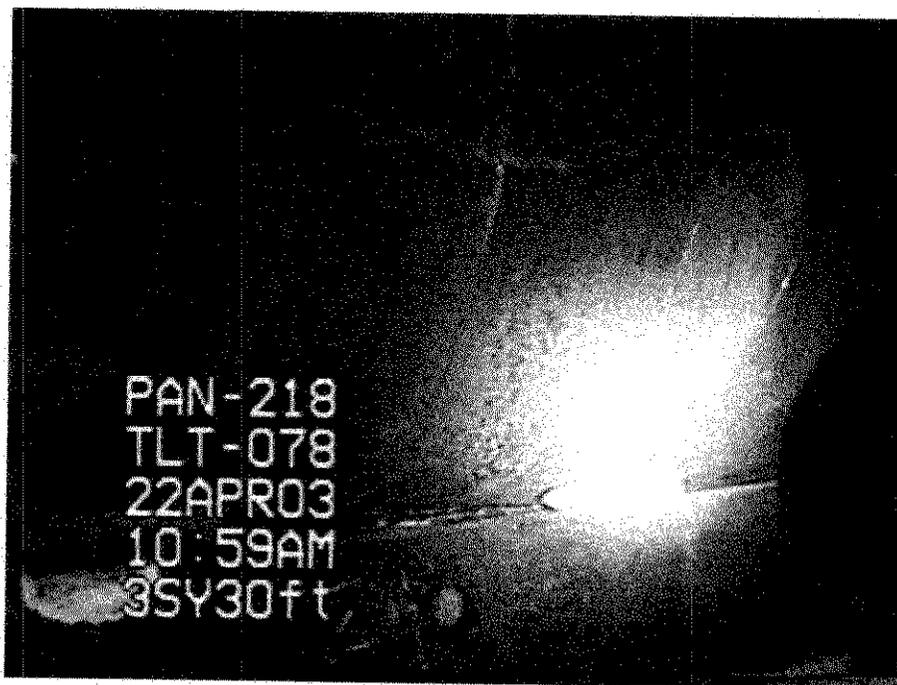


Figure 203 - SY-103 Riser 43, Primary Tank, Knuckle Weld (2003)



Figure 204 - SY-103 Riser 43, Primary Tank, Knuckle/Concrete Insulating Ring Junction (2003)

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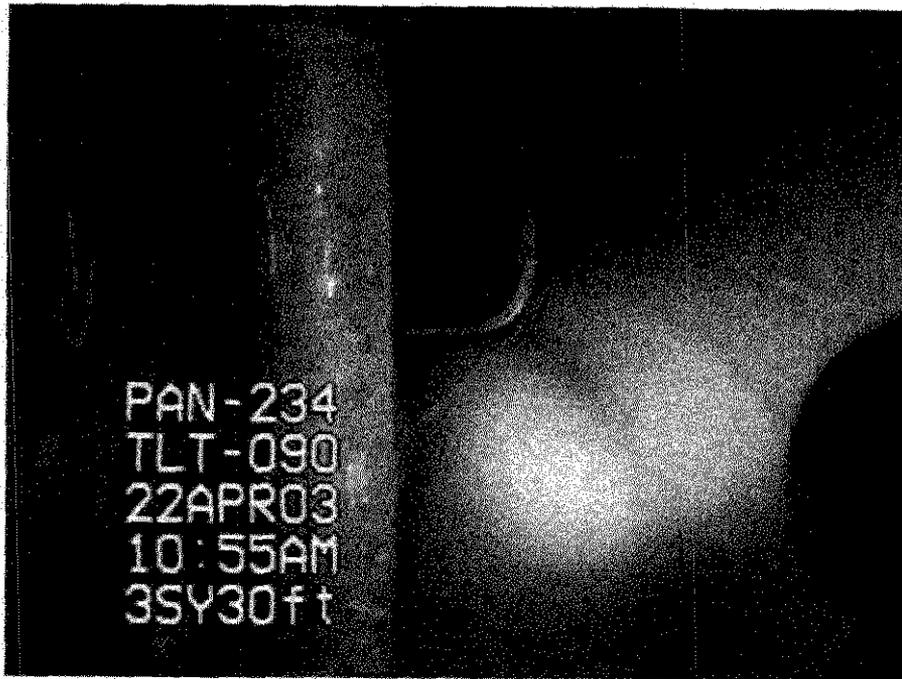


Figure 205 - SY-103 Riser 43, Primary Tank, Annulus Floor/Instrumentation (Right, 2003)

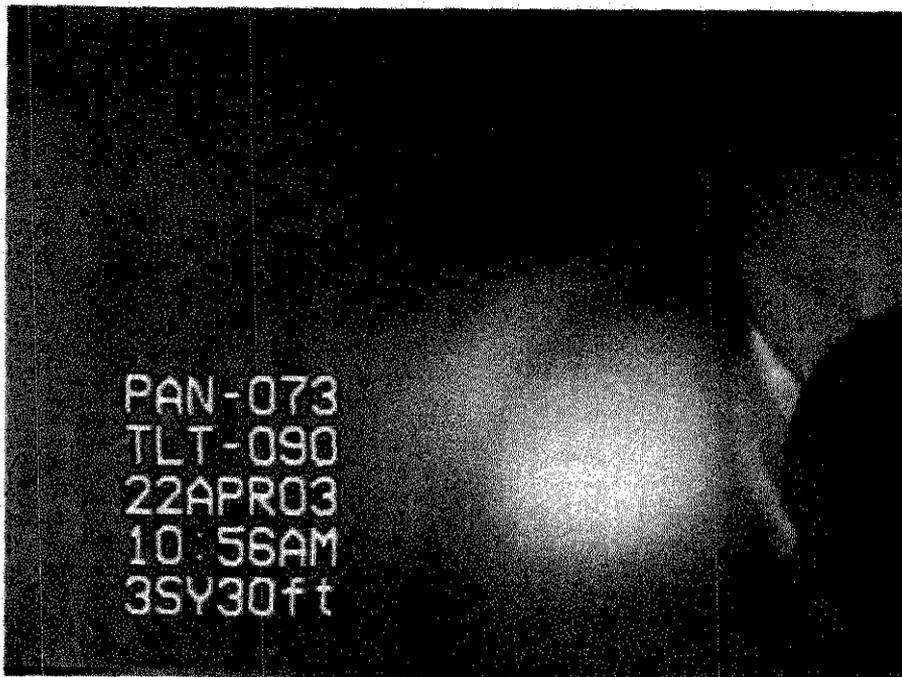


Figure 206 - SY-103 Riser 43, Primary Tank, Annulus Floor/Instrumentation (Left, 2003)

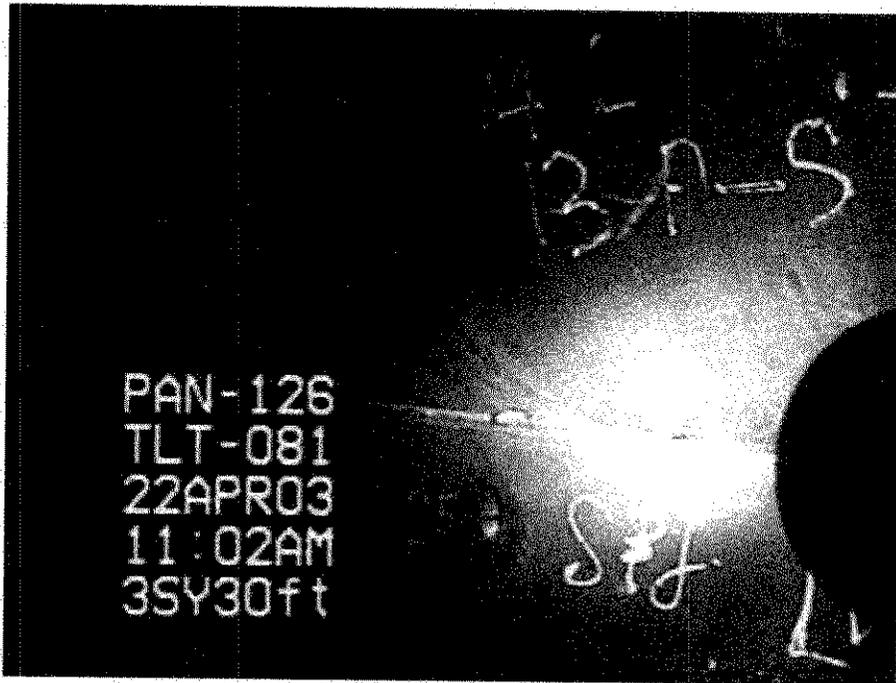


Figure 207 - SY-103 Riser 43, Primary Tank, Knuckle/Concrete Insulating Ring Close-up (2003)

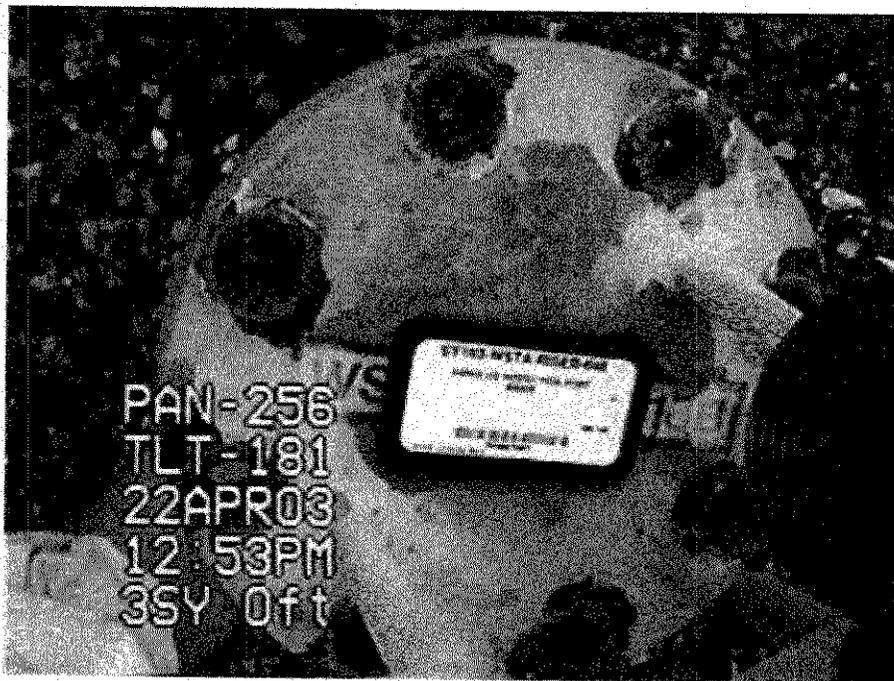


Figure 208 - SY-103 Riser 46, Identification Tag (2003)

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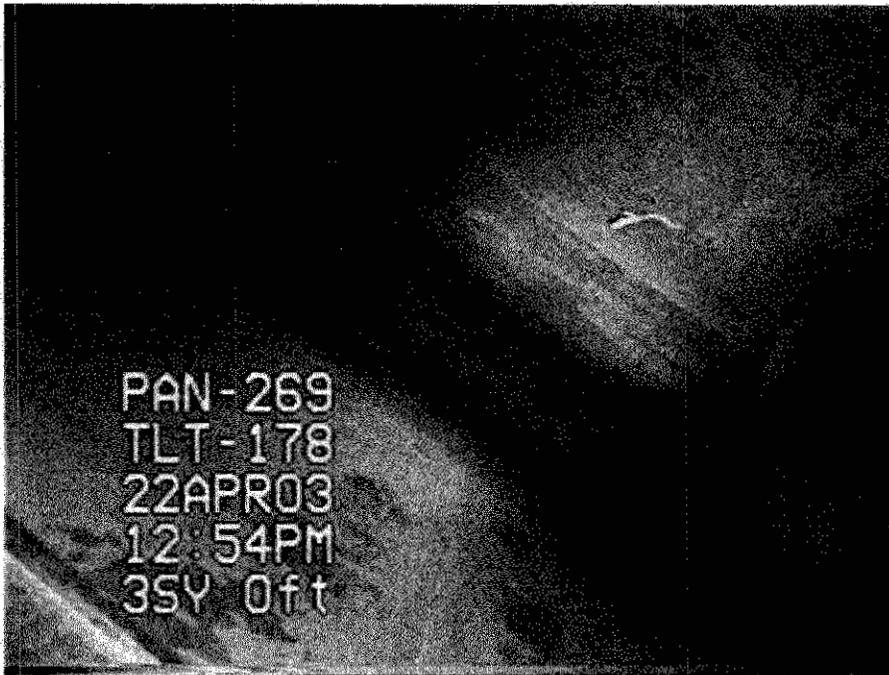


Figure 209 - SY-103 Riser 46, Primary Tank, View of Annulus From Riser 46 (2003)



Figure 210 - SY-103 Riser 46 (18B), Primary Tank, View of Annulus From Riser 46 (1992)

FY 2003 Visual Examination of In-Tank and Tank Annuli at 241-SY Tank Farm
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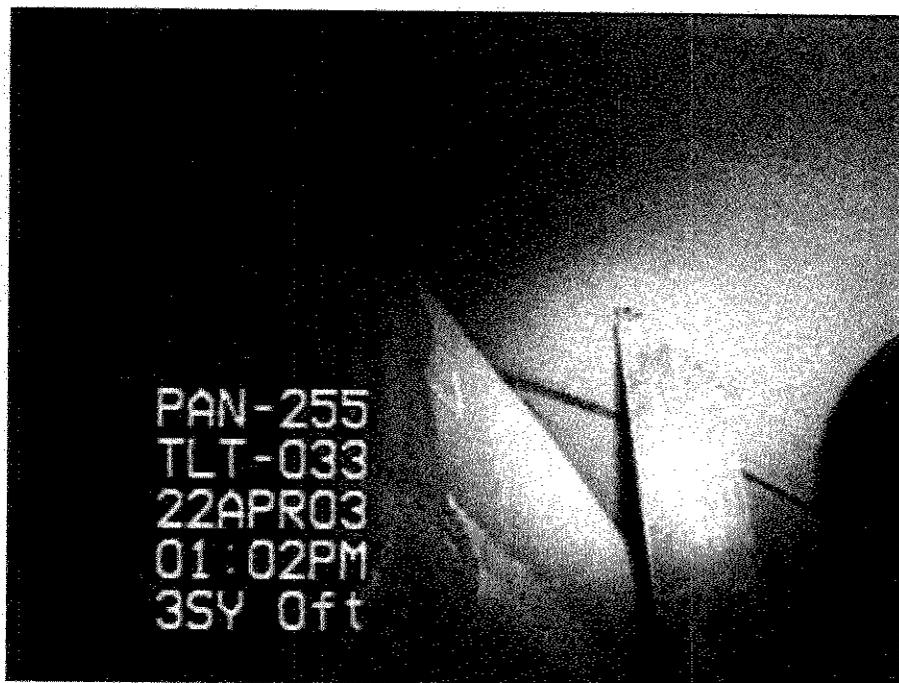


Figure 211 - SY-103 Riser 46, Primary Tank, Primary/Secondary Tank Junction (Right, 2003)



Figure 212 - SY-103 Riser 46 (18B), Primary Tank, Primary/Secondary Tank Junction (Right, 1992)

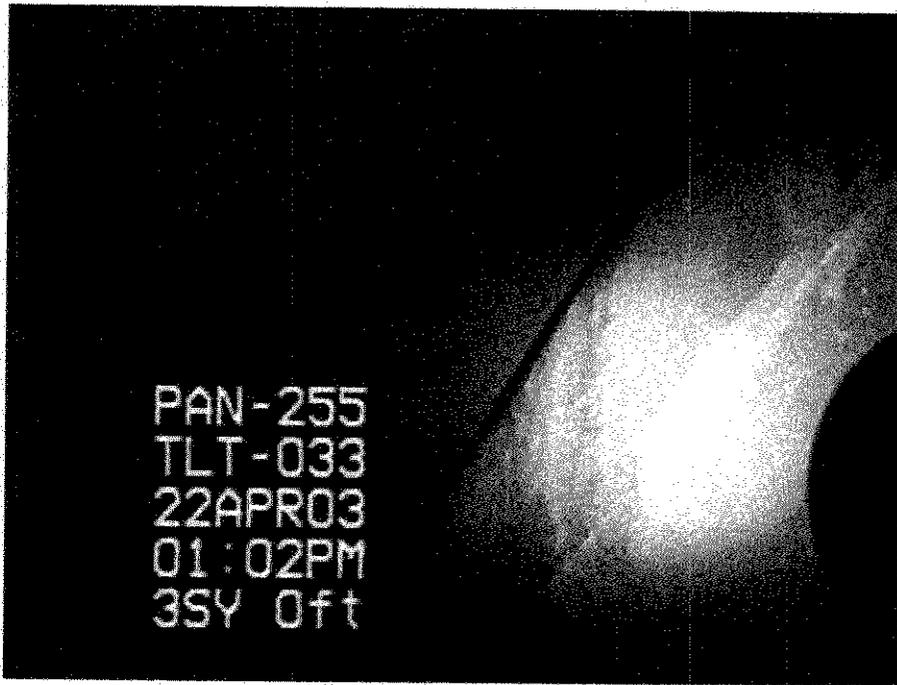


Figure 213 - SY-103 Riser 46, Primary Tank, Primary/Secondary Tank Junction (Left, 2003)



Figure 214 - SY-103 Riser 46 (18B), Primary Tank, Primary/Secondary Tank Junction (Left, 1992)

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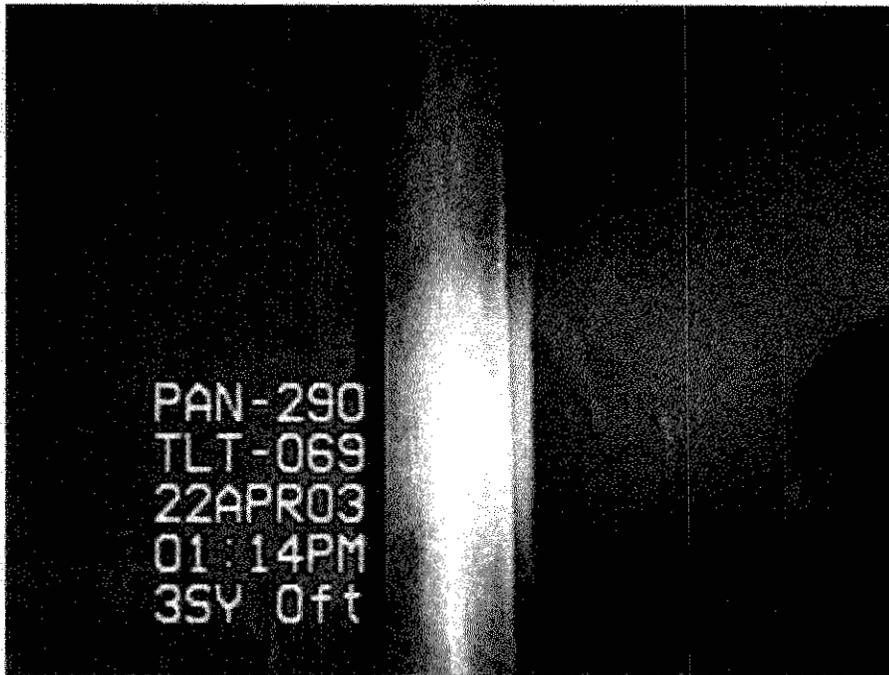


Figure 215 - SY-103 Riser 46, Primary Tank, Primary/Secondary Walls/Dome (Right, 2003)



Figure 216 - SY-103 Riser 46 (18B), Primary Tank, Primary/Secondary Walls/Dome (Right, 1992)

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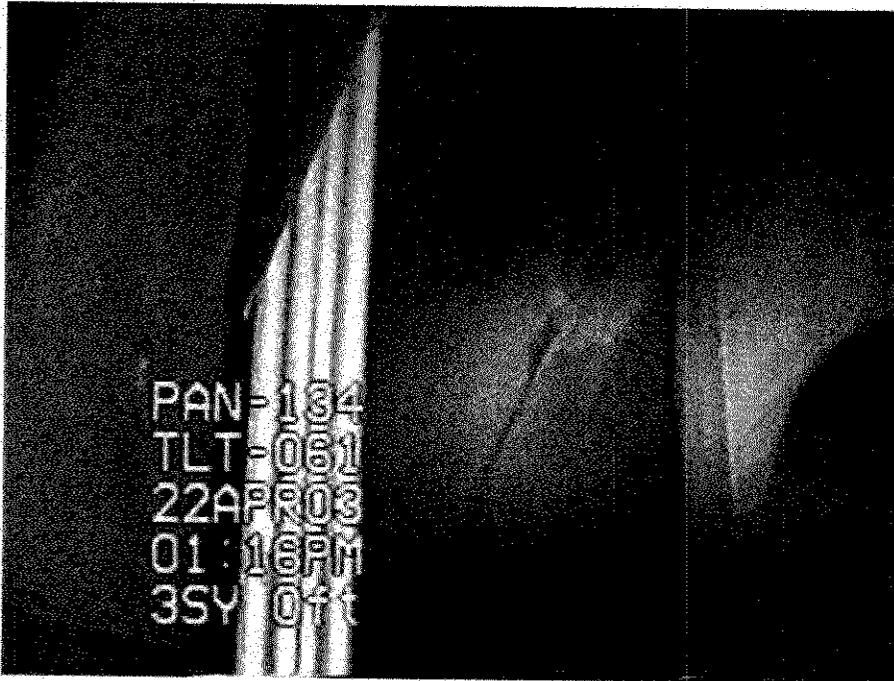


Figure 217 - SY-103 Riser 46, Primary Tank, Primary/Secondary Walls/Dome (Left, 2003)

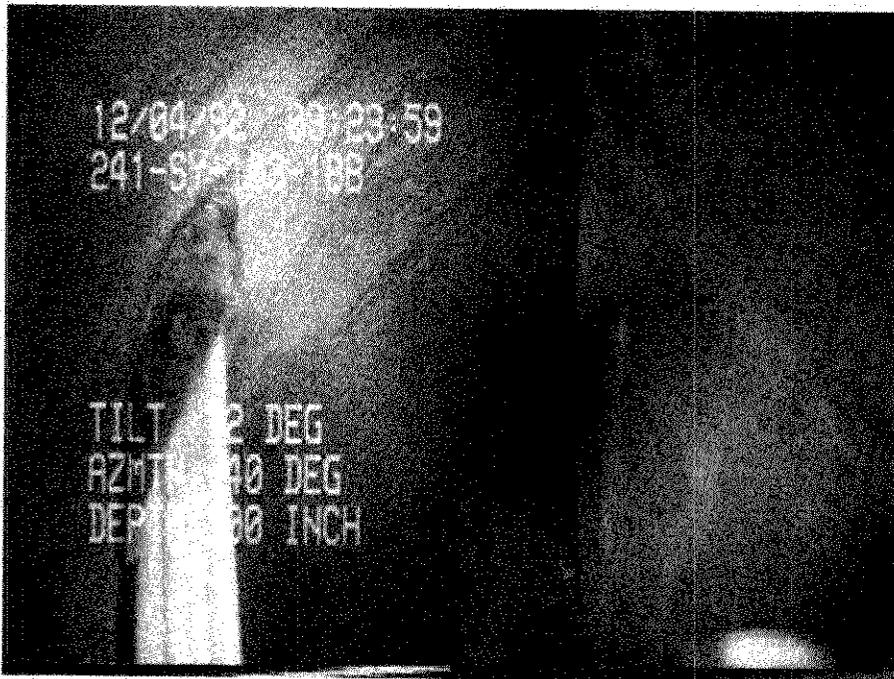


Figure 218 - SY-103 Riser 46 (18B), Primary Tank, Primary/Secondary Walls/Dome (Left, 1992)

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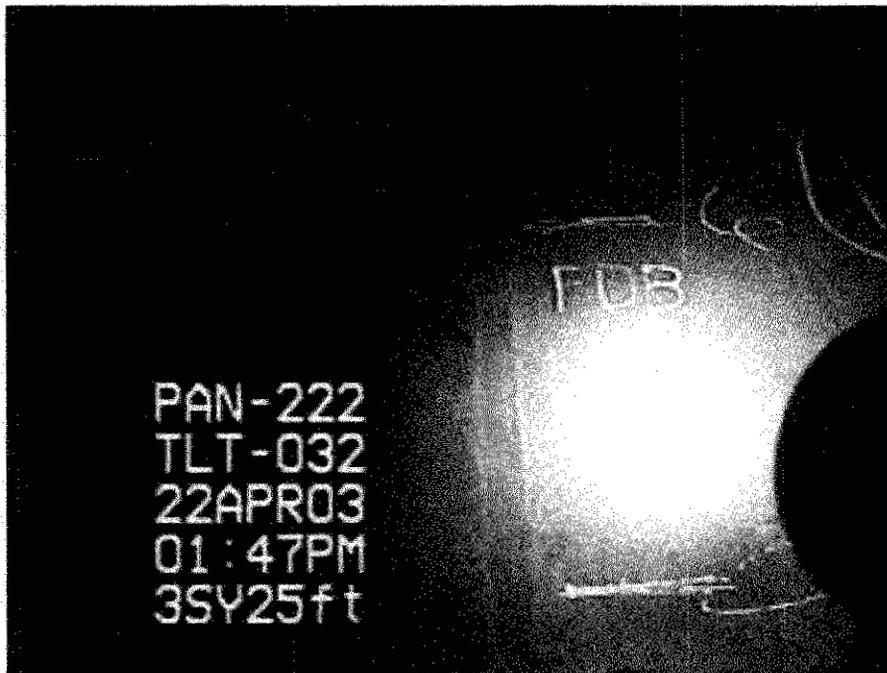


Figure 219 - SY-103 Riser 46, Primary Tank, Vertical Weld/Construction Marks (2003)



Figure 220 - SY-103 Riser 46 (18B), Primary Tank, Vertical Weld/Construction Marks (1992)

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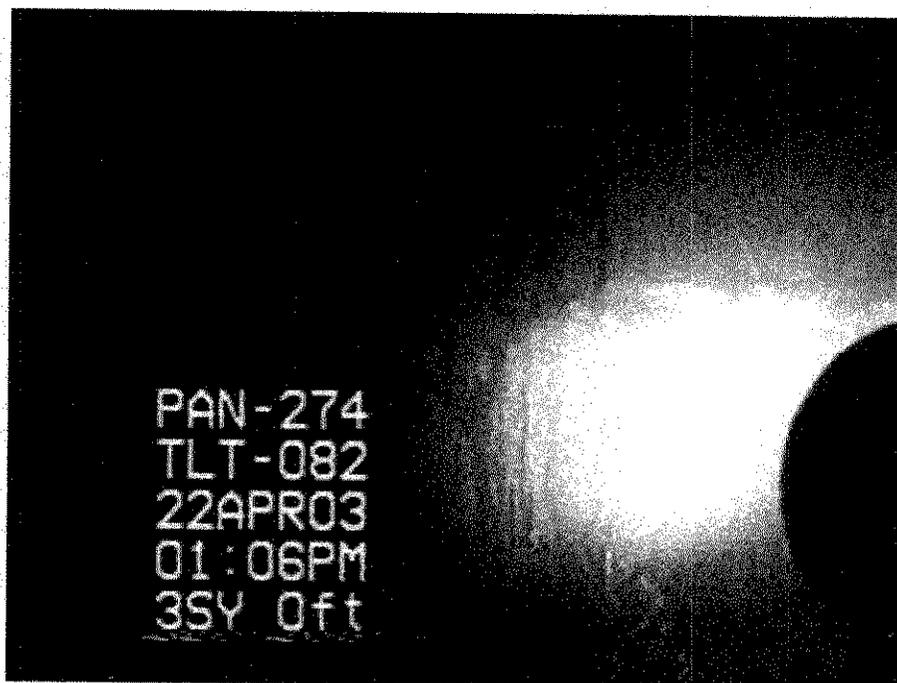


Figure 221 - SY-103 Riser 46, Primary Tank, Laitance Streaks, Top Plate (2003)



Figure 222 - SY-103 Riser 46 (18B), Primary Tank, Laitance Streaks, Top Plate (1992)

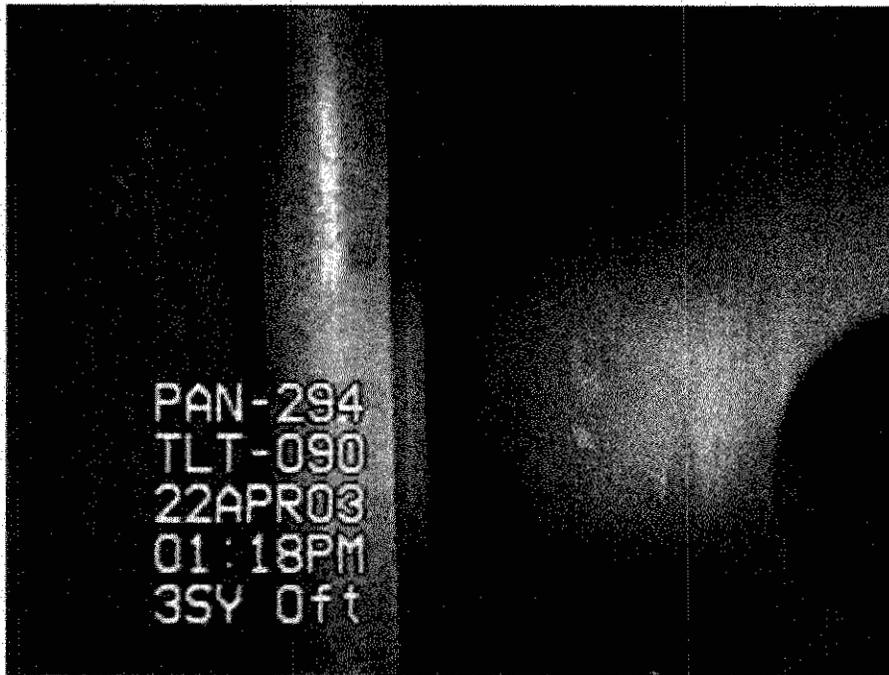


Figure 223 - SY-103 Riser 46, Secondary Tank Wall (Right, 2003)



Figure 224 - SY-103 Riser 46 (18B), Secondary Tank Wall (Right, 1992)

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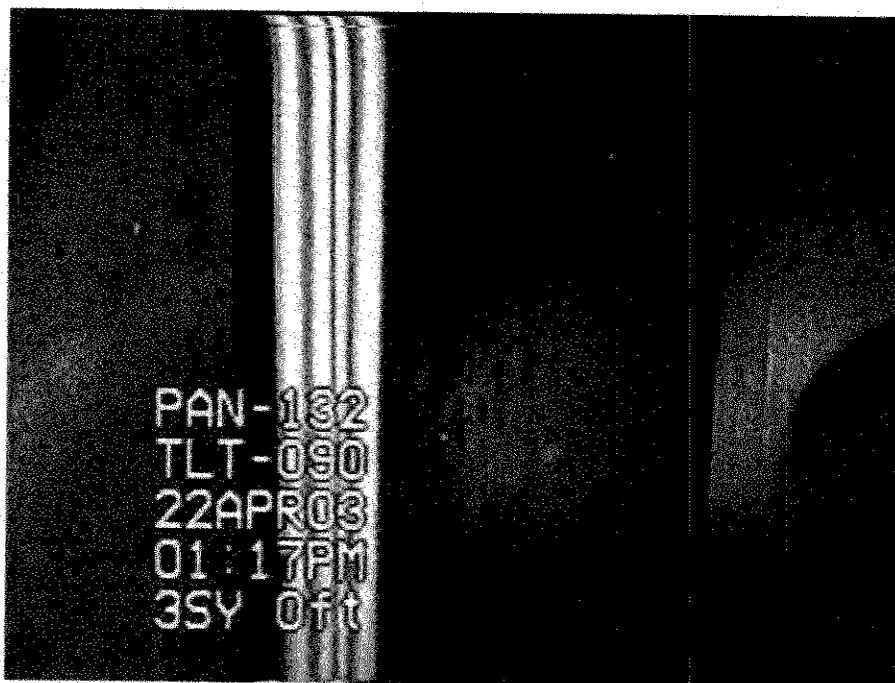


Figure 225 - SY-103 Riser 46, Secondary Tank Wall (Left, 2003)

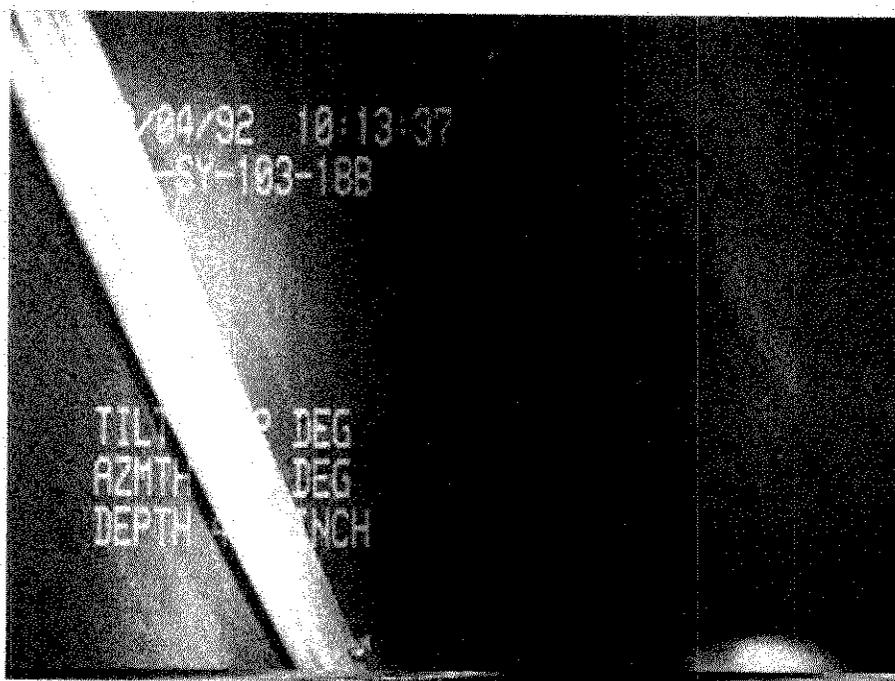


Figure 226 - SY-103 Riser 46 (18B), Secondary Tank Wall (Left, 1992)



Figure 227 - SY-103 Riser 46, Primary Tank, Knuckle/Concrete Insulating Ring Junction (2003)

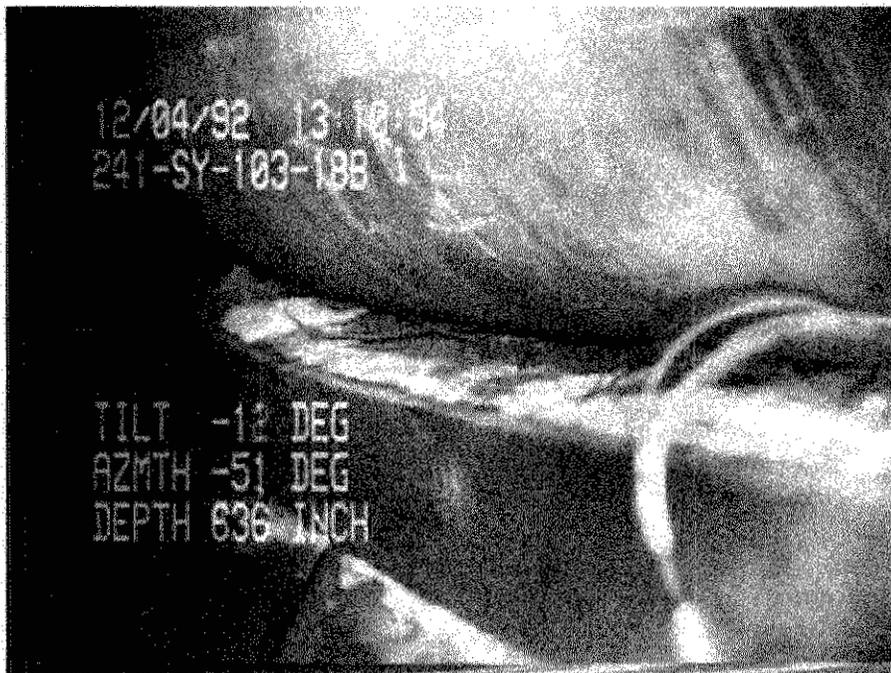


Figure 228 - SY-103 Riser 46 (18B), Primary Tank, Knuckle/Concrete Insulating Ring Junction (1992)

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Figure 229 - SY-103 Riser 46, Primary Tank, Annulus Floor (Right, 2003)



Figure 230 - SY-103 Riser 46 (18B), Primary Tank, Annulus Floor (Right, 1992)

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Figure 231 - SY-103 Riser 46, Primary Tank, Annulus Floor (Left, 2003)



Figure 232 - SY-103 Riser 46 (18B), Primary Tank, Annulus Floor (Left, 1992)

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Figure 233 - SY-103 Riser 46, Primary Tank, Annulus Instrumentation (2003)

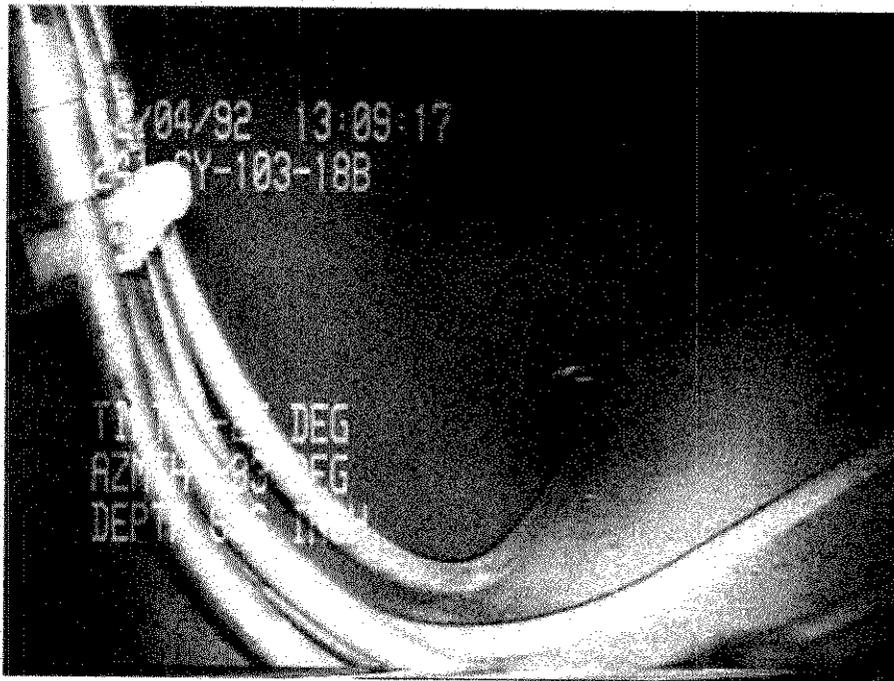


Figure 234 - SY-103 Riser 46 (18B), Primary Tank, Annulus Instrumentation (1992)

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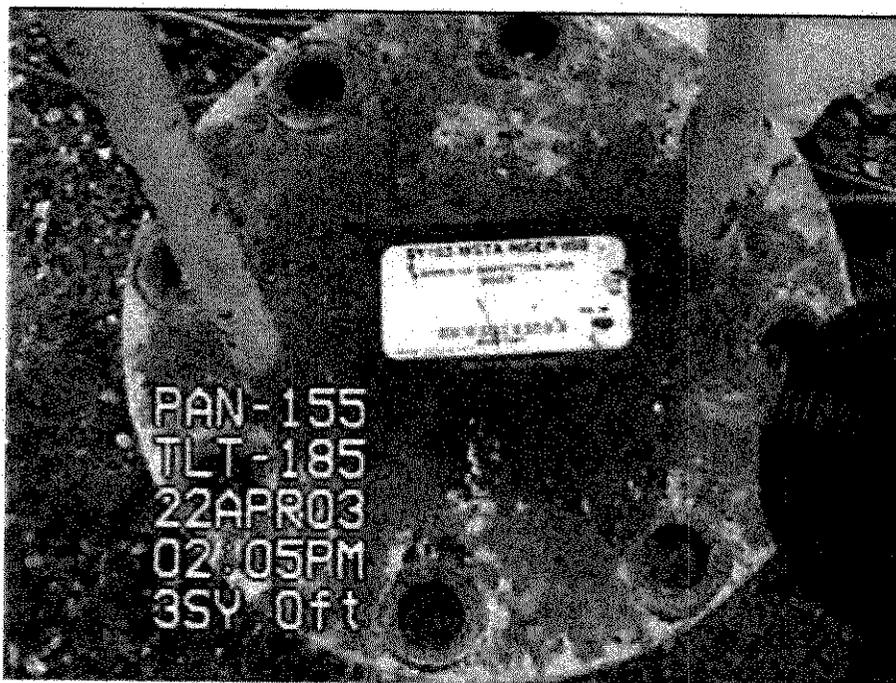


Figure 235 - SY-103 Riser 50, Identification Tag (2003)



Figure 236 - SY-103 Riser 50, View of Annulus from Riser 50 (2003)

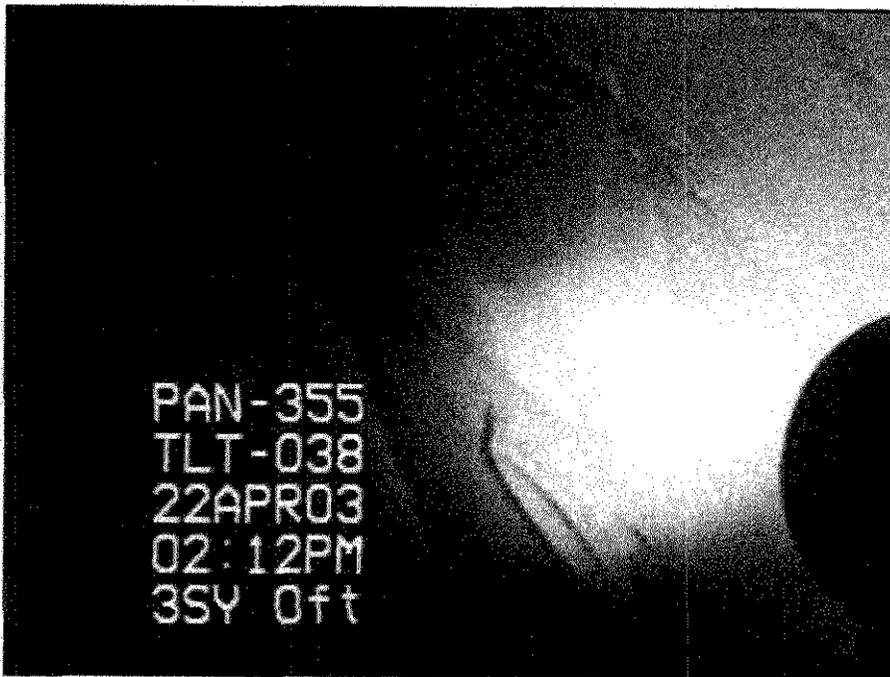


Figure 237 - SY-103 Riser 50, Primary Tank, Primary/Secondary Tank Junction (Right, 2003)

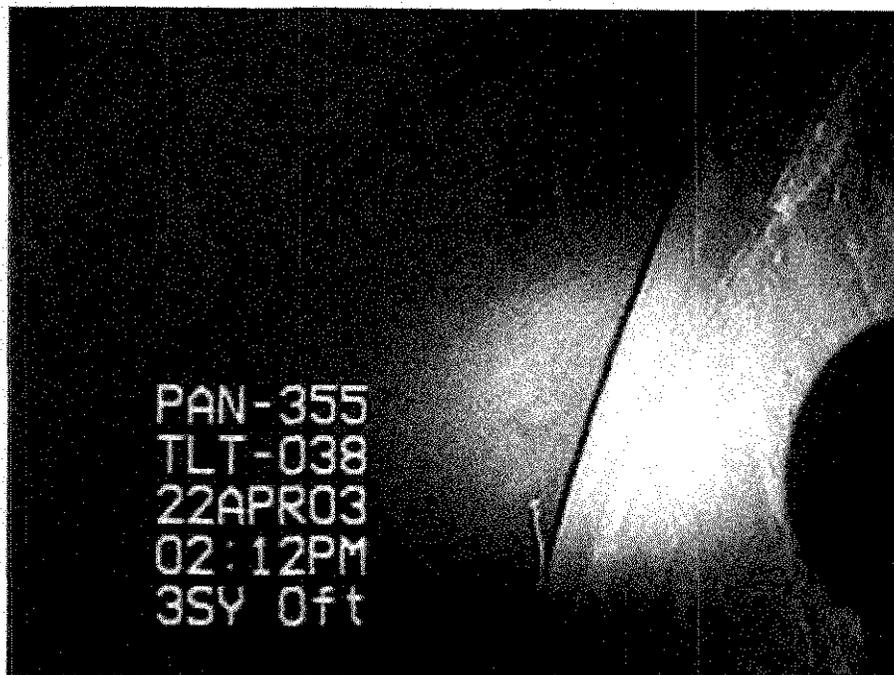


Figure 238 - SY-103 Riser 50, Primary Tank, Primary/Secondary Tank Junction (Left, 2003)

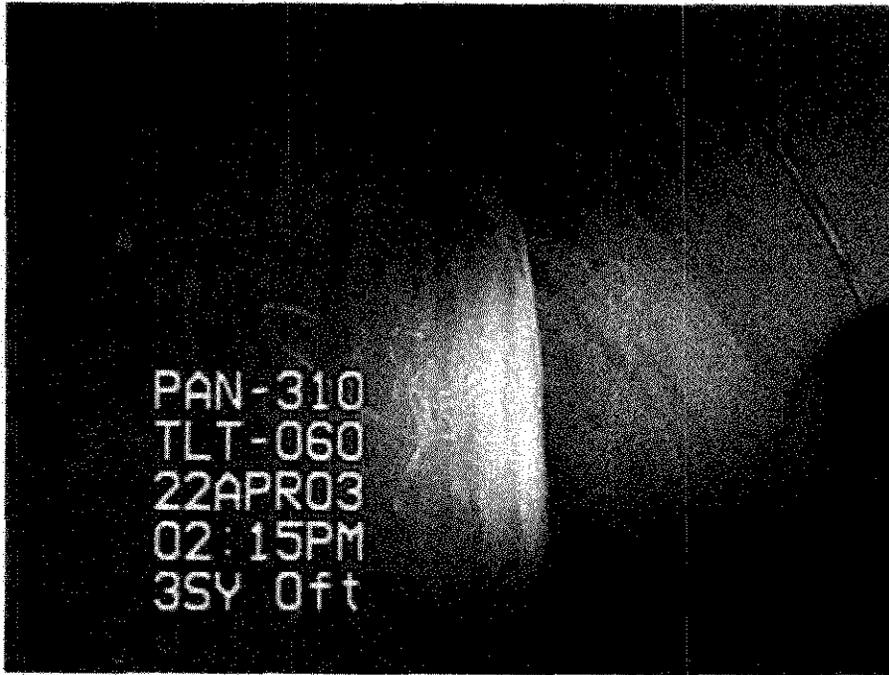


Figure 239 - SY-103 Riser 50, Primary Tank, Primary/Secondary Tanks/Dome (Right, 2003)



Figure 240 - SY-103 Riser 50, Primary Tank, Primary/Secondary Tanks/Dome (Left, 2003)

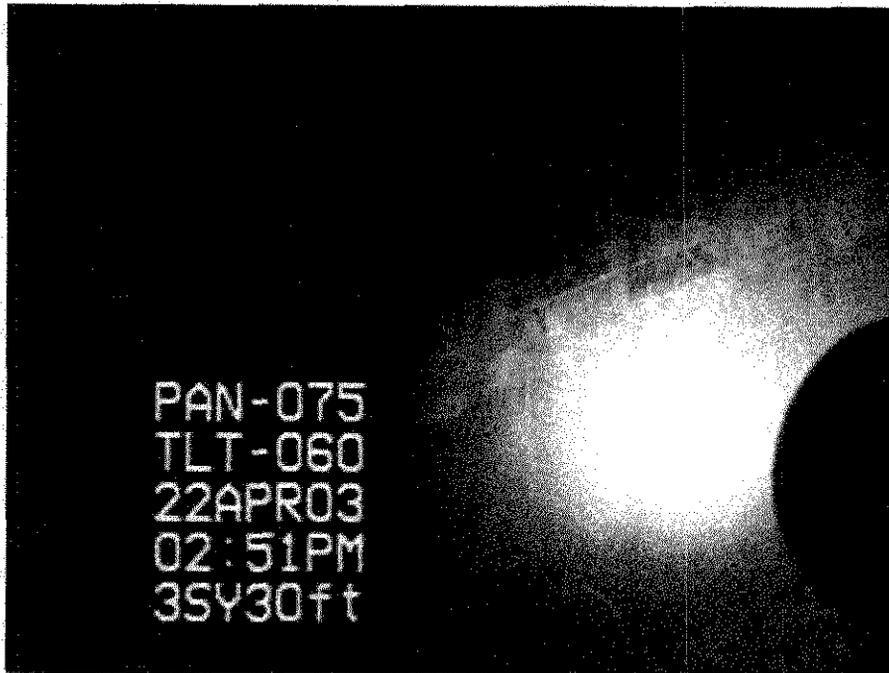


Figure 241 - SY-103 Riser 50, Primary Tank, Horizontal Weld/Construction Marks (2003)

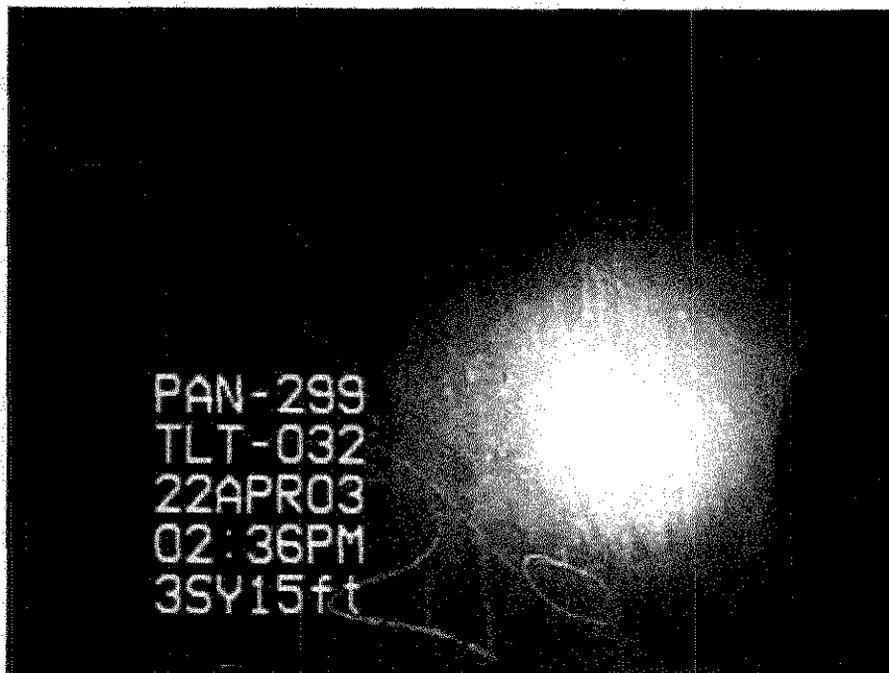


Figure 242 - SY-103 Riser 50, Primary Tank, Laitance Streaks/Mill Scale (2003)

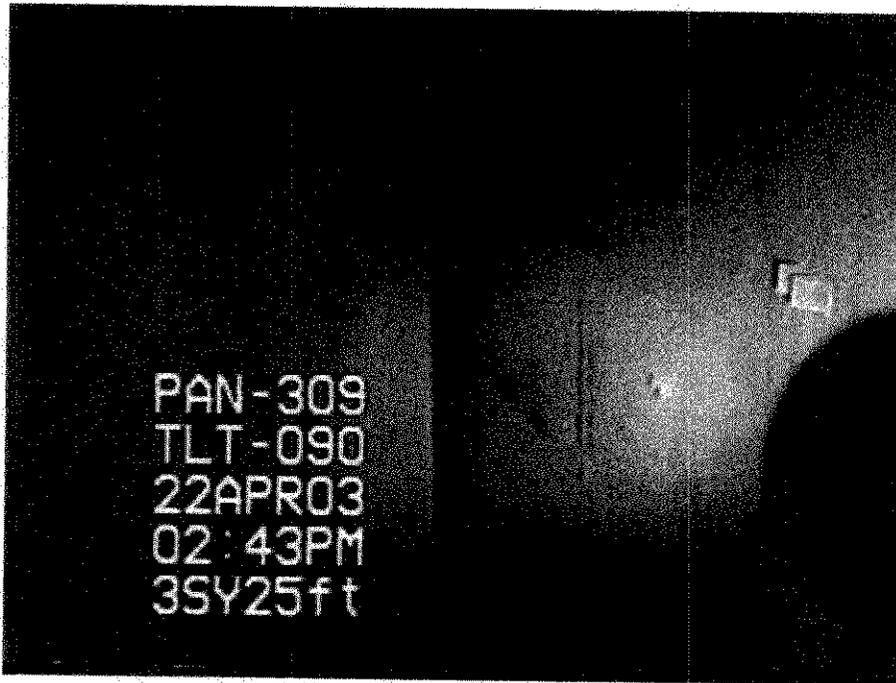


Figure 243 - SY-103 Riser 50, Secondary Tank Wall (Right, 2003)



Figure 244 - SY-103 Riser 50, Secondary Tank Wall (Left, 2003)

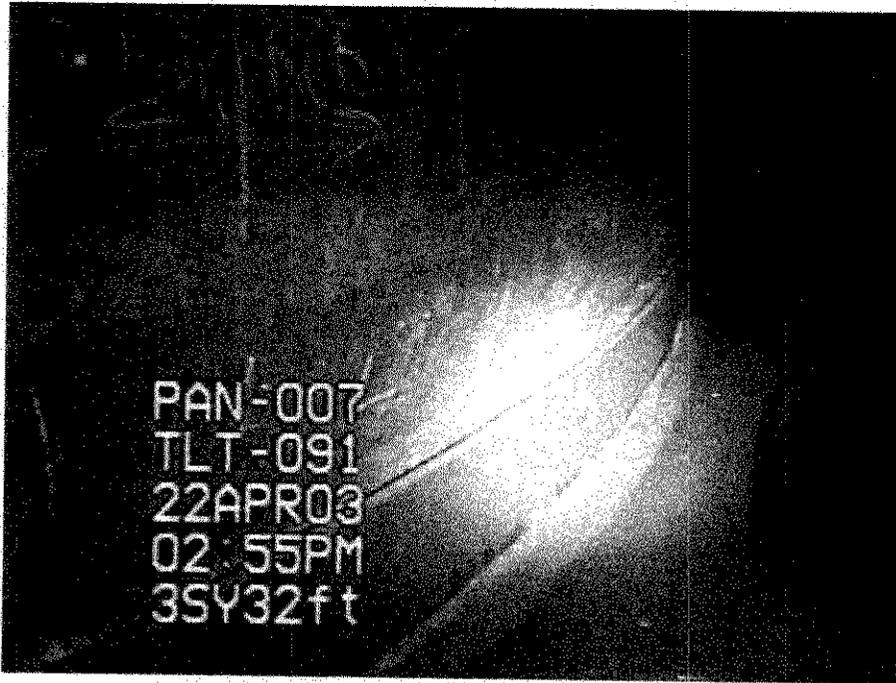


Figure 245 - SY-103 Riser 50, Primary Tank, Knuckle Weld (2003)

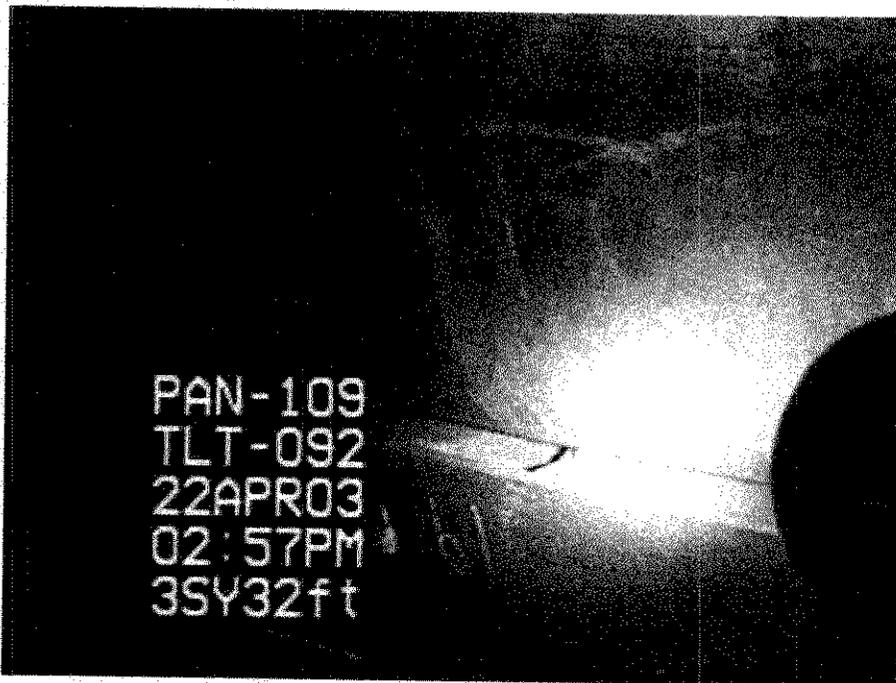


Figure 246 - SY-103 Riser 50, Primary Tank, Knuckle/Concrete Insulating Ring Junction (2003)

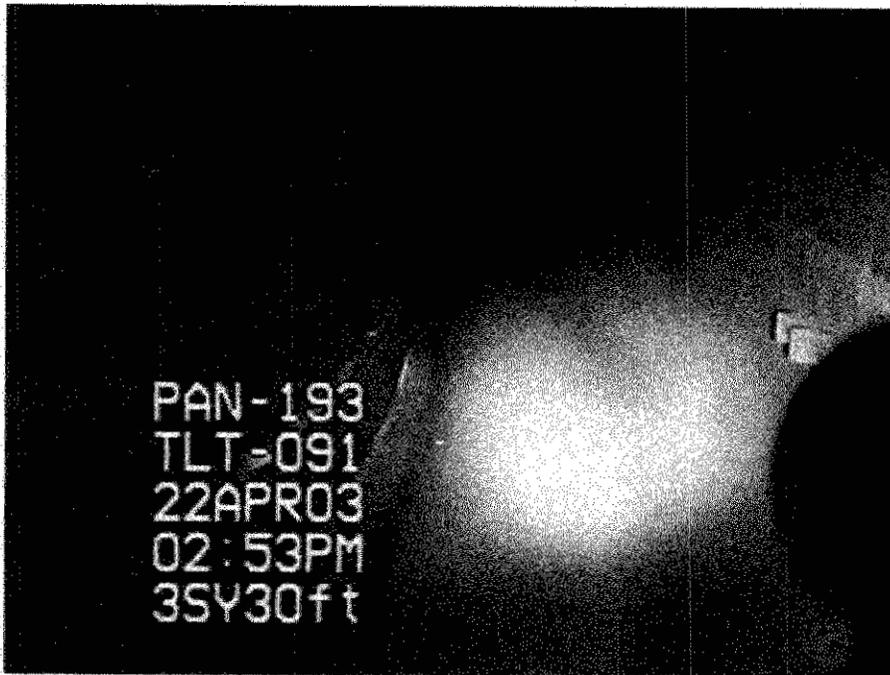


Figure 247 - SY-103 Riser 50, Primary Tank, Annulus Floor (Right, 2003)



Figure 248 - SY-103 Riser 50, Primary Tank, Annulus Floor/Instrumentation (Left, 2003)

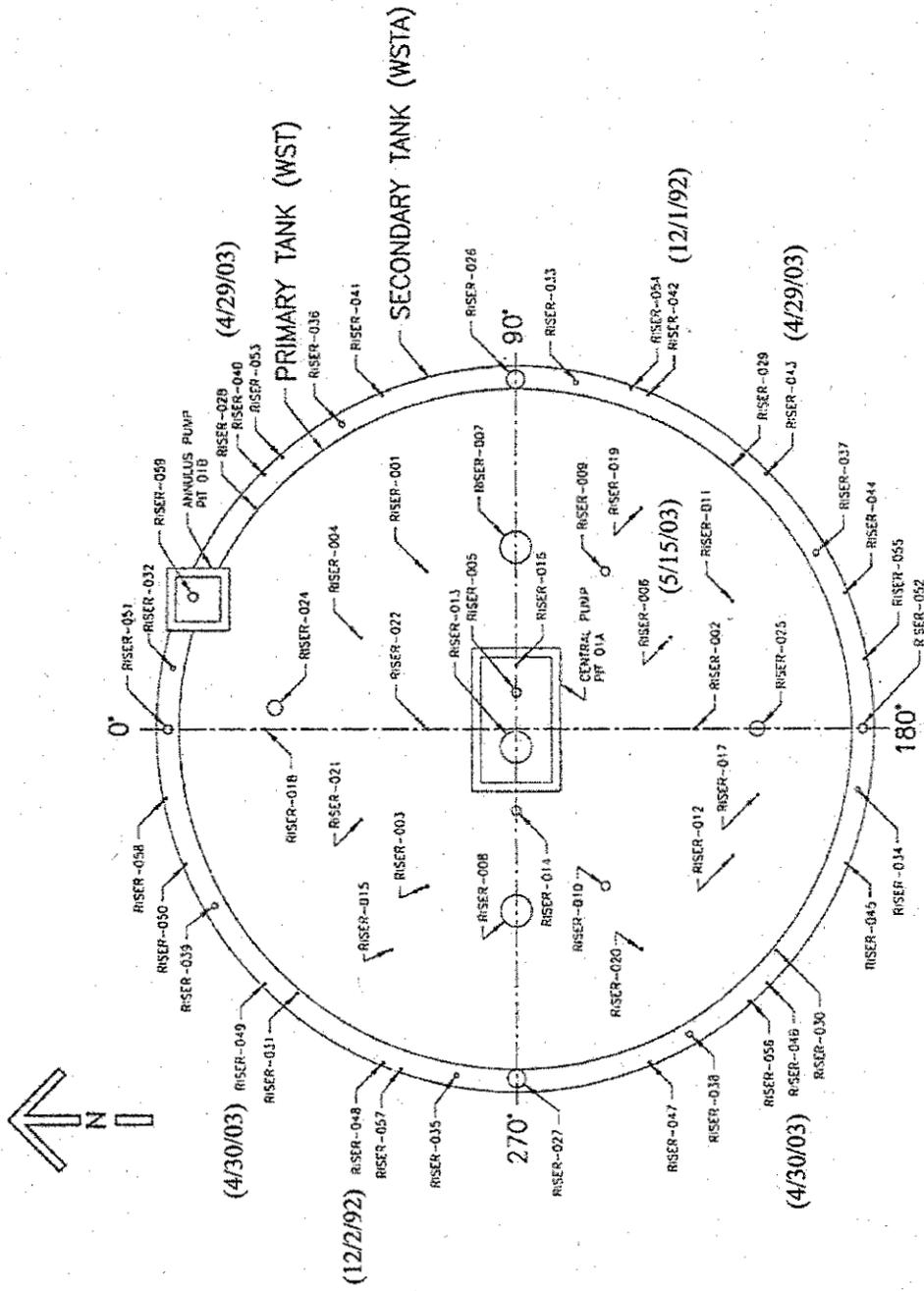
APPENDIX B

Plan Views of 241-SY-101, 241-SY-102, 241-SY-103 with Riser Inspection Dates

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Map 1

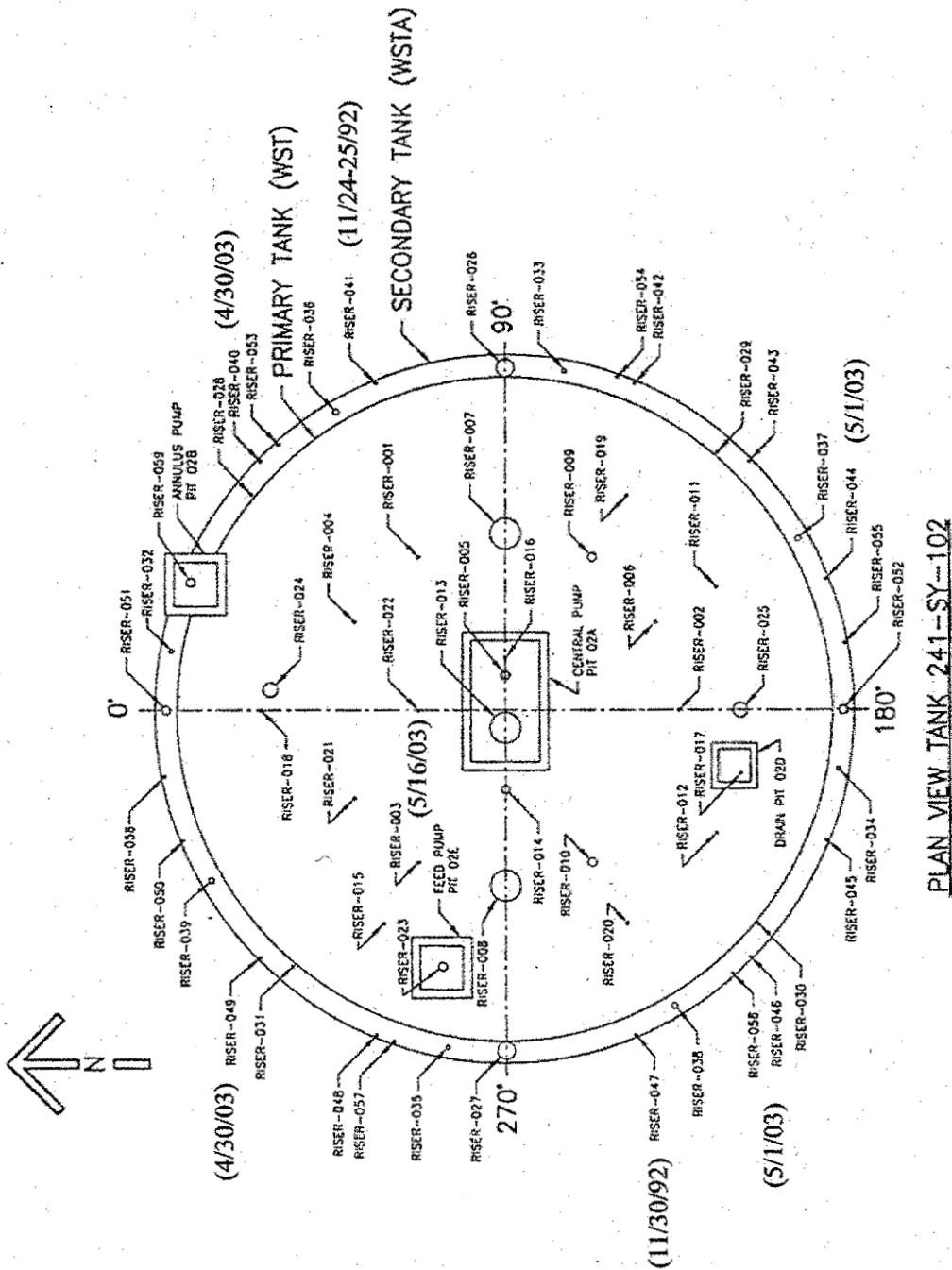


PLAN VIEW TANK 241-SY-101

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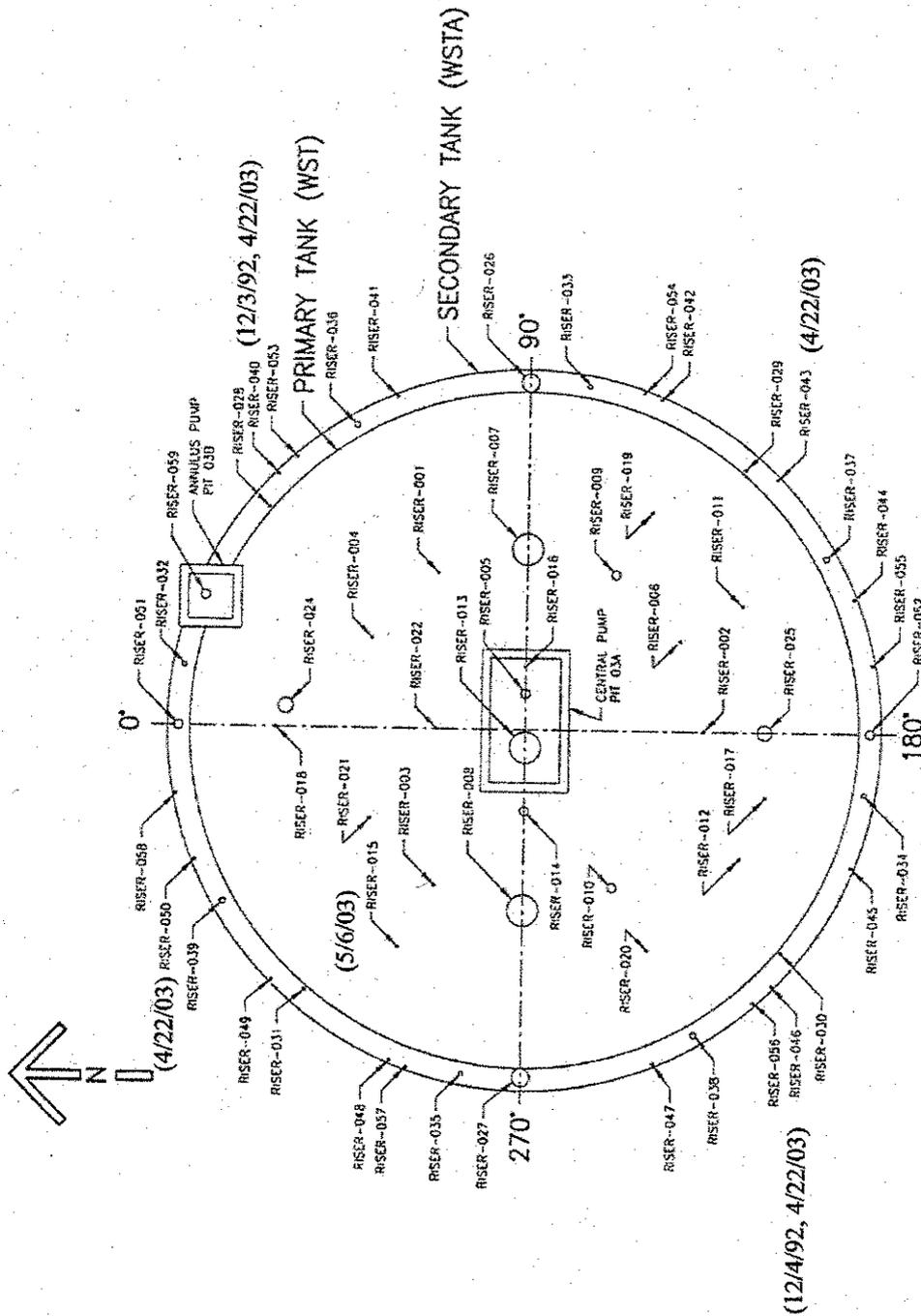
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Map 2



PLAN VIEW TANK 241-SY-102

Map 3



PLAN VIEW TANK 241-SY-103