October 18, 2013

Mr. Bryan Miller
Health Physicist
Radioactive Materials Program
Nebraska Department of Health and Human Services
301 Centennial Mall South
P.O. Box 95007
Lincoln, Nebraska 68509-5026

Re: **WRT License No. 99-06-01** – Uranium Water Treatment System at Grand Island NE – Incident Report of a Pipe Leak and Treatment Media Release, October 9, 2013

Dear Mr. Miller:

This report is a follow-up to our phone conversation on October 10, 2013, in which I gave verbal notice of a pipe leak and small resin media release that was discovered in the WRT Uranium Removal System at Grand Island NE on October 9, 2013.

Date of Incident:	October 9, 2013
Facility:	WRT Uranium Removal System Central Basin Treatment Facility 2700 Wellfield Road Grand Island Utilities Department Grand Island NE 68801
WRT Personnel On Site:	David Jones, Kent Stovall (RSO), Joe Nemecek, Neal Hummel

Description of Incident:

The overall incident actually started the day before the discovery of the release of resin treatment media. On Tuesday afternoon, October 8, 2013, the service team was completing the final steps of the media exchange process and service operation on Treatment Train 1 (see system layout in Figure 2 of the attached contamination survey report). Resin media had already been removed from the Stage 1 treatment vessel and had been shipped off site. The partially-loaded resin in the Stage 2 vessel had been advanced to Stage 1. The team was in the process of filling the Stage 2 vessel with water to begin the disinfection process, on the internal surfaces of the vessel, prior to loading Stage 2 with fresh resin media. It was during this filling operation that the crew heard the sound of spraying water coming from under the Stage 2 vessel. The vessel is supported on the floor by a structural steel skirt that runs around the entire circumference of the vessel, and as such access for inspection is very limited. When viewed through several pipe openings in the skirt, a small water spray, as coming from a pinhole leak, was visible, but nothing else. The vessel was not under pressure, other than from the static head from the column of water in the vessel, as it was being filled. The service crew stopped filling the vessel when the leak was discovered.

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It wasn't until Wednesday morning, October 9, 2013, after a welder cut an access opening in the vessel skirt, that it was first discovered that the leak was not in the vessel itself, but rather was a leak in the weld that attached a pipe "tee" to the bottom of the vessel (see Figure 1). This tee is part of the drain pipe assembly that runs out to and through the vessel skirt. This drain pipe is used to remove resin from the treatment vessel.

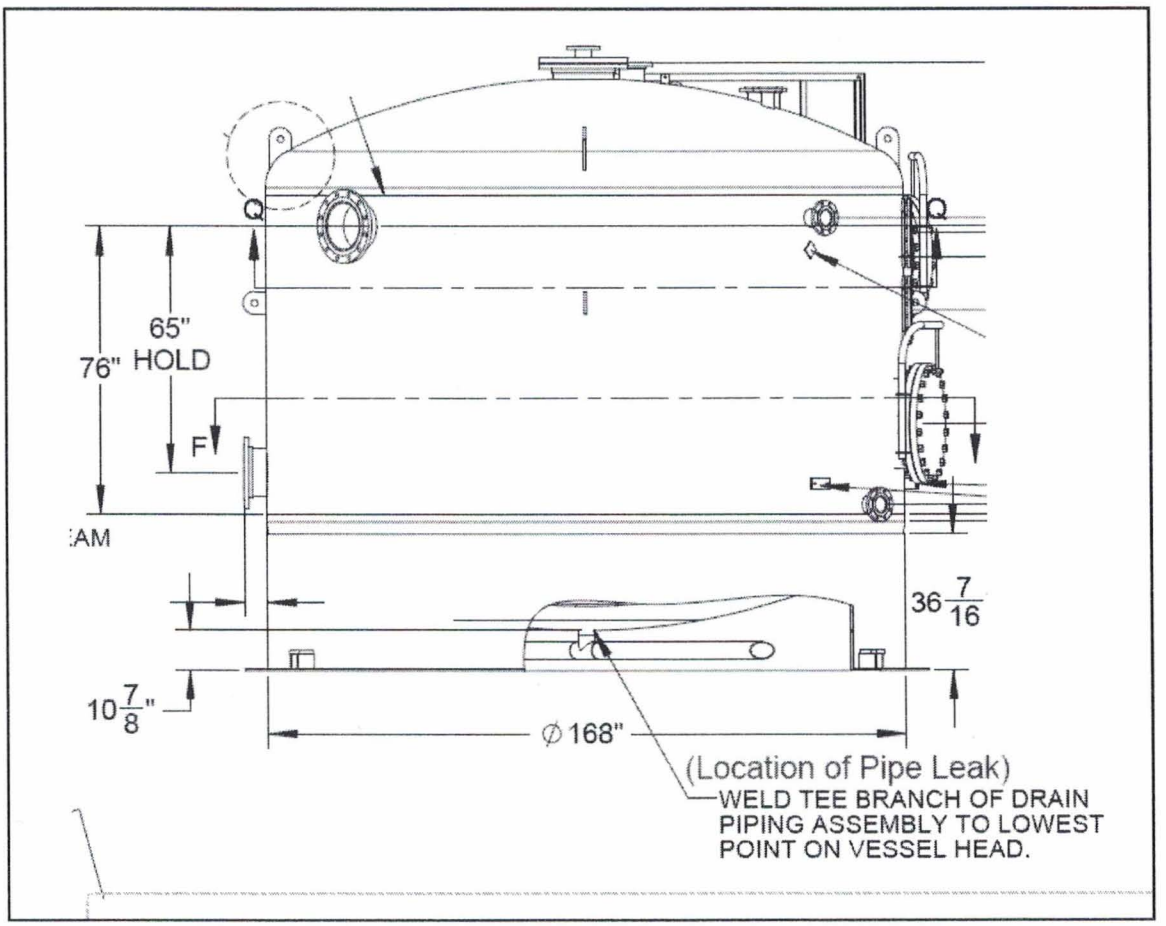


Figure 1 – WRT Uranium Removal System, Grand Island NE
Typical Treatment Vessel

Figure 2 – Pipe Leak at Weld Joint (at top of the tee, in the blue paint)

The hole in the weld joint is shown in Figure 2 above. Upon gaining access to underneath the Stage 2 vessel on October 9, 2013, it was discovered that there was also a relatively-small release of resin associated with the water leak. As sketched in Figures 1 and 2 of the attached contamination survey report, and as pictured on pages 4 and 5 of the same report, the majority of the resin released covered an area of about 2 ft x 4 ft, directly under the pipe tee and somewhat spreading out in a south-southwest direction from under the tee. Beyond this primary area where the resin beads had quickly settled, there were scattered or small clumps of resin beads seen on the concrete in the direction of the water flow out toward the vessel skirt.

It is unclear how long the water leak in the pipe had been occurring, but indications are that the media release had occurred for only a short period of time, and quite possibly only started as a result of the transfer operation of moving the resin from the Stage 2 to the Stage 1 vessel. The first indication of this is that only a relatively-small amount of resin, between one (1) and two (2) liters, of resin was collected during the cleanup operation. The second indication is that the great majority of the resin that was released appeared to be fresh media, likely barely loaded with uranium. It still had the opaque, light-tan color of fresh media. This observation is consistent with the fact that resin in the bottom of the treatment vessel would be the last resin extracted from the vessel during a media exchange operation. The media at the bottom of the vessel is below the elevation of the water inlet nozzles, and as such is below the normal flow path of water moving through the vessel. This resin is essentially in a dead zone of the vessel and

potentially may contact only a small amount of uranium. Thirdly, the pipe tee and the drain pipe assembly underneath the vessel are a dead leg in the system piping. While the pipe tee is under the normal operating pressure during system operation, no water is normally running through this piping. Speculation is that the flowing of water and resin through the tee and the resin removal pipe when the resin was being transferred to Stage 1 likely caused what started as a pinhole water leak to expand enough to also release resin beads. Whatever the cause, the result, radiologically, was the release of a relatively-small amount of lowly-loaded resin.

Cleanup and Contamination Survey

The cleanup of the resin spill was started as soon as the service team gained access to the affected area under the treatment vessel. Cleanup was accomplished using a shop vacuum. Please see the attached contamination survey report for a further description of the cleanup operation. A sample of the spilled resin was collected, and a lab analysis of the uranium concentration of the resin and debris will be available at a later date.

A contamination survey of the affected area was then completed after the cleanup was finished. Fifteen (15) locations were surveyed for both direct-read measurements of fixed+removable contamination, and for removable contamination, using swipes. Direct readings were taken using a Ludlum Model 2241-2 meter with a 43-5 alpha scintilator detector and a 44-9 pancake detector for beta-gamma contamination. The swipes were counted using a Ludlum Model 3030e alpha-beta scalar counter. As further detailed in the attached contamination report, all of the results of both the net direct measurements and swipe counts were less than the particular instrument's or detector's minimum detection activity (MDA), and all of the MDAs are less than the Acceptable Surface Contamination Levels presented in both the CRCPD Part N TENORM Guidelines and the USNRC Regulatory Guide 1.86.

WRT concludes that no other actions are warranted at this time.

If you have any questions related to this report, please feel free to call me at 303.424.5355, x108.

Respectfully submitted,

Duane W. Bollig
VP – Business Development and
Government Affairs

Enclosure:
Contamination Survey Record Log, Kent Stovall (RSO), 10/9/2013

cc: Ted Adams
Emily Muth, Grand Island Utilities Dept
file NE-GRA 2.25

RADIATION/CONTAMINATION SURVEY RECORD LOG

Survey Technician KENT J. STOVALL (Print) Kent J. Stovall (Signature) Survey Date / Time 10-9-13 / 1200

POST CLEAN-UP OF PIPE

Location/Building GRAND ISLAND, NE Reason for Survey LEAK AREA, TRAIN I VESSEL II

Notes/Comments: POST JOB SURFACE CONTAMINATION SURVEY FOR ALPHA AND BETA, FIXED AND REMOVABLE CONTAMINATION.

	Ludlum	Ludlum	Ludlum	Ludlum
Instr. (α) β, γ)	2241-2	2241-2	3030E	3030E
SN	243225	243225	247403	247403
Det	43-5	44-9	43-10-1	43-10-1
SN	PR262385	PR262082	PR263693	PR263693
Cal Due	12-4-13	12-4-13	7-24-14	7-24-14
BKG	1 cpm	54 cpm	0.3 cpm	48.0 cpm
% EFF	13.5%	10.1%	33.79%	20.49%
MDA	71 dpm/100 cm²	2459 dpm/100 cm²	13.6 dpm	130 dpm

Grid Coords/ Sample Loc #	Description / Notes	Expos Meter Reading (μR, mR, etc.)	Fixed+Removable Net α Direct (dpm/100cm²)	Fixed+Removable Net β γ Direct (dpm/100cm²)	Removable Net α Smear (dpm/100cm²) gcpm	Removable Net β, γ Smear (dpm/100cm²) gcpm
	CONCRETE PAD UNDER					
1	TRAIN I VESSEL II	N/A	<MDA	<MDA	1 <MDA	52 <MDA
2					2	49
3					1	58
4					1	61
5					3	51
6					2	53
7					1	48
8					1	52
9					0	47
10					0	49
11					1	48
12					2	51
13					1	53
14					0	47
15			<MDA	<MDA	1 <MDA	51 <MDA
N/A	N/A		N/A	N/A	N/A	N/A
↓	↓	↓	↓	↓	↓	↓
N/A	N/A	N/A	N/A	N/A	N/A	N/A

Reviewed By: Dennis W. Bolling (Signature) 10/17/13 (Date)

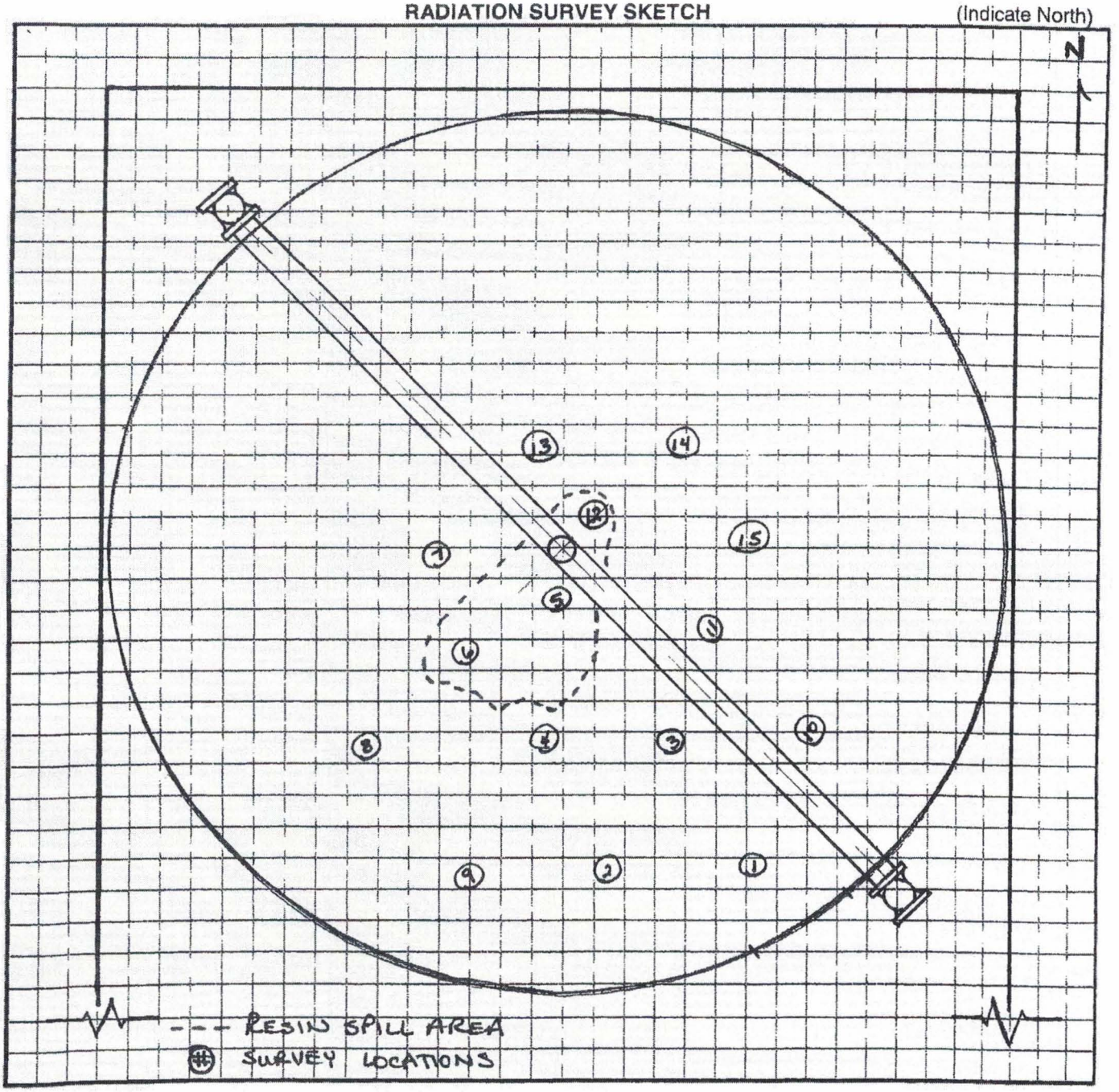
RADIATION/CONTAMINATION SURVEY RECORD – SURVEY LOCATIONS

Survey Technician KENT J. STOVALL (Print) Kent J. Stovall (Signature) Survey Date/Time 10-9-13 1200

Location/Building GRAND ISLAND, NE - TRAIN I VESSEL II Approx. Scale NOT TO SCALE

Fig No. 1

RADIATION SURVEY SKETCH (Indicate North)



Reviewed By:

RADIATION/CONTAMINATION SURVEY RECORD – SURVEY LOCATIONS

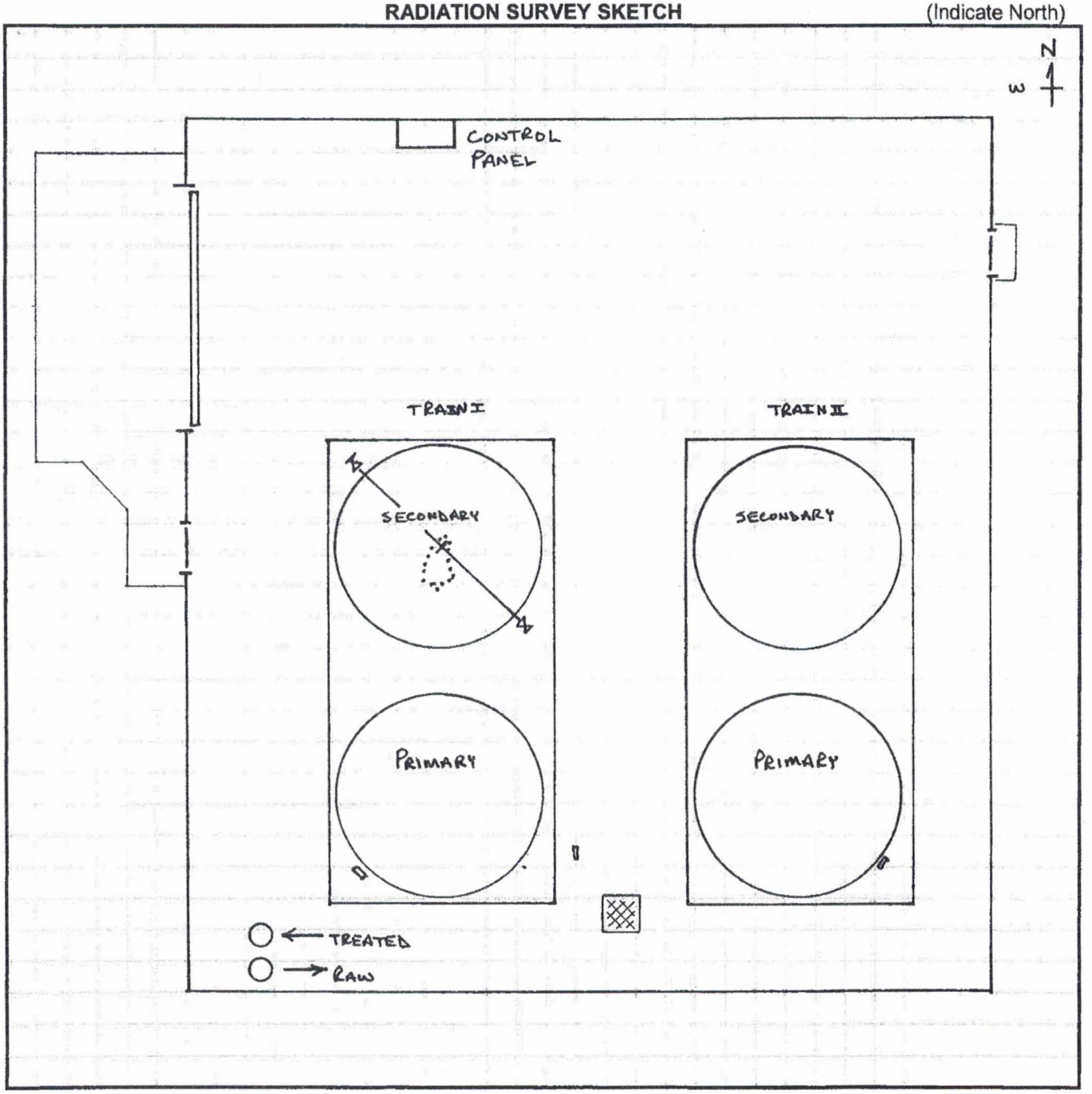
Survey Technician KENT J. STOVALL (Print) Kent J. Stovall (Signature) Survey Date/Time 10-9-13 1200

Location/Building GRAND ISLAND, NE Approx. Scale NOT TO SCALE

Fig. No. 2

RADIATION SURVEY SKETCH

(Indicate North)



Reviewed By: DKB

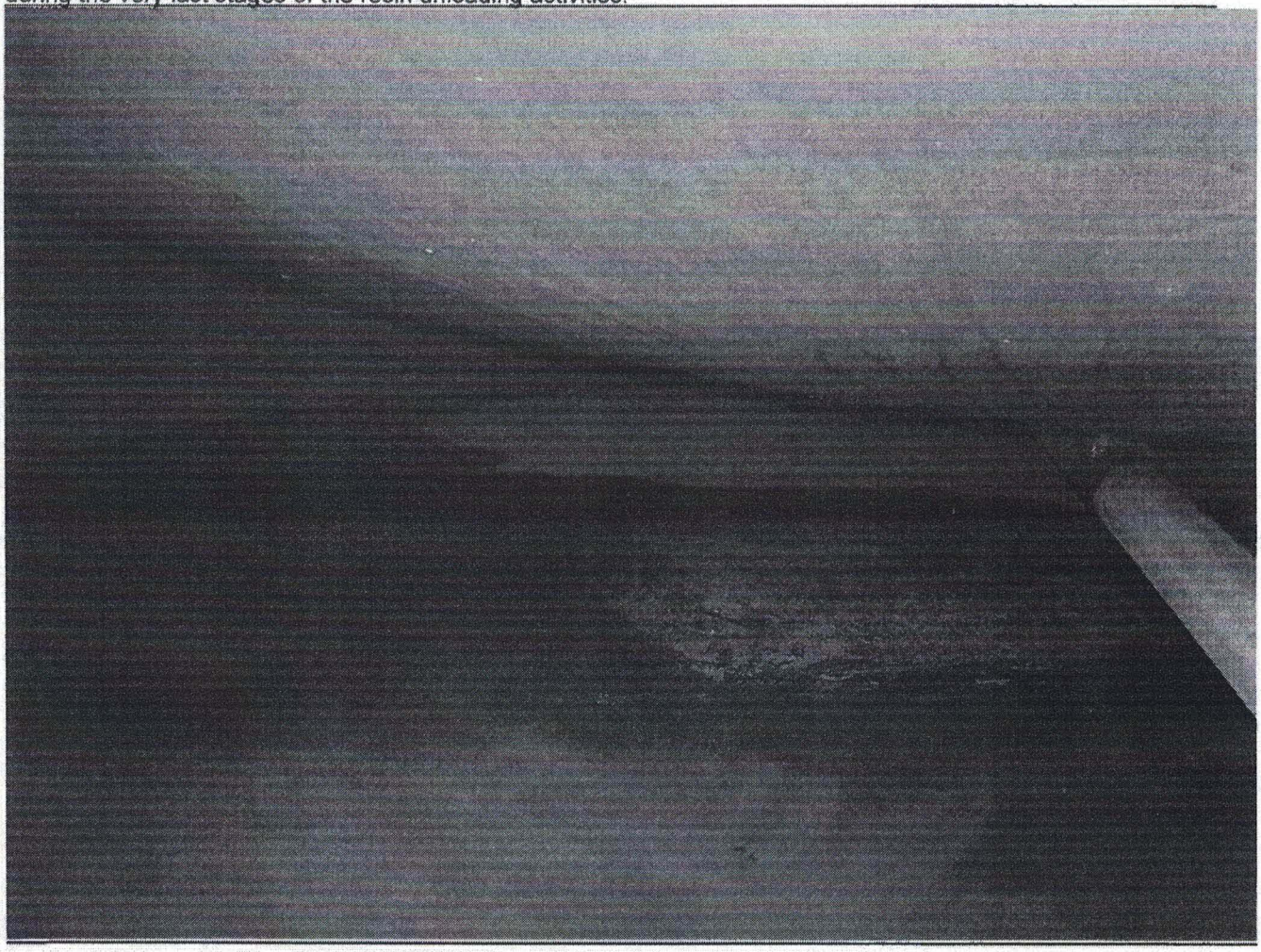
SURVEY RECORD LOG

Survey Technician KENT J. STOVALL (Print) Kent J. Stovall (Signature) Survey Date / Time 10-9-13 1200

POST CLEAN-UP OF PIPE LEAK

Location/Building GRAND ISLAND, NE Reason for Survey AREA, TRAIN I VESSEL II

Notes/Comments: Collection of initial contamination survey data was not attempted due to the nature of the affected area and resin being soaked in water. Based on the visual inspection of the resin spill, the resin appeared to be relatively fresh, unloaded resin due to the opaque, light tan coloring. The uranium-loaded resin is a dark reddish color. This follows process knowledge because the last resin to unload from the vessels in the unloading process is the static volume of resin under the lower nozzles. This is resin that is below the normal flow path of the water in the vessel and, therefore, has contacted very little uranium. The resin leak appeared to spring from a weak weld point during the very last stages of the resin unloading activities.



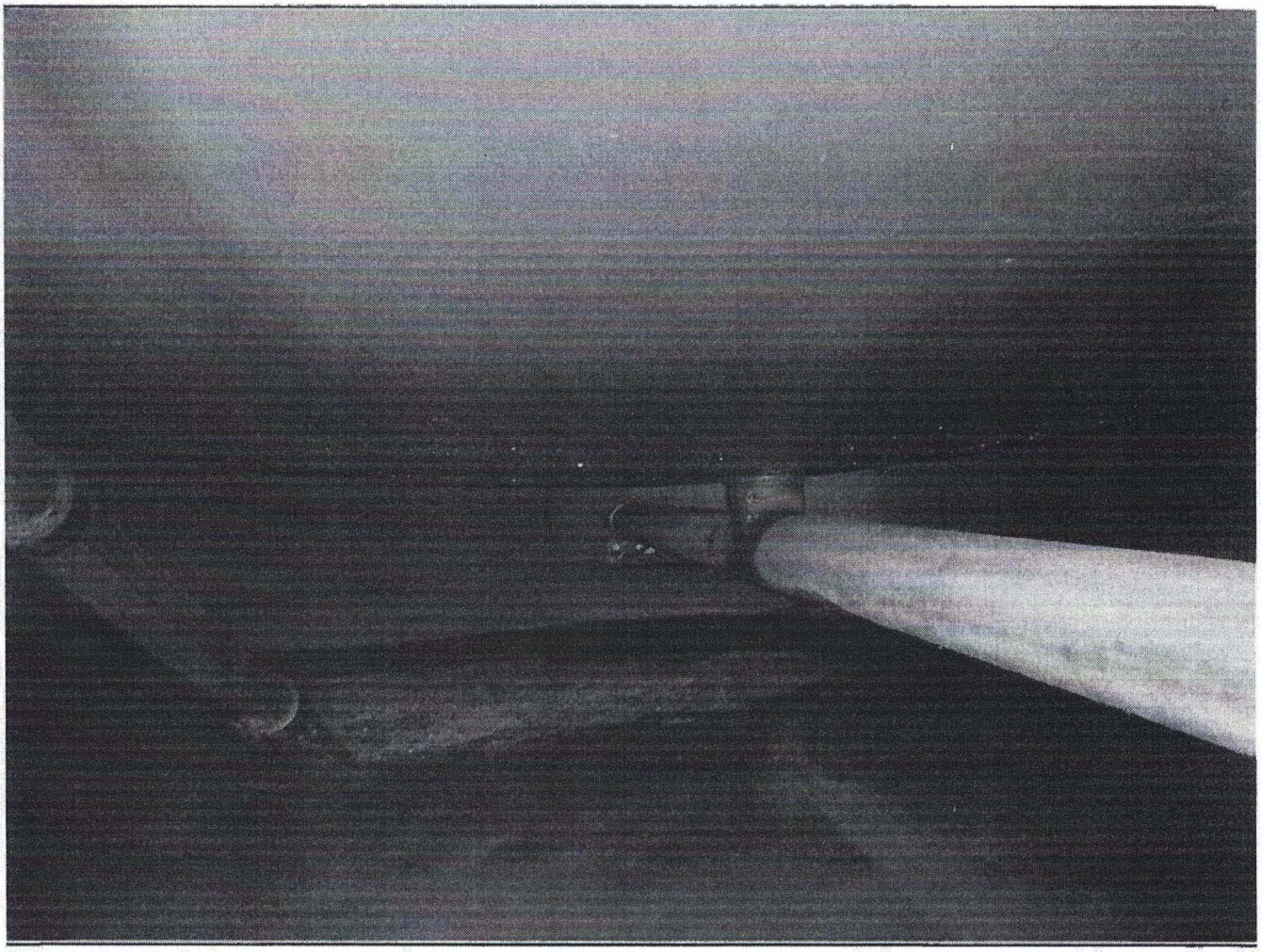
Reviewed By: Dennis W. Bahr (Signature) 10/17/13 (Date)

SURVEY RECORD LOG

Survey Technician KENT J. STOWALL (Print) Kent J. Stowall (Signature) Survey Date / Time 10-9-13 1200

Location/Building GRAND ISLAND, NE Reason for Survey POST CLEAN-UP of PIPE LEAK AREA, TRAIN I VESSEL II

Notes/Comments: Clean-up activities began immediately upon gaining access to the spill area. The cleanup was performed using a shop vacuum with a HEPA filter. The vacuuming was performed by starting at the outer most edges of the area and working from outside – in, until all resin had been vacuumed up. A sample of the spilled resin will be sent for uranium loading analysis.



Reviewed By: _____ (Signature) _____ (Date)

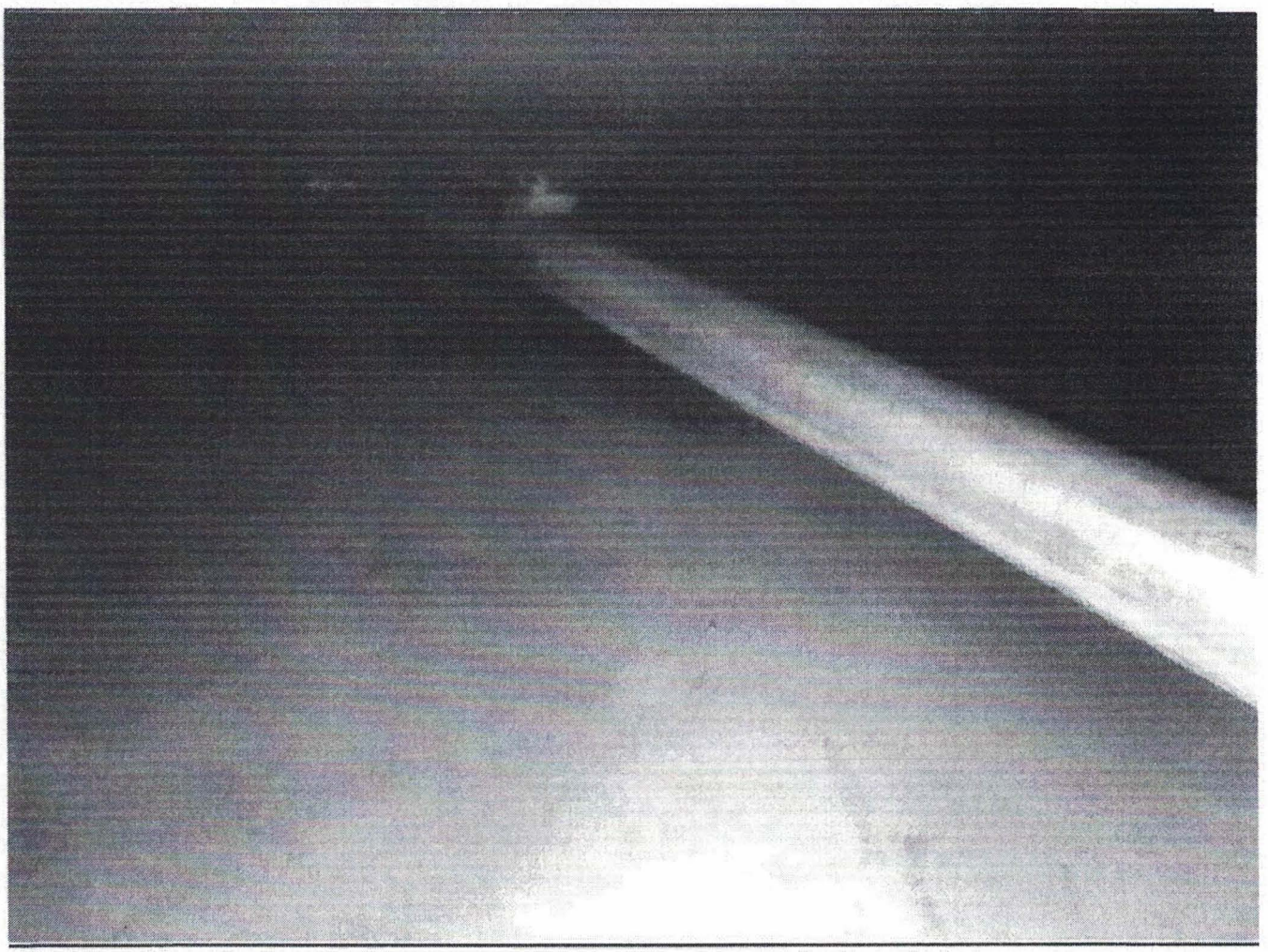
SURVEY RECORD LOG

Survey Technician KENT J. STOVALL (Print) Kent J. Stovall (Signature) Survey Date / Time 10-9-13 1200

POST CLEAN-UP of PIPE LEAK

Location/Building GRAND ISLAND, NE Reason for Survey AREA, TRAIN I VESSEL II

Notes/Comments: Post job surface contamination surveys were completed for fixed+removable and removable alpha and beta/gamma surface contamination. All survey results were less than the minimal detectable activity (<MDA) for each instrument used. See page 1 and 2 of this document for detailed survey and instrumentation information.



Reviewed By: _____ (Signature) Date