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1	/	Cog. Mgr. D. R. Speer	<i>[Signature]</i>	R2-77	2-25-92						
		QA									
		Safety									
		Env.									
1	/	M. C. Hughes	<i>[Signature]</i>	3/2/92	L4-88						

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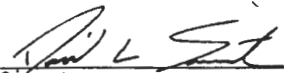
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6. Author

Name: D. L. Smith


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7. Abstract

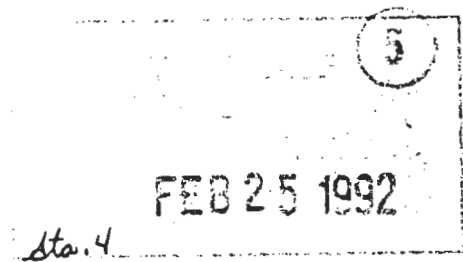
This report documents the task and activities necessary to interim stabilize 216-U-1 and 216-U-2 cribs. Interim stabilization was necessary to maintain the site in a stable configuration until closure activities have been determined and initiated. Site size is approximately 3 acres.

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216-U-1 AND 216-U-2 CRIBS
INTERIM STABILIZATION
FINAL REPORT

D. L. Smith

January 1992

Westinghouse Hanford Company
Post Office Box 1970
Richland, Washington

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216-U-1 AND 216-U-2 CRIBS INTERIM STABILIZATION FINAL REPORT**1. PURPOSE**

This report provides a general description of the activities performed to interim stabilize surface contamination associated with the 216-U-1 and 216-U-2 cribs. This site had a high priority for interim stabilization due in part on its high relative ranking in WHC-EP-0489, *Hanford Site Surface Soil Radioactive Contamination Control Plan for Fiscal Year 1992*.

2. SITE DESCRIPTION**2.1. WASTE DISPOSAL SITES**

The 216-U-1 and 216-U-2 cribs are located in the central portion of the 200 West Area of the Hanford Site. The surface contamination zone associated with the cribs was bounded to the south by 16th Street, the east by U Plant, the north by tile field 2607-W5, and to the west by Bridge Port Avenue. The areas north and west of this zone are open for several hundred feet. Included in the surface contamination zone with 216-U-1 and 216-U-2 cribs were the 241-U-361 settling tank, septic tank 2607-W5, and a portion of tile field 2607-W5, which receives effluent from septic tank 2607-W5. The surface contamination zone covered 2.4 acres. Refer to Figures 1, 2, and 3, respectively, for an aerial view, map of the site, and a view of the crib area prior to interim stabilization.

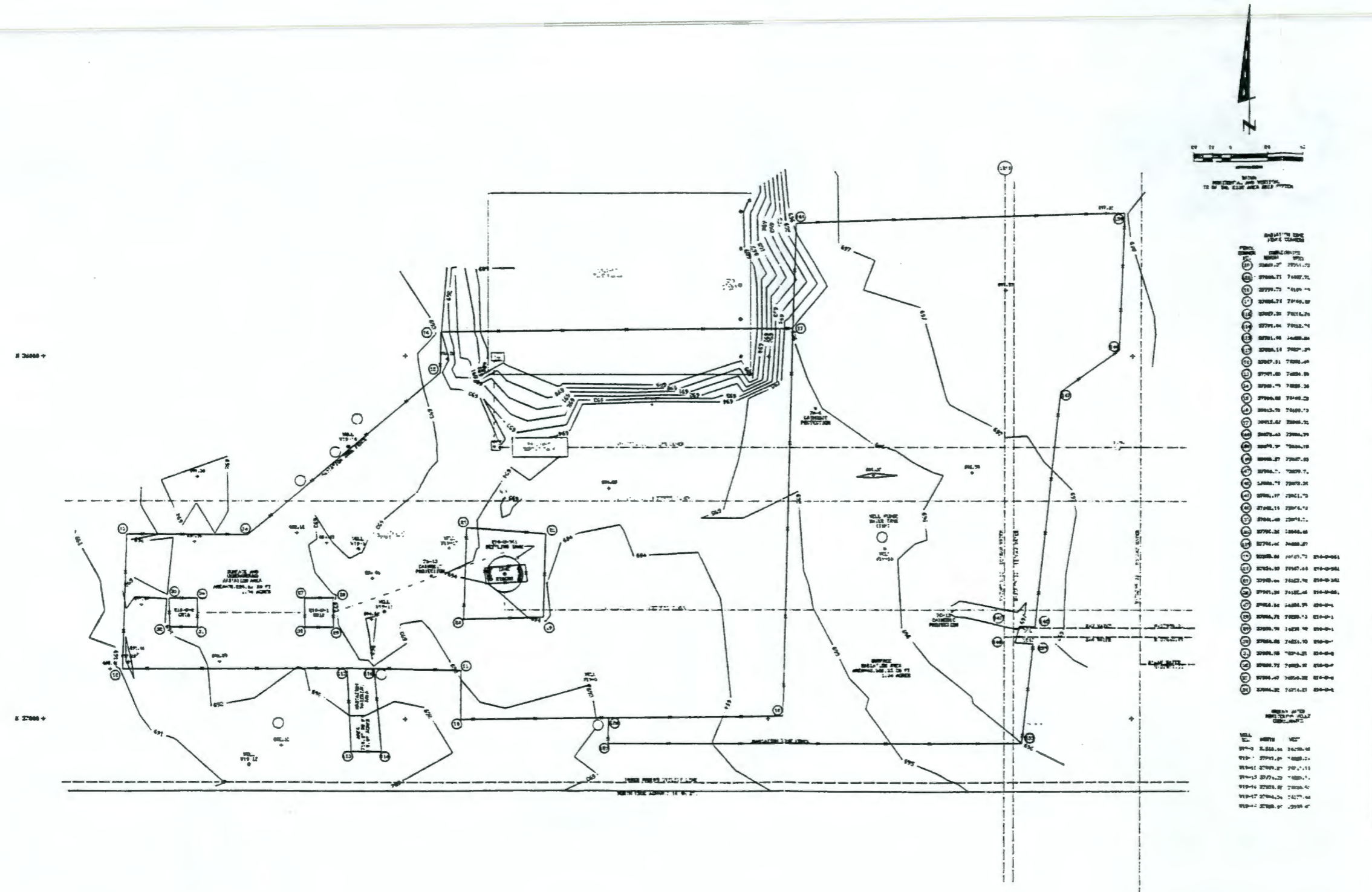
The 216-U-1 and 216-U-2 cribs are identical structures. Each is composed of a 12 ft by 12 ft by 4 ft wooden structure constructed of 6 in. by 6 in. timbers placed 20 feet below grade. The crib excavations were backfilled with native soil. The cribs have a test well placed in the center of each with an 8-in. cast iron casing, as well as various other vents and risers. Nothing is visible on the ground surface. The cribs are 30 ft apart and are connected by a 3.5-in. diameter stainless steel pipe. The crib locations are marked on the surface by a "Cave-In Potential" posting. The edge of the zone is 2 ft back from the actual edge of the crib. Effluent from the 216-U-1 flowed into the 216-U-2 crib. All waste flowed into the 216-U-1 and 216-U-2 cribs from the 241-U-361 settling tank (DOE 1991).

The 241-U-361 settling tank is located approximately 100 ft to the north of 216-U-1 and 216-U-2 cribs. The tank is constructed of unlined 6-in. reinforced concrete with a diameter of 20 ft and height of 19 ft. The structural condition of the tank is unknown. The inlet and outlet lines have been blanked (WHC 1991). Approximately 27,500 gal of sludge is contained in the tank. The tank location is marked on the surface by a "Radiation Zone" posting and several above grade risers.



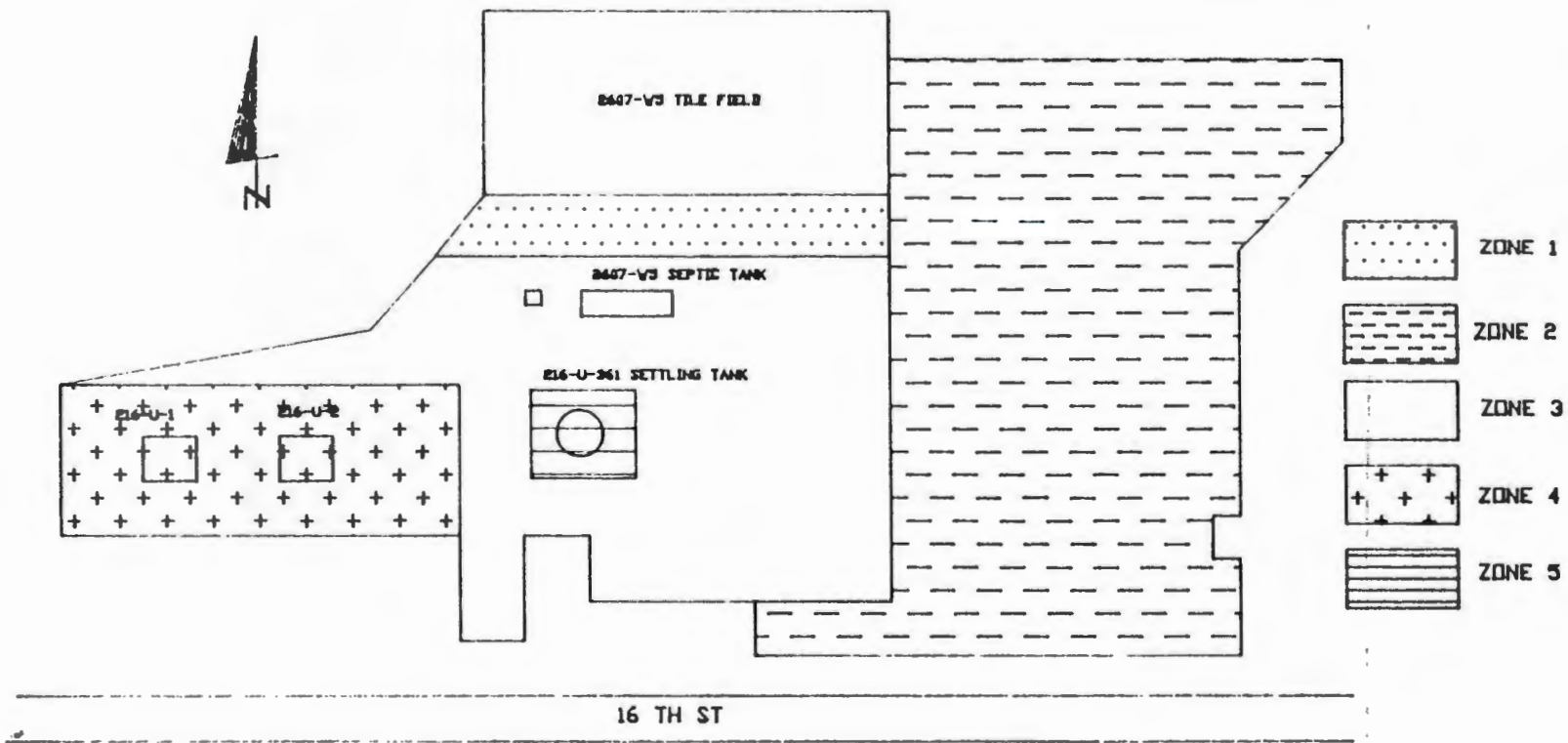
Figure 1. Aerial Views of the Job Site Looking Northwest.

Figure 2. Topographic Map of the Job Site Prior to Interim Stabilization.



U.S. DEPT. OF ENERGY
 KAISER ENGINEERS HANFORD
 216-U-1 AND 216-U-2 CRISIS STABILIZATION
 TOPOGRAPHIC MAP
 PROJECT N/A
 DATE 11-24-78
 DRAWN BY: COTHR
 CAD FILE: 216101.D
 ENG 1 OF 1

Figure 3. Work Zones as Originally Planned.



The 2607-W5 septic tank and drain field is located approximately 100 ft north of 216-U-1 and 216-U-2 cribs. The site is comprised of an underground concrete septic tank with dimensions 30 ft by 13 ft by 11 ft, two distribution boxes, and two drain fields (tile fields). The active drain field dimensions are 136 ft by 100 ft. The drain field is backfilled to approximately 2.5 ft below grade, and is easily recognized as a large rectangular depression. A similar abandoned tile field is located to the west of the active drain field. The original surface contamination zone enclosed the septic tank and approximately one-third of the active tile field. During interim stabilization, the zone was expanded to enclose the entire tile field.

There was also a large amount of miscellaneous debris, two 4-5-8 burial boxes, and five wells located within the surface contamination zone.

2.2. WASTE DISPOSAL HISTORY

A total of 1.75 E+8 gallons of effluent containing 8,900 pounds of uranium and 43 grams of plutonium were discharged to 241-U-361 settling tank and ultimately the 216-U-1 and 216-U-2 cribs. The effluent originated from tank 5-6 in 221-U, 224-U, contaminated solvent from 276-U Solvent Storage Area, and equipment decontamination and reclamation waste from the 221-U Canyon (DOE 1991). In 1953, drainage from U-Plant and the UO3 Plant overflowed the 241-U-361 settling tank and 216-U-1 and 216-U-2 cribs contaminating approximately 50 ft². Contamination levels were up to 11.3 R at 3 inches. This area was stabilized at that time (Baldrige 1959). The area became surface contaminated at a unspecified later date, and had since grown to encompass 2.4 acres.

The uranium disposed of in the cribs formed insoluble complexes with the soil, effectively limiting the amount of groundwater contamination associated with the cribs and settling tank. Acid waste discharged to the settling tanks and cribs reacted with the uranium complexes to form soluble complexes. However, liquid discharges were too low to transport the uranium to the groundwater. In 1967, the 216-U-1 and 216-U-2 cribs were replaced by 216-U-16 crib to the south. Discharges to the 216-U-16 crib were enough by 1985 to form a perched ground water mound, which moved north under the 216-U-1 and 216-U-2 cribs. This water transported the uranium to the main aquifer. This resulted in the pumping of 8,000,000 gal of ground water, and treatment via an ion exchange column to remove 1,519 lbs of uranium. In addition, portions of existing wells (299-W19-3, 299-W19-9, and 299-W19-11) were grouted and new wells added (299-W19-15, 299-W19-16, 299-W19-17, and 299-W19-18) (Baker, et al. 1988). This activity may have resulted in some of the debris now scattered around the site.

The 2607-W5 septic tank and drain field currently receives sanitary sewage from the U plant, 222-U Laboratory, and UO3 Plant. Discharge to the system is 3,200 gal per day.

3. OBJECTIVE AND CONSTRAINT

The primary objective of interim stabilization was to bring 216-U-1 and 216-U-2 into compliance with the requirements of WHC-CM-7-5, *Environmental Compliance*, and subsequently maintain it in that condition until the final remediation strategy is implemented. Based on the requirements of WHC-CM-7-5, Part L, "Inactive Radioactive Waste Sites," 216-U-1 and 216-U-2 cribs did not have an adequate barrier over the contamination to prevent migration, and the contamination of the soil surface was higher than allowed. The interim stabilization corrected these deficiencies and brought the site into compliance with WHC-CM-7-5.

4. INTERIM STABILIZATION ACTIVITIES

The interim stabilization activities for the 216-U-1 and 216-U-2 cribs are described below. They consisted of two phases which are the site preparation and, consolidation and stabilization.

4.1. SITE PREPARATION

Site preparation was necessary so that interim stabilization could proceed in a safe and efficient manner. Site preparation included the marking of above grade structures, decontamination and isolation of the septic tank, diversion boxes, manhole and tile field risers, the removal of miscellaneous debris from the site, isolation of electrical equipment, and civil surveys.

Decontamination was successful with the tile field risers, manhole, and one diversion box (located in the tile field). Decontamination was not successful with the septic tank or one diversion box (located adjacent to the septic tank). However, a large amount of the contamination was removed through these decontamination efforts. Structures which could not be decontaminated were painted to fix the contamination in place. Recontamination due to earth moving activities was prevented by wrapping the structures in plastic sheeting and securely taping the plastic in place.

Debris was removed from the site in order to prevent it from being consolidated with the removed soil. Material removed from the site was surveyed for radioactive contamination and disposed of accordingly. Nearly all of the debris on site was removed from the surface contamination zone. A large piece of concrete could not be released from the surface contamination zone and was buried in the consolidated soil pile. In addition, two 4-5-8 boxes filled with PVC pipe and posted as radioactive material were surveyed. Surveying was accomplished by running a wet wipe through the center of the pipe, and surveying that wipe for radioactivity. Only eight pieces of pipe were contaminated. The remainder of the pipe was disposed of as nonradioactive.

Isolation of electrical equipment was necessary for the safe performance of the interim stabilization. An energized 240-volt line was found attached to an electrical box. This line was deenergized by removing the fuses at the source of the line (a powerpole located in the southeast corner of the site), then removing a portion of the connecting wires. This shortened the wire so that reconnection was impossible.

Civil surveys were necessary to accurately record site characteristics prior to interim stabilization activities. Information from these surveys was used to produce an as built map of the site prior to interim stabilization (see Figure 2). This map included topographic contours, underground pipelines, radiation zone boundaries, cribs, tanks, wells, and other above grade structures.

The civil surveys also marked underground pipelines and the consolidation zone. These were visibly marked along with all other above grade structures.

4.2. CONSOLIDATION AND STABILIZATION

The surface contamination associated with the 216-U-1 and 216-U-2 cribs was divided into several distinct zones based on the scope of work to be performed during the interim stabilization (Figure 4). As work progressed, the scope of work changed. This was due to finding more extensive radioactive contamination than was originally known. See Figure 5 for a before and after drawing depicting the interim stabilization activities.

In general, the areas over the 216-U-1 and 216-U-2 cribs, and the 241-U-361 settling tank were to be stabilized. In addition, the stabilized area was extended east of the cribs approximately 300 feet after it was determined that the area could not be decontaminated as was originally hoped. The remainder of the site was successfully decontaminated, with the consolidated soil being stabilized with 18 to 24 inches of clean soil. The entire area excluding the area above 241-U-361 settling tank was mulched and crimped. Revegetation will occur during the proper time of the year. Total work area encompassed 2.4 acres, with an additional 11,650 ft² (approximately one-fourth acre) decontaminated or stabilized after the discovery of additional contamination.

4.2.1. Zone 1

Originally Zone 1 was that part of the 2607-W5 drain field posted as surface contamination. Readings of 15,000 to 25,000 disintegrations per minute (dpm) beta/gamma were present. The surface soil in this zone was scraped from the north portion of the zone to the south and consolidated in the area south and east of the 241-U-361 settling tank. Approximately 3 in. of soil was removed from the surface of the tile field. However, isolated spots of contamination remained throughout the entire area. As decontamination efforts progressed to the south slope of the drain field, additional contamination was found, with readings of up to 50,000 dpm beta/gamma. Decontamination efforts continued with the removal of up to 12 in. of soil, but were unsuccessful at removing this contamination. Contamination appeared to be heaviest due north of the septic tank. During

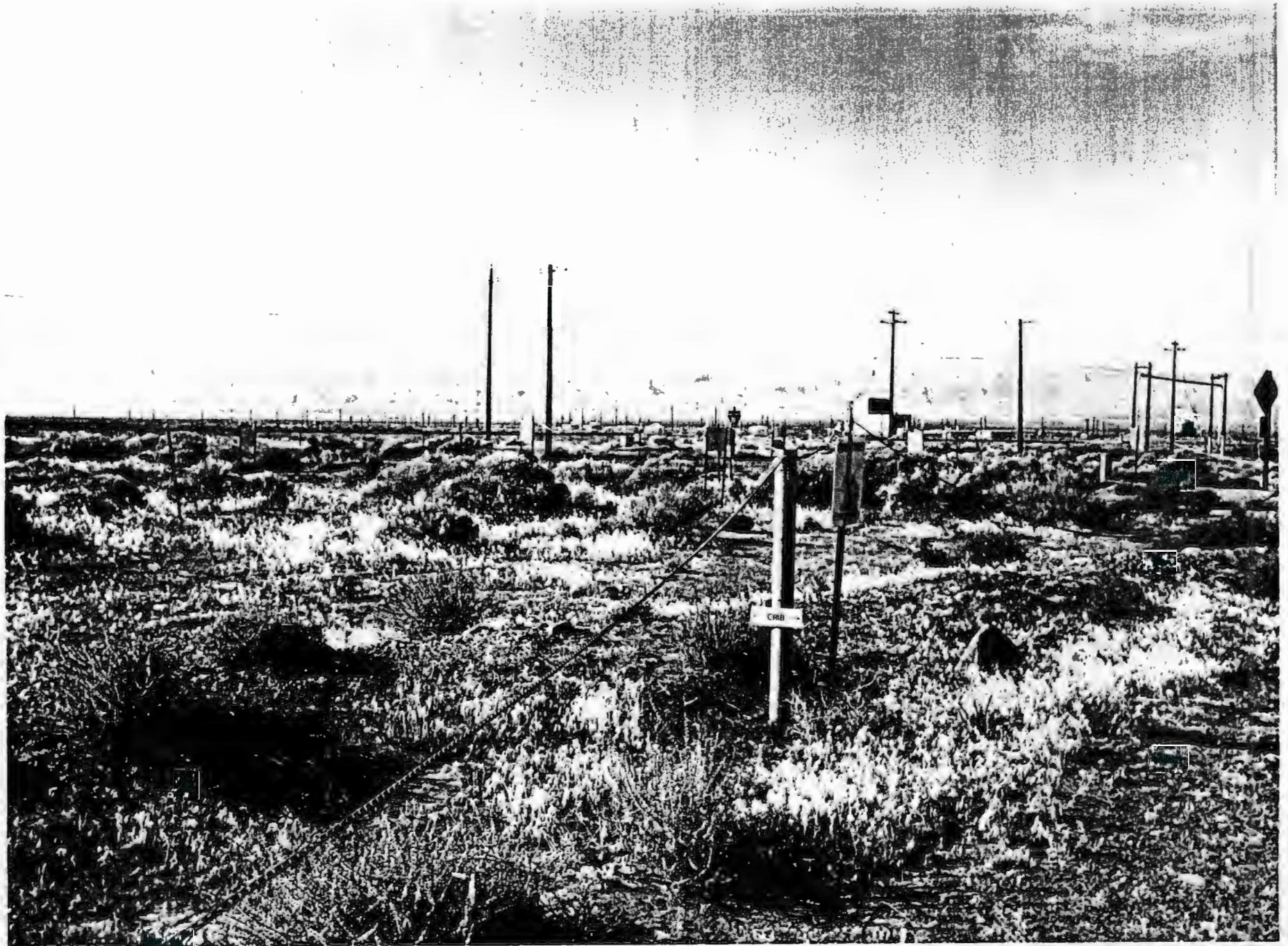
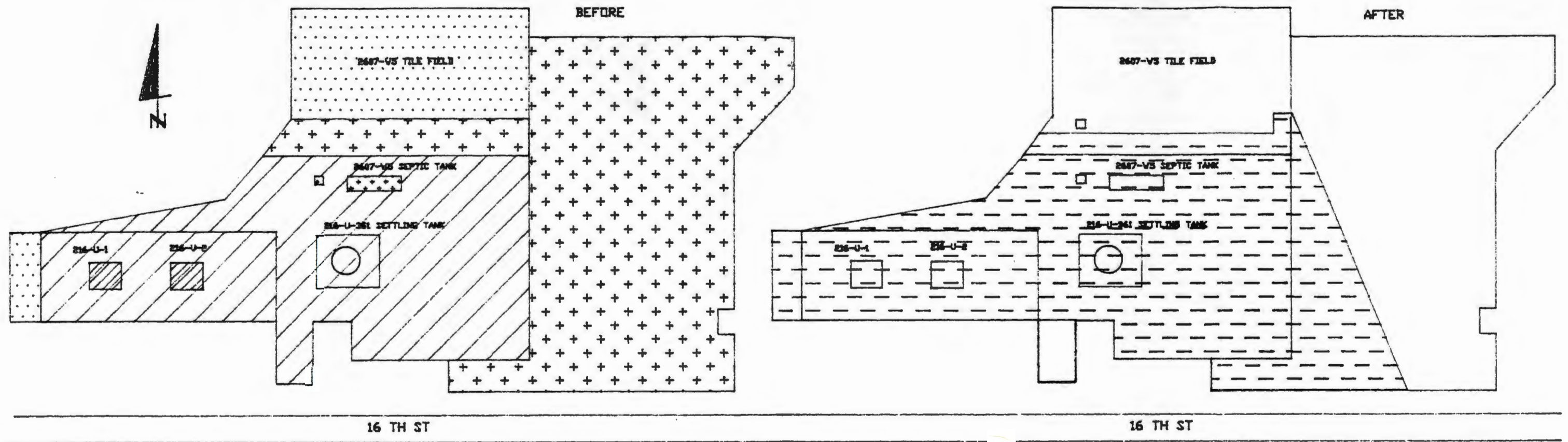







Figure 4. Area Near Cribs Prior to Interim Stabilization.

Figure 5. Before and After Representation of Work Performed.



-  NO RADIOLOGICAL POSTING
-  SURFACE CONTAMINATION
-  UNDERGROUND RADIOACTIVE MATERIAL
-  SURFACE CONTAMINATION AND UNDERGROUND RADIOACTIVE MATERIAL
-  ADDITIONAL SURFACE CONTAMINATION (FOUND DURING PROJECT)

routine spot checks by the Health Physics Technician (HPT), additional contamination was discovered to the north of the surface contamination zone. Further surveys revealed that the entire drain field was contaminated with readings of 4,000 to 6,000 dpm beta/gamma. No contamination was noted outside of the drain field. It appeared that this contamination was not the result of the previous decontamination efforts.

Before decontamination of the rest of the drain field began, one 6-in. pass was made with the grader. The exposed soil was then carefully surveyed by the HPT. It was determined that the area could be decontaminated without having to cut any deeper than 6 inches. Scraping began in the north portion of the drain field and progressed south to the original surface contamination boundary. An additional 3 in. of soil was removed from this portion of the drain field for a total of 6 in. removed from the entire drain field. This soil was consolidated in the area south and east of the 241-U-361 settling tank. The south and east slopes of the drain field were not successfully decontaminated, as contamination extended deeper than 12 in. over the majority of the area.

4.2.2. Zone 2

Zone 2 is located on the east portion of the site. Readings of 2,000 to 8,000 dpm beta/gamma were present. The surface soil in this zone was scraped and consolidated in the area south and east of the 241-U-361 settling tank. The majority of the contamination was removed with 6 inches of soil. Isolated spots required 12 or more inches of soil to be removed. The area due east and immediately adjacent to the drain field was particularly difficult to decontaminate. In addition, the area due east of the consolidation zone could not be decontaminated. In all, approximately one-third of this zone was stabilized with 18 to 24 inches of clean fill.

4.2.3. Zone 3

Zone 3 is located around the perimeter of Zones 4 and 5. Readings of 2,000 to 8,000 dpm beta/gamma were present. A maximum of 12 inches of soil was removed from this zone. Radioactive contamination was found in several spots to this depth. The area due north of the septic tank had readings of 50,000 dpm beta/gamma after 12 inches of soil was removed. Soil that was removed during decontamination attempts was consolidated in the area south and east of the 241-U-361 settling tank. Nearly the entire zone was interim stabilized with 18 to 24 inches of soil, with only the northeast portion of the zone being decontaminated. The stabilization of this zone in effect combined Zones 3 and 4.

4.2.4. Zone 4

Zone 4 is the area above and adjacent to the 216-U-1 and 216-U-2 cribs. Readings up to 150,000 dpm beta/gamma were present. This area was stabilized with 18 to 24 inches of clean soil. Additional contamination of 4,000 to 8,000 dpm beta/gamma was discovered beyond the west portion of this zone during spot checks by the HPT. This contamination was found at depth, hence the stabilized area was extended west approximately 15 feet. This brought the stabilized area out to the edge of Bridgeport Avenue. Heavy equipment

operated in the cave-in zones above the cribs without incident. No special precautions were taken as the equipment was never entirely in the cave-in zone. This was possible due to the large equipment and small cave-in potential area.

4.2.5. Zone 5

Zone 5 is the area above and immediately adjacent to the 241-U-361 settling tank. Readings of 2,000 to 6,000 dpm beta/gamma were present. This area was stabilized with shot-crete and Treflen™ fabric. Because the area surrounding the tank (Zone 3) was stabilized, wooden forms were built around the perimeter of the area to be shot-creted. This was to keep the area where shot-crete was to be applied free from surrounding clean fill. The biobarrier was placed within the confines of the forms. Plastic sheeting was fastened around each of the risers. This kept the risers free of shot-crete so that future sampling of the tank would not be hindered. Shot-crete was applied to a depth of 4 inches. After the shot-crete had cured, the forms were removed. The clean fill was then pushed out over the edge of the shot-crete. The surrounding soil was formed into a berm, and sloped away from the shot-crete. This will prevent run-off from accumulating over the settling tank. The area was posted as underground radioactive material.

4.3. POST STABILIZATION

Interim stabilization was completed in December 1991. This late finish date did not allow for revegetation to occur. Straw mulch was broadcast over the site and crimped. This should reduce the amount of soil erosion due to wind. Revegetation is planned for the fall of 1992.

Areas that were successfully decontaminated were released from radiological posting requirements. This includes the majority of Zone 1 and a portion of Zone 2. The remainder of the site was downposted to underground radioactive material. See Appendix A for the coordinates of the underground radioactive marker post.

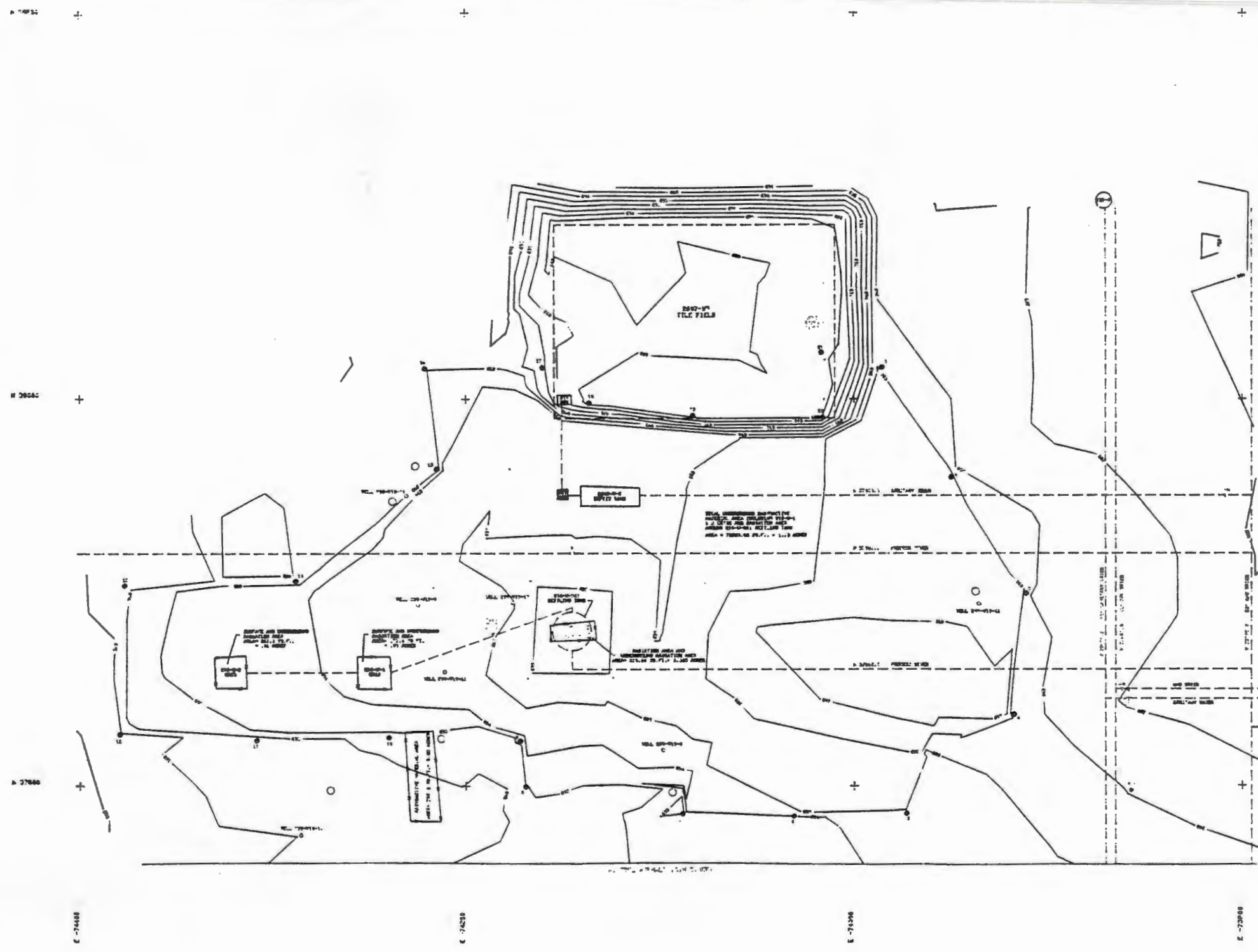
Photographs (Figure 6) and civil surveys (Figure 7) were conducted to record site characteristics after interim stabilization had occurred.

The 216-U-1 and 216-U-2 cribs and surrounding areas will receive routine surveillance and maintenance. This will include monitoring for surface radioactive material, the presence of deep-rooted vegetation, subsurface intrusion by animals or insects, proper posting, and general appearance and condition. In addition, the site will receive applications of selective herbicide and be cleaned of unwanted vegetation.



Figure 6. Area Near Cribs After Interim Stabilization.

Figure 7. Topographic Map of the Job Site After Interim Stabilization.



- LEGEND**
- BOUNDARY POINT
 - FENCE
 - WELL
 - PUMP/STAKE MARK

- NOTES:**
1. INTERIOR AND EXTERIOR BOUNDARIES TO BE KEPT CLEAR.
 2. SPECIAL MARKERS:
 - 1" DIA. X 12" LONG
 - 1" DIA. X 18" LONG
 - 1" DIA. X 24" LONG
 - 1" DIA. X 30" LONG
 - 1" DIA. X 36" LONG
 - 1" DIA. X 42" LONG
 - 1" DIA. X 48" LONG
 - 1" DIA. X 54" LONG
 - 1" DIA. X 60" LONG
 3. INTERIOR AND EXTERIOR BOUNDARIES TO BE KEPT CLEAR AT ALL TIMES. SPECIAL MARKERS TO BE KEPT CLEAR AT ALL TIMES.

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KAISER ENGINEERS HANFORD	
216-U-1 & 2 CRIBS AFTER STABILIZATION	
TOPOGRAPHIC MAP	
PROJECT: N/A	
DATE: 01/17/88	
DRAWN: H. E. FOSTER	
CHECKED: R. J. BERRY	
SHEET 1 OF 1	

5. PROJECT COST

The total cost for the interim stabilization of the 216-U-1 and 216-U-2 cribs was \$230,000. Besides earth moving this cost includes engineering, health physics, civil surveys, mulching, and project management and administration.

6. PHOTOGRAPHS

Numerous photographs were taken throughout the project. See Appendix B for a list of relevant photographs.

7. LESSONS LEARNED

7.1. SHOT-CRETE

When the addition of polypropylene fibers is specified, order the fibers from a contractor who operates a wet batch plant. This provides for complete mixing of the fibers, preventing pump and line clogging. See Appendix C for mix information.

In addition, a backup spray nozzle should be available. The nozzle became plugged on two occasions, causing a delay of 20 minutes each time. A backup nozzle would have prevented this.

7.2. RELEASE OF DEBRIS FROM RADIOLOGICALLY CONTROLLED ZONES

It is possible to remove debris from the radiologically controlled zones with careful surveying. This can result in considerable reductions in the amount of radioactive waste generated. For example, there were two 4-5-8 boxes of PVC pipe inside the zone. This pipe was left over from groundwater well installations and pumping operations several years previous. Each piece of pipe was smeared with a pushrod wrapped in a piece of cloth. The cloth was then surveyed for contamination. A total of eight pieces of pipe out of approximately 150 were contaminated. The remainder were released. In addition, metal pipes, fence post, concrete, and one stainless steel tank lid were released.

7.3. GROUNDWATER WELLS

Better coordination is required to ensure the wells that need to be extended are extended as far in advance as possible.

7.4. SITE CHARACTERIZATION

More complete radiological surveys are required prior to initiating earth moving. This information would allow for better planning, and less scope change once the job begins. It is recommended that numerous test holes be excavated down to 12 inches and surveyed carefully for radioactive contamination. This information is crucial in determining if decontamination is feasible.

7.5. HEAVY EQUIPMENT WORK OVER UNDERGROUND PIPELINES

The 2607-W5 drain field was identified by Steam and Water Utilities as being susceptible to damage from interim stabilization activities. With careful planning, it was possible to work in the drain field without causing any damage.

A 20-inch and two 12-inch water lines were also identified by Steam and Water Utilities as being susceptible to damage from interim stabilization activities. A grader with its blade extended to one side was used to decontaminate the surface above the pipe. This prevented heavy equipment from having to operate directly on top of the pipelines, and allowed successful decontamination.

8. EXPECTATIONS

It is expected that the soil cover and vegetation will provide an adequate barrier to the radioactive contamination. This technique has proven successful on many other sites.

Since this is the first time shot-crete and Treflan™ fabric has been used on a Radiation Area Remedial Action (RARA) site, it is not entirely known how this technique will perform. It is expected to provide an adequate barrier to the radioactive contamination. The cover will crack due to freeze/thaw cycles. These cracks will most likely fill with dust. This dust may support plant life, however the roots should not penetrate the biobarrier. Until an adequate vegetation layer is established in the area surrounding the shot-crete, periodic removal of weeds and blown sand may be required.

9. TIMELINE

Interim stabilization began with site preparation in early November 1991 and ended in mid-December 1991 with reposting of the site.

10. REFERENCES

WHC, 1991, *Summary of Radioactive Underground Tanks Managed by Hanford Restoration Operations*, P. B. Rymarz and D. R. Speer, October 1991, Westinghouse Hanford Company, Richland, Washington.

APPENDIX A

UNDERGROUND RADIOACTIVE MARKER POST COORDINATES

KAISER ENGINEERS HANFORD		SURVEY DATA REPORT		Request No. - 9 2 1 - 0 1 9		
Project/W.O. No.		Title 216-U-1 & 2 CRIBS STABILIZATION		File No. 2 W S A - 0 3 4		
KEH Job No. ER 2385		Prepared By N. P. FASTABEND		Date 01/17/92		
				Reviewer <i>D. L. Smith</i> 1 2		
DESCRIPTION OF WORK			ACCEPTABILITY (Within Plan Tolerance)		DISTRIBUTION	
Produce topo map of area after stabilization.			Yes <input type="checkbox"/>		Survey File OR	
Calculate volumes of material moved and area of posted zones. Per L.O.I. #9156423.			No <input type="checkbox"/>		Field Project File 0	
Asbuilt and stamped burial marker posts.			NA <input checked="" type="checkbox"/>		D.L. Smith 1	
			TBD by			
			Requestor <input type="checkbox"/>			
SURVEY RESULTS AND COMMENTS						

Burial Marker Post Number	Coordinates (200W Datum)	
	North	West
MK 00 POST 1	38019.4	73980.7
MK 00 POST 2	37989.3	73980.8
MK 00 POST 3	37980.0	73981.1
MK 00 POST 4	37970.9	73981.4
MK 00 POST 5	37960.9	73981.6
MK 00 POST 6	37954.4	73981.7
MK 00 POST 7	37949.9	73981.8
MK 00 POST 8	37941.0	73981.9
MK 00 POST 9	37931.0	73982.0
MK 00 POST 10	37921.0	73982.1
MK 00 POST 11	37911.0	73982.2
MK 00 POST 12	37900.9	73982.3
MK 00 POST 13	37890.9	73982.4
MK 00 POST 14	37880.9	73982.5
MK 00 POST 15	37870.9	73982.6
MK 00 POST 16	37860.9	73982.7
MK 00 POST 17	37850.9	73982.8
MK 00 POST 18	37840.9	73982.9
MK 00 POST 19	37830.9	73983.0
MK 00 POST 20	37820.9	73983.1

(See also attached drawing and floppy disk)

216-U-1 & 2 CRIBS STABILIZATION - AFTER STABILIZATION
1-17-92

Page 2 of 2

216-U-1 & 2 CRIBS STABILIZATION
VOLUMES DIFFERENCE FROM ORIGINAL MAPPING

DESIGN SURFACE		REFERENCE SURFACE		
COORDINATE FILE = 9210191.CRD		COORDINATE FILE = 921019.CRD		
T-NET FILE = 9210191.TNT		T-NET FILE = 921019.TNT		
BANK VOLUMES	(cubic yards) :	CUT	FILL	NET
		389.131	4189.169	-3800.038
SURFACE AREAS	(square feet) :	CUT	FILL	NO CHANGE
	(acres) :	55737.924	104974.861	.086
AVERAGE DEPTHS	(feet) :	1.280	2.410	0.000
		.188	1.077	
ADJUSTMENT TO BALANCE	(feet) :	WHOLE SITE	GRADED AREA	
		-.638	-.638	

APPENDIX B

PHOTOGRAPH INDEX

PHOTOGRAPH INDEX

AERIAL (before interim stabilization)

91102567-10CN
91102567-12CN

BEFORE INTERIM STABILIZATION

91093002-13CN (looking east toward U-Plant)
91093002-14CN (looking northeast toward powerhouse)
91093002-15CN (looking north over 361 Tank)
91093002-16CN (looking northwest over cribs)
91093002-17CN (looking north over 361 Tank)
91093002-18CN (looking north over the drainfield)
91093002-19CN (drain field)
91093002-20CN (northwest zone border)
91093002-21CN (northwest zone border looking over cribs)

SHOT-CRETE

91122719-14CN (shot-crete application)
91122719-15CN (after biobarrier installation)
91122719-17CN (shot-crete equipment)
91122719-18CN (shot-crete equipment)
91122719-19CN (shot-crete equipment)
91122719-20CN (shot-crete application)
91122719-21CN " " "
91122719-22CN " " "
91122719-24CN " " "
91122719-26CN " " "
91122719-28CN " " "
91122719-29CN " " "

CRIB STABILIZATION

91112738-9CN (vegetation removed and flagged contamination near the cribs)
91112738-10CN (cave-in zones prior to interim stabilization looking east)
91112738-17CN (grader work south of the cribs)
91112738-19CN (dump truck)
91112738-20CN (dump truck)
91112738-21CN (dozer)
91112738-22CN (dozer working without incident in "Cave-in Zone")
91112738-23CN (stabilized area near crib, looking south)
91112738-24CN (stabilized crib surface)
91112738-25CN (depth of fill over crib, white mark on post = 18 inches)

DRAINFIELD WORK

- 91112738-26CN (surveying of drainfield, south bank)
- 91112738-27CN (scraping surface of drainfield, south bank)
- 91112738-28CN (surveying of drainfield along south bank)
- 91112738-29CN (scraped surface of drainfield prior to zone extension)
- 91112738-30CN (scraped surface along south bank)
- 91112738-31CN (removing contaminated soil along south bank)
- 91122719-13CN (entire drainfield scraped, note north-south orientation of equipment movement as evidenced by the tire tracks)
- 91122719-25CN (decontaminated drainfield, note underground posting along south bank)

STABILIZATION OF AREAS OTHER THAN THE CRIBS

- 91112738-11CN (vegetation removed from site surface)
- 91112738-12CN (vegetation removed from site surface)
- 91112738-18CN (vegetation removed from site surface)
- 91122719-16CN (consolidation pile during stabilization)
- 91122719-23CN (general stabilization shot)
- 91122719-27CN (general stabilization shot)

SITE PREPARATION WORK

- 91112738-13CN (isolated drainfield riser)
- 91112738-14CN (isolated diversion box)
- 91112738-15CN (isolated septic tank, note that above objects are flagged)
- 91112738-16CN (pipe that was surveyed and removed from radiation zone)

APPENDIX C

SHOT-CRETE MIX DATA

~~SHOT-CRETE MIX DATA~~

1. 658 lbs. ashgrove cement
2. 2350 lbs. concrete sand
3. 595 lbs. 3/8" minus aggregate
4. 33.3 gallons water

This mix will supply 8 yards. Note: polypropylene fibers should be wet batched with the above mix.

DISTRIBUTION SHEET

To: ~~Surplus Facilities & RCRA~~ Closures
 From: Decommissioning Engineering
 Date: 02/10/92

Project Title/Work Order:

216-U-1 and 216-U-2 Cribs Interim Stabilization Final Report

EDT No.: 156107

ECN No.:

Name	MSIN	With Attachment	EDT/ECN & Comment	EDT/ECN Only
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KEH

T. V. Coyne	E2-50	X		
N. P. Fastabend	E2-50	X		

WHC

D. R. Baker	X7-02	X		
R. G. Dieffenbacher	H4-16	X		
S. R. Durfee	T3-11	X*		
W. M. Hayward	R2-77	X*		
D. O. Hess	L6-57	X		
M. C. Hughes (5)	L4-88	X*		
R. E. Jennings	X7-02	X*		
D. M. Kelley	T3-11	X*		
R. E. Lerch	B2-35	X		
R. L. Miller	L4-88	X		
M. R. Morton	R2-77	X		
K. J. Moss	R3-12	X		
W. L. Osborne	T3-11	X*		
D. A. Rohl	S4-01	X		
D. L. Smith (5)	R2-77	X*		
D. R. Speer	R2-77	X		
G. E. Van Sickle	R2-81	X		
B. F. Weaver	T3-11	X*		
C. R. Webb	T1-30	X		
C. D. Wittreich	H4-55	X		
F. G. Zwiesler	T3-06	X		
DE Files R.7.5	R2-77	X*		
EDMC	H4-22	X		
Central Files	L8-04	X		

* These people will get a copy with the color photographs instead of the regular distribution except M. C. Hughes and W. M. Hayward. They will each receive one copy with color photographs and 4 copies of the regular distribution.