

Y-12

Y-12 CENTRAL FILES
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OAK RIDGE
Y-12
PLANT

BUILDING 9712 RAVINE DISPOSAL SITE

Production Optimization Department

MARTIN MARIETTA

APRIL 3, 1984

Y-12 Plant

Operated by
Martin Marietta Energy Systems, Inc.
for the United States Department of Energy

ChemRisk Document No. 2515

MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

INTRODUCTION

Early in the history of the Y-12 Plant, there was a ravine in the field north of Building 9712 (the garage) that extended to the east along the north side of New Hope Cemetery (Municipal Cemetery 32). There is evidence that this ravine was once used as a "dumping ground" for debris. This report describes the use of this ravine and the items possibly buried there. The sources of information are interviews, maps, photos, and a radiation survey. The interviews consisted of conversations with employees of the Y-12 Health, Safety, and Environmental Division; the Y-12 Maintenance Division; the Y-12 Security, Plant Protection, and Utilities Division; and the Engineering Division. Engineering survey maps and the Y-12 Area Block Plan drawings provided location and date information. A radiation survey of the area was performed by Environmental Monitoring. Photographs were used to help interpret the ravine's history and are included in Appendix A.

RAVINE HISTORY

A 1943 topographical map (Appendix B) shows a ravine just north of Building 9712 with an elevation difference of up to 35 feet between the bottom of the ravine and the highest point on the south slope. When construction was begun at the Y-12 Plant, a 16-inch water main was laid following the contour of this ravine. According to the recollection of several individuals, various types of rubbish were disposed of in the ravine sometime between 1943 and the early 1950s. They also believe these items were given a thin soil covering. In 1956, landscaping raised the level of the area over the previous ravine to the present level and, in 1957, added shrubbery north of the garage. Surface drainage storm sewers were installed to permit surface water to move underground, probably at the old ravine bottom level, toward East Fork Poplar Creek. The volume of the filled area is about 18,000 cubic yards; the surface area is about one acre.

On June 13, 1968, there was a break in the 16-inch water main under the field north of the garage. Area Block Plan--Water Lines Drawing E-CV-25850, Revision G, dated November 1, 1975, shows the elevation at breakpoint was approximately 941 feet. The Utilities Department dug approximately 20 feet to find the water main. Just before the water main was found, it was noticed that "buried items" were being brought up with the soil. All of the dirt and rubbish removed from the hole was buried in the Bear Creek Burial Ground. New fill from behind the rifle range was placed in the hole after the repair was completed.

Description of Rubbish

There is far less agreement and evidence with respect to what rubbish was placed in the ravine. No written records describing the disposal time period or the nature of the material have been located. The following is a composite of the most likely occurrences as gained from the available sources.

Several persons interviewed recall that the subject ravine and its extension east of East Portal Road were used as disposal sites for construction spoils,

primarily wood. It is most likely that such use began in the early days of Y-12 and continued sporadically until the early 1950s. One interviewee recalls that some contaminated metal--such as flanges, pipes, and valves--was placed in the ravine in at least 1951. He explained that scrap metal with a potential resale value was taken to the old salvage yard located between where 9720-7 and 9720-8 were built later. There it was monitored and, if uncontaminated, sorted into piles by metal type for resale. If contamination was found, the metal was removed for burial; at least some of it was dumped in the subject ravine and covered periodically with a thin layer of dirt. Such disposals were confirmed during the 1968 water main repair. The person who monitored the uncovered material recalls pipes, miscellaneous pieces of iron and steel, and a piece of uranium. He describes the uranium as a B-Wing skull casting of natural uranium about 9 or 10 inches in diameter. He suspects it was a bad casting that somehow got mixed up with the scrap metal in 9212. No one has indicated that such parts were ever intentionally placed in the ravine.

RADIATION SURVEY

In response to the present environmental situation surrounding Y-12 and because of the previously described information, on September 9, 1983, Environmental Monitoring surveyed the area north of the garage with a microroentgen meter. This meter is the most sensitive in the Y-12 Plant. It is portable and can detect gamma radiation in the 10^{-6} roentgen range. Readings were taken in repeated passes over the field north of the garage; they ranged from 15-25 microroentgens. Readings of 7-12 microroentgens were made over Agate Drive. This implies the source for the elevated readings was beneath the meter (the ground) rather than interference from the nearby Biology sources. A wider survey, which included sections of the Elsa Switchyard and an area immediately north of Bear Creek Road and east of the garage, showed similar elevated readings of 15-25 microroentgens. This wider survey was intended to cover areas under which there would be no burials but which would have similar surface or filler soil. The readings in this wider survey imply that the surface and filler soil in the area may have been the reason for the elevated readings immediately north of the garage. It can not be explicitly determined from this survey that there is a "hot" burial area there.

APPENDIX A
RAVINE DISPOSAL SITE PHOTOGRAPHS

This appendix shows four views of the 9712 ravine site. The first (photo 1) was taken in June 1943. The group of trees in the left foreground is at the bottom of the ravine. There is a runoff trench entering the photo from the center foreground and curving around to the left to follow the ravine bottom. The building directly behind the trees is the garage. The second (photo 2) was taken from the same point in March 1944. It shows further development of the area in terms of filling and leveling the land. The ravine had not been filled, however. The third (photo 3) was taken in March 1945 from the same point as the two previous photos. The ravine drop-off is more noticeable and there were fallen trees and/or debris at the bottom. There was a fence between the ravine and the parking lot. The fourth (photo 4) is a view from the east of the field over the ravine as it stands today. The brush on the crest of the hill marks the crest of the original ravine. The tips of the shadows of the trees lie in a line roughly following the original ravine.

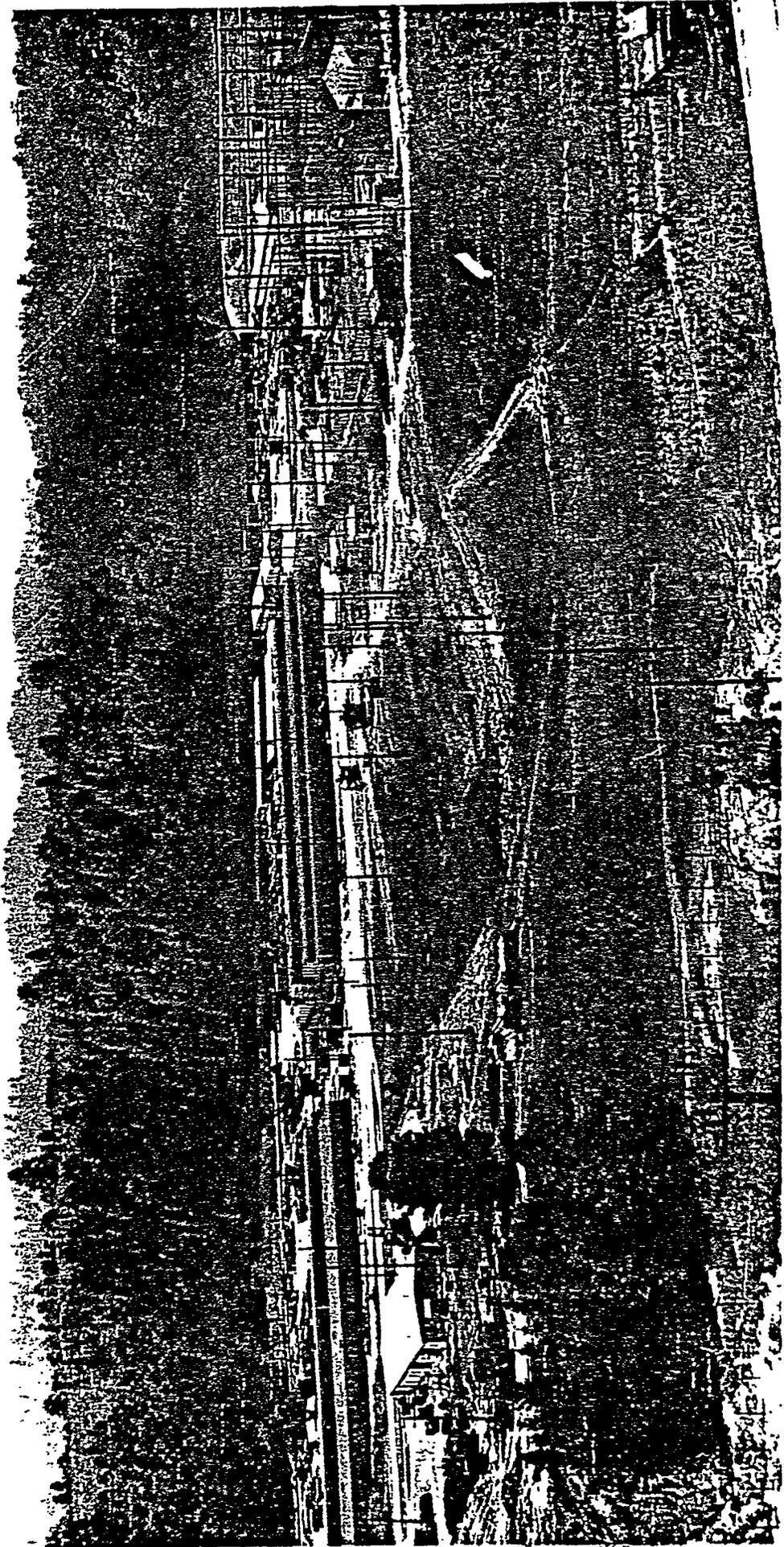


Photo 1, June 1943

APPENDIX B

RAVINE DISPOSAL SITE TOPOGRAPHY

This appendix shows a composite drawing of the ravine area (Figure 1). The positions, as they are today, of the garage, Bear Creek Road, Agate Drive, and the water line break are from the Area Block Plan drawings. The contour lines are from a 1943 survey map and show the ravine (direction of surface water flow) and the crest of the hill to the south.

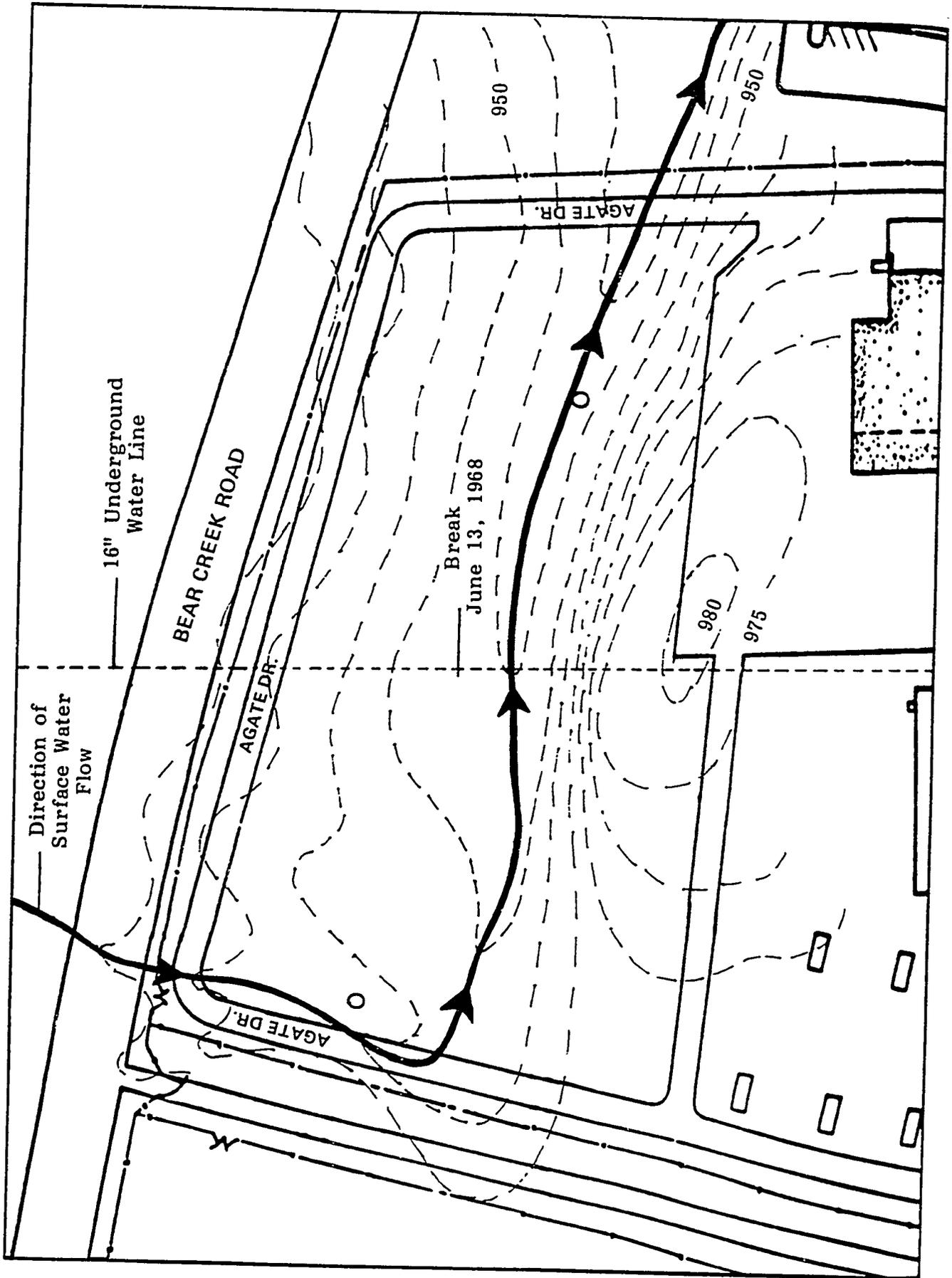


Figure 1. Composite Drawing of Ravine Area (Contour Lines are Dated 1943)