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UNCONFINED UNDERGROUND RADIOACTIVE WASTE AND CONTAMINATION - 100 AREAS

by

K. R. Heid
Radiation Monitoring Operation
Radiation Protection Operation
Hanford Laboratories Operation

November 14, 1956

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SPECIAL RE-REVIEW
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UNCONFINED UNDERGROUND RADIOACTIVE WASTE AND CONTAMINATION - 100 AREAS

The purpose of this report is to document the present knowledge about locations in the 100 areas where radioactive material has been discharged to the ground. The primary intent is to prevent future use of these sites for other purposes without knowledge of the existing contamination problem, not to determine the amounts of contaminants in the ground.

In this report the ground contamination problem arising from stack emissions and from leakage from well cars along the tracks have been omitted.

Although considerable effort was extended to supplement Document HW-27337 "Unconfined Underground Waste - 100 Areas", dated 1/29/53, and to make this report complete with the information available, the nature of the subject and the numbers of different organizations involved in waste disposal allow the possibility of omitting pertinent data. It is requested that anyone having knowledge of waste disposals to supplement material covered in this document forward the information to the office of Specialist, Exposure Illustration, Radiation Protection Operation, 329 Building, 300 Area.

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100-B AREA

107-B LIQUID WASTE DISPOSAL TRENCH NO. 1

This trench is located immediately north of the 107-B retention basin. It was dug in the spring of 1948 for the purpose of burying sludge that had accumulated in the 107 basin. There is no data available as to the total amount of activity buried. It was covered over in the spring of 1948 with approximately six feet of soil and is marked above ground with a wooden fence posted with radiation zone signs.
(Drawing reference 1, sketch A)

107-B LIQUID WASTE DISPOSAL TRENCH NO. 2

This uncovered trench was dug in 1950 to act as a french drain(1) for the effluent water from the 105-B Building during a shutdown due to a ruptured slug. It is marked above ground by a chain on top of a dike posted with radiation zone signs.
(Drawing reference 2, sketch A)

107-C LIQUID WASTE DISPOSAL TRENCH

This trench was dug in 1952 and has been used to divert effluent water from the piles during outages due to ruptured slugs. Trench is marked with radiation zone signs posted on a wooden fence.
(Drawing reference 3, sketch A)

BURIED WASTE FROM THE 107-B BASIN

A trench was dug late in 1952 in which hot sludge removed from the 107-B basin was buried. Waste was covered with about six feet of clean soil and location is marked above ground by cement monuments reading, "Do Not Excavate".
(Drawing reference 4, sketch A)

LEAKS FROM 107-B RETENTION BASIN

The leaks from this basin were greatest on the northeast side of the basin. There were also several leaks in the pipe on the outlet end of the basin. The leaks were not covered but were fenced off on three sides of the basin and posted with radiation zone signs. The leaks on the south side of the basin have not been included within a radiation zone.
(Drawing reference 5, sketch A)

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(1) In this report a french drain refers to an excavation that has been partly or completely filled with coarse gravel that permits rapid seepage of any liquid discharged to the surface of the gravel.

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GROUND CONTAMINATED BY LEAKS FROM EFFLUENT LINES

Gross leaks were detected in early 1952 and increased in volume until repairs were made to the line at a much later date. A large area is quite thoroughly contaminated from effluent water. This area is confined within a radiation zone marked by steel posts and signs.
(Drawing reference 6, sketch A)

108-B CRIB

This crib was dug in 1950 for disposal of liquid tritium wastes. Only wastes with an activity density of less than 1μc/cc of tritium was discharged to this crib. No records are available of the total activity discharged here, however all samples of waste analyzed were below the maximum permissible limits for drinking water. This crib is marked above ground with a wooden fence posted with radiation zone signs.
(Drawing reference 7, sketch A)

108-B SOLID WASTE BURIAL GROUND NO. 2

In the fall of 1953 two concrete pipes, 18 feet long were placed vertically in the ground to be used for disposal of dry tritium wastes. One pipe was filled and capped. The other was partially filled with wastes and was covered with a thin layer of concrete and left for possible future use. Area is designated above ground as a radiation zone by steel posts, chains, and radiation signs.
(Drawing reference 8, sketch A)

LEAKS FROM THE EFFLUENT LINE INSIDE 105-B EXCLUSION AREA

The two known leaks in this area from the effluent line from 105-B to 107-B occurred during the last half of 1952. One was near the No. 2 diversion box for the 30" line and the other was around the 8" riser for the temporary by-pass line northeast of the 105-B Building. In both places the contaminated area has been covered with at least three feet of soil. Neither location is marked in any way above ground.
(Drawing reference 9, sketch A)

MINOR CONSTRUCTION BURIAL GROUND NO. 1

This excavation lies directly east of the 105-B Building. It is approximately 30 feet by 60 feet and was used for the disposal of dry wastes from the 107-B basin repair work and for wastes from 115-B alterations by Minor Construction in fall of 1954. The trench was covered with six feet clean earth in summer of 1956 and posted as a radiation zone by a chain fence and radiation signs.
(Drawing reference 10, sketch A)

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MINOR CONSTRUCTION BURIAL GROUND NO. 2

This trench lying to the east of the other two construction burial trenches was first used in the summer of 1956 for the disposal of low-level wastes from effluent line modification. The trench running from east to west is enclosed by a chain fence posted with radiation zone signs.
(Drawing reference 11, sketch A)

105-B PLUTO CRIB

This crib was dug in the early part of 1951 to receive water drained from a tube containing a ruptured slug and has since been covered over with ten feet of soil. This crib is marked with a concrete monument flush with the ground.
(Drawing reference 12, sketch A)

105-B STORAGE BASIN TRENCH

This trench was dug in 1946 after a slug was accidentally cut in half in the storage basin. The basin was cleaned by draining the water into this trench which was then covered over with six feet of soil. The total activity buried here is unknown. The location is marked above ground with "Do Not Excavate" signs.
(Drawing reference 13, sketch A)

BALL 3-X BURIAL GROUND

Highly contaminated wastes such as old thimbles, step-plugs, etc. that were removed from the 105-B pile during the ball 3-X shutdown in January, 1953 are buried just outside the 105-B exclusion area fence. The trench has been back-filled with about five feet of clean soil and posted with cement monuments reading "Do Not Excavate".
(Drawing reference 14, sketch A)

HOT THIMBLE BURIED AND REMOVED

A highly contaminated verticle thimble removed from the 105-B Building in 1952 was buried in a trench west of the 115-B Building. This was later recovered and taken to the regular burial ground, but some of the high-level contaminant was left in the original trench. There is nothing above ground to indicate this location.
(Drawing reference 15, sketch A)

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111-B CRIB

This crib was built in early 1951 to receive radioactive wastes from the 111-B Building. It is a french drain that has been covered with approximately six feet of soil. No information is available as to total activity discharged here. This area is marked above ground with a wooden fence posted with radiation zone signs.
(Drawing reference 16, sketch A)

105-C CRIB

This crib was dug in 1952. At present water from the shallow viewing pit goes through the sump and filters into this crib. Also, contaminated wastes from the dummy contamination done on the wash pad and water from the 105-C metal examining facilities go to this crib. It is so designed that the wastes from the rear face could be routed to this crib if desired. The crib is delimited by a chain but not posted with radiation zone signs.
(Drawing reference 17, sketch A)

105-C SOLID WASTE BURIAL GROUND

This burial site was first used in the spring of 1953 for disposal of waste from the 105-C Building. It consists of one trench running north and south and six wells, two of which are filled. The wells are ten feet square and both the wells and the burial ground are 15 feet deep. A wire fence and signs mark it as a radiation zone. The fence is kept locked when not in use.
(Drawing reference 18, sketch A)

OPERATIONS SOLID WASTE BURIAL GROUND

The first trench in this burial ground was dug in 1944. Ten trenches have been used and covered with approximately six feet of soil and a monument posted at both ends. The concrete monuments are capped with a brass plate with the lettering "Do Not Excavate". At present, there are three open trenches side by side with their long axis running east and west. Total activity buried here is not known. The area including all trenches is surrounded by a wire fence posted with radiation zone signs and is kept locked when not in use.
(Drawing reference 19, sketch A)

108-B SOLID WASTE BURIAL GROUND

The first trench in this burial ground was dug in early 1950 and used as a burial ground for solid tritium wastes and high-level liquid tritium wastes sealed in 3" diameter iron pipes. Later, in 1952, it was used to dispose of contaminated tritium pots and also irradiated process tubing. Two trenches are filled and covered with six feet of soil. One open trench is used for burial of contaminated perfs. The trenches are surrounded by a wire fence posted with radiation zone signs and kept locked when not in use.
(Drawing reference 20, sketch A)

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EXTENSION TO BURIAL GROUND NO. 1

Contaminated yokes from the reactor buildings were buried here in the spring of 1956. An area 50 feet by 200 feet is enclosed within a chain fence posted with radiation zone signs.
(Drawing reference 21, sketch A)

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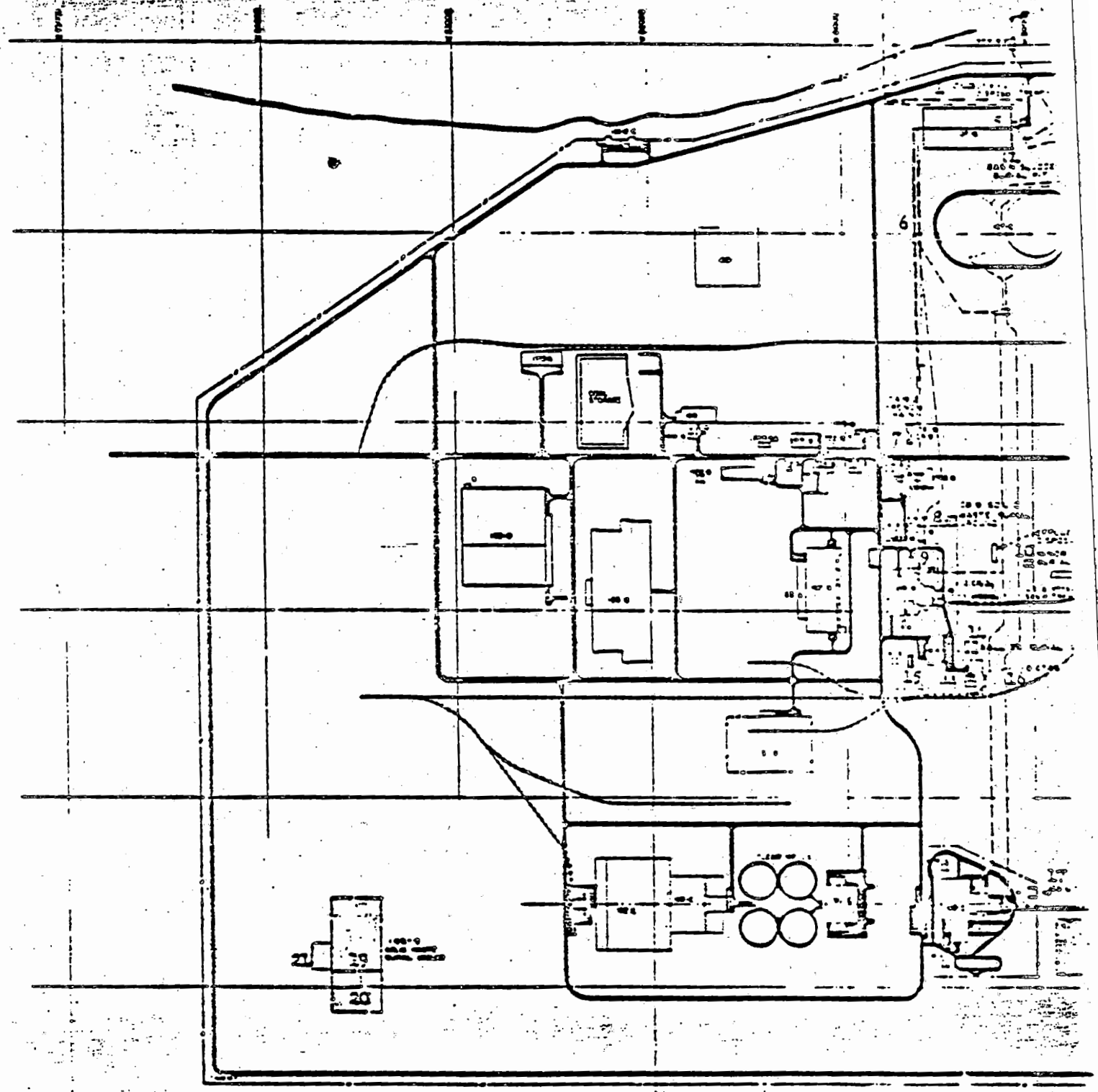

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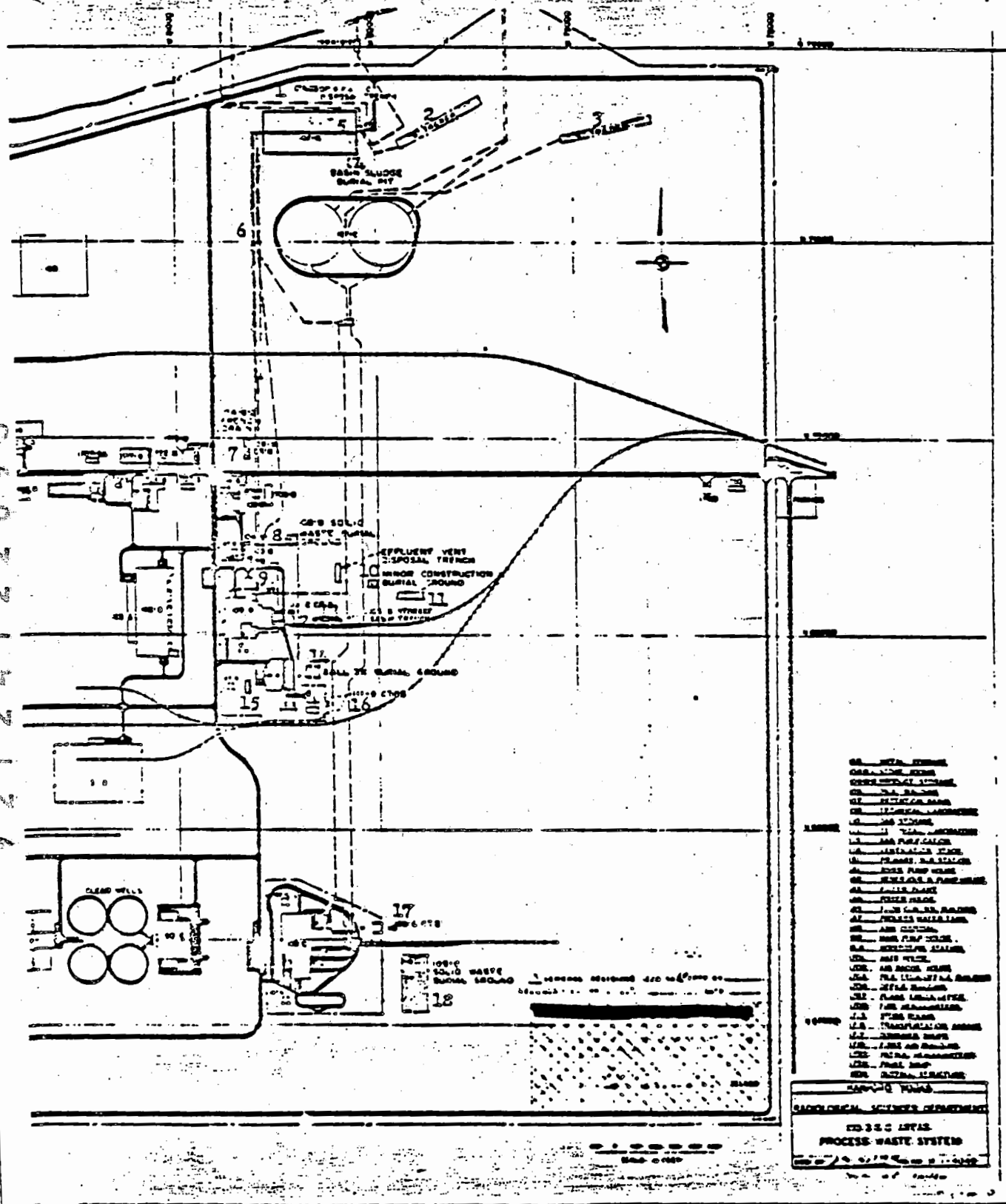

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100-D AREA

BURIED SLUDGE FROM 107-D RETENTION BASIN

Sludge removed from the 107-D north basin was buried in a trench near by during the spring of 1953. The waste is covered with about six feet of clean fill and the location is marked above ground by cement monuments.
(Drawing reference 1, sketch B)

BURIED SLUDGE FROM 107-D RETENTION BASIN

Some sludge was removed from the retention basin by plant forces in spring of 1953 prior to work by minor construction forces. To date this location has not been marked above ground, however, it is planned to put a monument in the ground over the site.
(Drawing reference 2, sketch B)

107-D RETENTION BASIN LEAKS

The greatest leakage occurred in the spring of 1950 on the north side between the basin and the river. Effluent water had drained under the road to the section between the road and the perimeter fence. Readings up to 10,000 c/m at surface were detected. No attempt to cover this contamination has been made to date. The area involved is marked with a rope fence posted with radiation zone signs.
(Drawing reference 3, sketch B)

BURIED SLUDGE FROM 107-D RETENTION BASIN

Sludge removed from the 107-D south basin was buried in a trench near by during the spring of 1953. The waste is covered with about six feet of clean fill and the location is marked above ground by cement monuments.
(Drawing reference 4, sketch B)

UNCONFINED EFFLUENT WATER

Two excavations were made late in 1951 as a result of excessive leakage being detected above ground about 150 feet southeast of the 107-D retention basin. Maximum dose rate reading observed at that time was 50 mrad/hr at surface. The holes have since been covered but effluent water has seeped to the surface. The area is a radiation zone marked by a rope fence posted with radiation zone signs.
(Drawing reference 5, sketch B)

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107-DR LIQUID WASTE DRAIN

During the repair of the leakage at the inlet end of the 107-DR basin in the fall of 1952, it was necessary to drain the effluent water from the job site. Accordingly, a trench was dug from the inlet end of the DR basin towards the SE corner of the D basin. Upon completion of the job, the trench was backfilled with approximately four feet of soil. This area is not marked above ground.
(Drawing reference 11, sketch B)

108-D CRIB

This crib is located about 100 feet directly east of the 108-D Building. It is an underground french drain dug in 1951 and covered with about eight feet of soil. To date it has been used for low-level fission products wastes from a contaminated maintenance shop and a cask decontamination pad, both of which will be located in the 108-D Building. The crib is not marked in any way above the ground.
(Drawing reference 12, sketch B)

TIE-IN OF THE "D" AND "DR" EFFLUENT LINES

Effluent water lines from the two pile buildings join inside the exclusion area just north of 105-D and east of the 103-D buildings. At the completion of the tie-in phase of the job in 1950, contaminated soil and pipe were buried here. The material is covered with at least two feet of soil and a removable concrete top. The area is marked above ground with a wooden fence posted with radiation zone signs.
(Drawing reference 13, sketch B)

105-D STORAGE BASIN TRENCH

This trench was dug in 1947. It is located east of the 105-D Building and immediately north of the railroad tracks. The trench received water and sludge, total activity unknown, from the 105-D storage basin. It is believed to have been covered with six feet of soil. It is marked above ground with a chain fence and posted with radiation zone signs.
(Drawing reference 14, sketch B)

105-D PLUTO CRIB

This excavation, located east of the 115-D Building and near the exclusion fence, was dug in 1950 and received water from process tubes containing ruptured slugs. It is believed to be covered by about ten feet of soil and is marked above ground by a monument.
(Drawing reference 15, sketch B)

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BURIED SLUDGE FROM 107-DR RETENTION BASIN

Sludge removed from the 107-DR west basin was buried in a trench near by during the spring of 1953. The waste is covered with about six feet of clean fill and the location is marked above ground by cement monuments.
(Drawing reference 6, sketch B)

107-DR LIQUID WASTE DISPOSAL TRENCH NO. 1

This open trench was dug in 1950 and has been used for receiving the effluent water from either the 105-D or the 105-DR pile building when either has a ruptured slug. There is a chain fence around this trench, on top of the dike, with radiation zone signs posted about 100 feet apart.
(Drawing reference 7, sketch B)

BURIED SLUDGE FROM 107-DR RETENTION BASIN

Sludge removed from the 107-DR east basin was buried in a trench near by during the spring of 1953. The waste is covered with about six feet of clean fill and the location is marked above ground by cement monuments.
(Drawing reference 8, sketch B)

107-DR LIQUID WASTE TRENCH NO. 2

A second trench for the disposal of effluent water from the D and DR systems during outages caused by a ruptured slug was dug in 1955. It is marked by a chain fence posted with radiation zone signs.
(Drawing reference 9, sketch B)

107-DR RETENTION BASIN LEAKS

Extensive leakage of effluent water at the inlet end of the 107-DR retention basin was caused by the pipes pulling loose from the basin wall. Readings up to 100 mrad/hr were detected at the surface of the mud. Part of this contaminated soil was used in the fall of 1952 as backfill for the excavation around the anchor blocks south of the 107-DR basin. All contaminated soil was then covered with approximately two feet of soil. Most of the contaminated soil is not marked above ground in any way.
(Drawing reference 10, sketch B)

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BURIED VSR THIMBLE

A vertical thimble removed from the 105-D reactor in 1955 was buried in a trench and covered with several feet of dirt. The location is marked above ground with three monuments.
(Drawing reference 16, sketch B)

MINOR CONSTRUCTION BURIAL GROUND NO. 1

Contaminated thimbles, rod guides and miscellaneous waste removed from the 105-D reactor during an extended ball 3X outage in 1953 were buried just outside the exclusion area fence. The contaminated waste was covered with six feet of dirt and the location is marked with cement monuments.
(Drawing reference 17, sketch B)

MINOR CONSTRUCTION BURIAL GROUND NO. 4

Two trenches, running in a north-south direction, were first used in the fall of 1954 for the disposal of low-level wastes from the reactors. Trenches are about 50 feet by 100 feet and are marked with radiation rope and signs.
(Drawing reference 18, sketch B)

MINOR CONSTRUCTION BURIAL GROUND NO. 5

One trench, running in a north-south direction, was used in fall of 1956 for the disposal of contaminated material and equipment removed from the reactor buildings. A separate hole lies just east of this trench and will be used for disposal of similar wastes. The trench and hole are roped off with radiation rope.
(Drawing reference 19, sketch B)

MINOR CONSTRUCTION BURIAL GROUND NO. 6

A trench was dug in the fall of 1956 and will be used for the disposal of contaminated equipment removed from reactor building and effluent system during the current modification work.
(Drawing reference 20, sketch B)

MINOR CONSTRUCTION BURIAL GROUND NO. 2

Contaminated thimbles, rod guides and miscellaneous waste removed from the 105-DR reactor during an extended ball 3X outage in 1953 were buried just outside the exclusion area fence. The contaminated waste was covered with six feet of dirt and the location is marked with cement monuments.
(Drawing reference 21, sketch B)

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105-DR CRIB

This crib was dug in 1950 and was used to receive liquid from isolated tubes containing ruptured slugs. It is located in the southeast corner of the exclusion area and is covered with ten feet of soil. The area is marked above ground with a monument.
(Drawing reference 22, sketch B)

BURIED SLUDGE FROM 107-DR RETENTION BASIN

Contaminated sludge removed from the 107-DR basin in 1955 was buried near by and covered with several feet of dirt. The area is marked above ground with monuments.
(Drawing reference 23, sketch B)

MINOR CONSTRUCTION BURIAL GROUND NO. 3

Thimbles removed from the 105-DR reactor during the ball 3X work in 1954 were buried in a trench just south of the 105-DR exclusion area. The trench site is marked with monuments.
(Drawing reference 24, sketch B)

SOLID WASTE BURIAL GROUND NO. 1

The first trench in this burial ground, located south of the 105-DR Building, was dug in 1944. The burial ground was used until 1949 when construction of the 105-DR Building made it necessary to start a new burial ground. Since 1949 this original burial ground has been used occasionally for burial of thimbles, rods, etc. Regulated equipment is also stored inside the fenced area. No records were available of the total activity buried there. Four trenches were used and covered with six feet of soil. At present there is one open trench running east and west. An area including all trenches is confined within a wire fence posted with radiation zone signs and is kept locked when not in use.
(Drawing reference 25, sketch B)

SOLID WASTE BURIAL GROUND NO. 2

This burial ground, located in the southwest corner of the area, was first used in 1949. There are several covered trenches and three open trenches all running east and west. No records were available on the total activity buried here. The trenches are covered with six feet of soil as they are filled with waste and "Do Not Excavate" monuments are posted at both ends of the trenches. An area including all trenches is confined within a wire fence posted with radiation zone signs and is kept locked when not in use.
(Drawing reference 26, sketch B)

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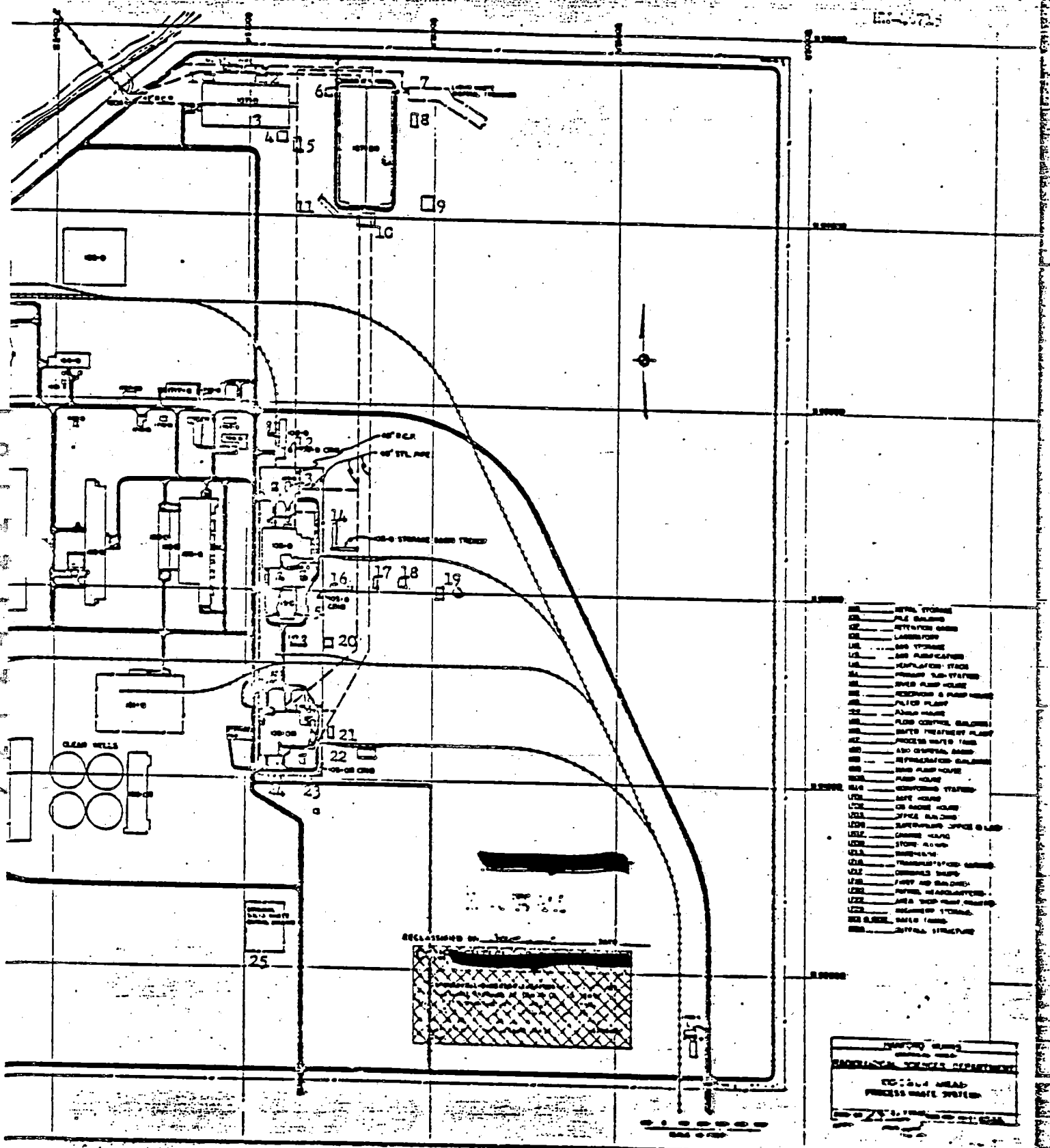

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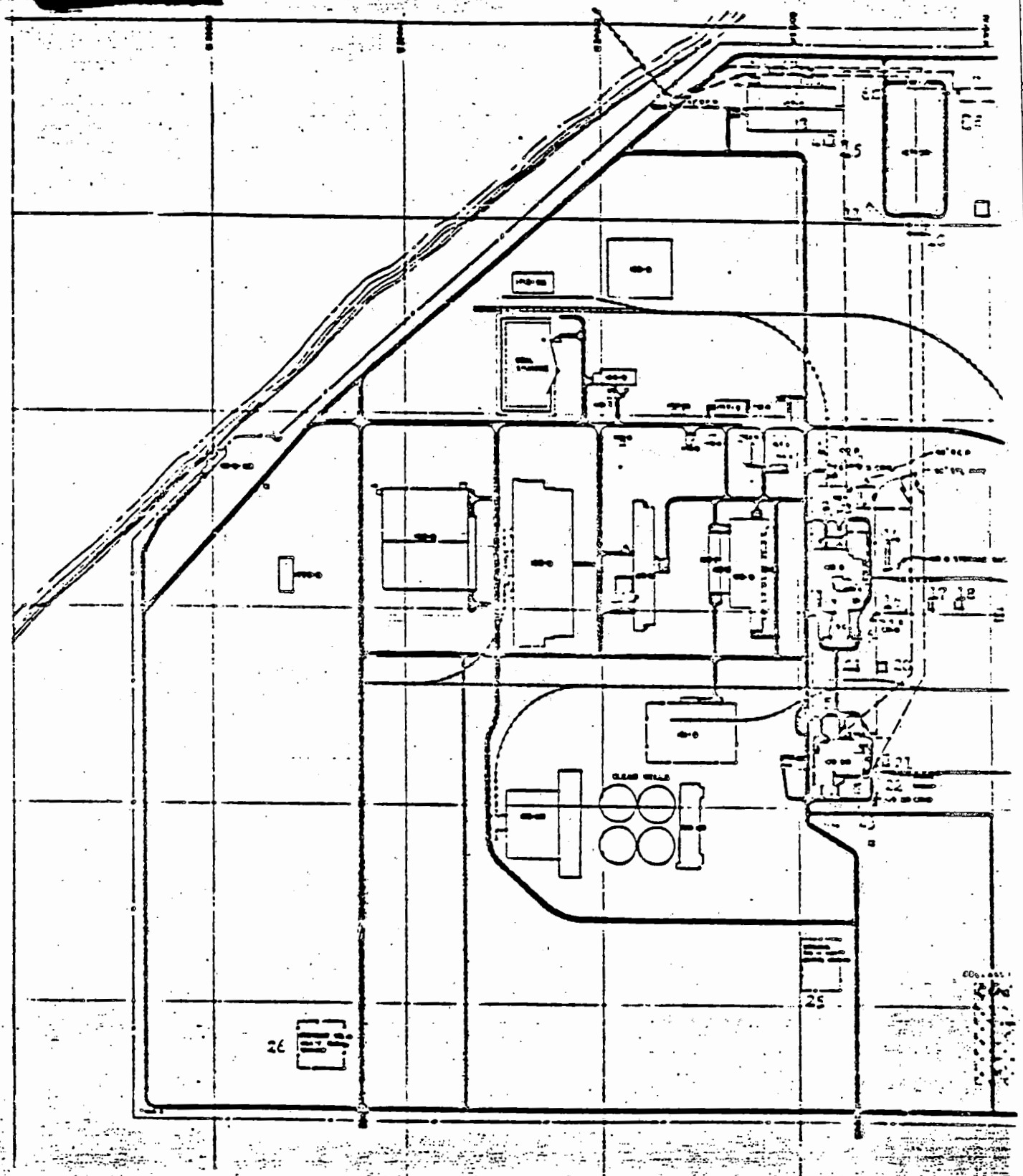

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100-H AREA

BURIED WASTE AND SLUDGE FROM THE 107-H BASIN

Sludge and waste removed from the 107-H basin during repair work in the spring of 1953 were buried in a trench to the east of the basin. The trench is covered with five feet of dirt and marked with monuments.
(Drawing reference 1, sketch C)

107-H LIQUID WASTE DISPOSAL TRENCH

This open trench is located near the 107-H retention basin. The first section was dug in early 1952 and a second section of about the same size was added later in 1952. The water that usually goes to the retention basin is diverted to the trench during a shutdown involving a ruptured slug. This area is designated as a radiation zone with a chain fence on top of a dike around the trench with radiation zone signs posted every 100 feet.
(Drawing reference 2, sketch C)

BURIED CONTAMINATED PIPE

Several sections of 16" pipe used in the spring of 1953 as chutes for the removal of thimbles from the pile buildings during the ball 3X outages were buried and two trenches covered with six feet of soil. Monuments saying "Do Not Excavate" have been posted above ground to indicate the location.
(Drawing reference 3, sketch C)

BURIED EFFLUENT WATER

During the ball 3X outage in the spring of 1953, the water from the 105-H Building was pumped via the 1608 pumphouse to a trench dug outside the exclusion area and south of the 110-H tanks. This trench overflowed and contaminated an area about 300 feet wide and 500 feet long. The trench was covered but the rest of the contamination to date is left uncovered. Monuments designate this area a radiation zone.
(Drawing reference 4, sketch C)

BURIED THIMBLE FROM X-LEVEL

A trench 30 feet long and 2 feet wide was used in May, 1953 to bury a thimble assembly used in the "B" hole of the 105-H X-level. Reading at the time of burial was 600 r/hr at 1 foot. After covering trench with five feet of soil the ground level read less than 100 c/m. Cement monuments mark the location as a radiation zone.
(Drawing reference 5, sketch C)

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105-H PLUTO CRIB

This crib is used to receive drainage from a tube containing a ruptured slug. The crib was constructed in 1950 and used for only a short time before it was covered with approximately ten feet of soil. The crib has not been used since early in 1952. The area is marked by monuments above ground.
(Drawing reference 6, sketch C)

BALL 3X BURIAL GROUND

Thimbles, guides, etc. removed from the 105-H Building in spring of 1953 were buried in a trench near the 105-H Building. This trench has been covered with five to six feet of soil and marked by monuments.
(Drawing reference 7, sketch C)

OPERATIONS SOLID WASTE BURIAL GROUND

The first trench in this burial ground was dug in 1949 and has been used for the disposal of solid operations. The trench is filled and has been covered with six feet of soil and is marked above ground by monuments at both ends of the trench. There are two open trenches now in use. The burial ground was enlarged in 1955 to include an area across the road. The trenches are enclosed by a cyclone fence which is posted with radiation zone signs and kept locked when not in use.
(Drawing reference 8, sketch C)

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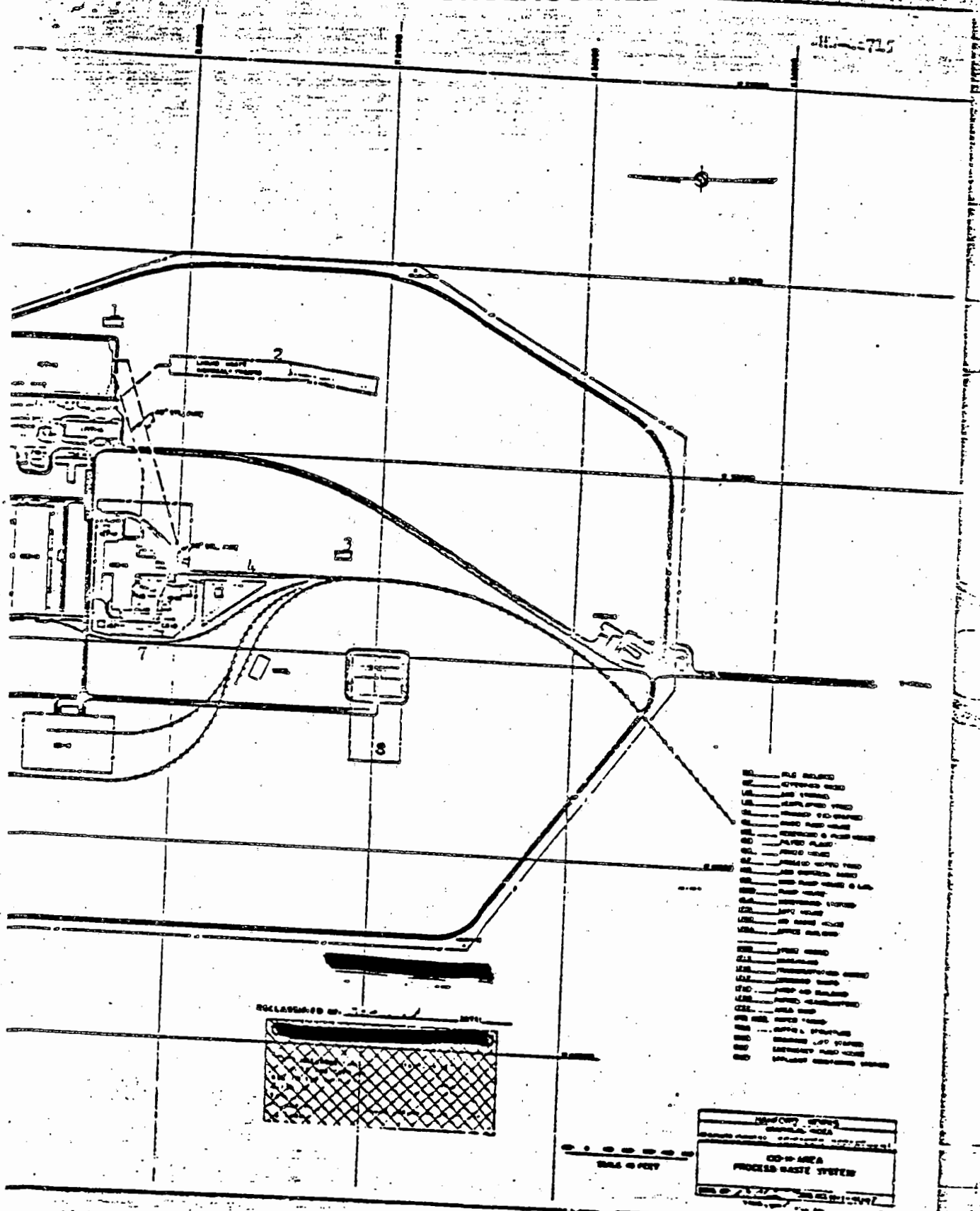

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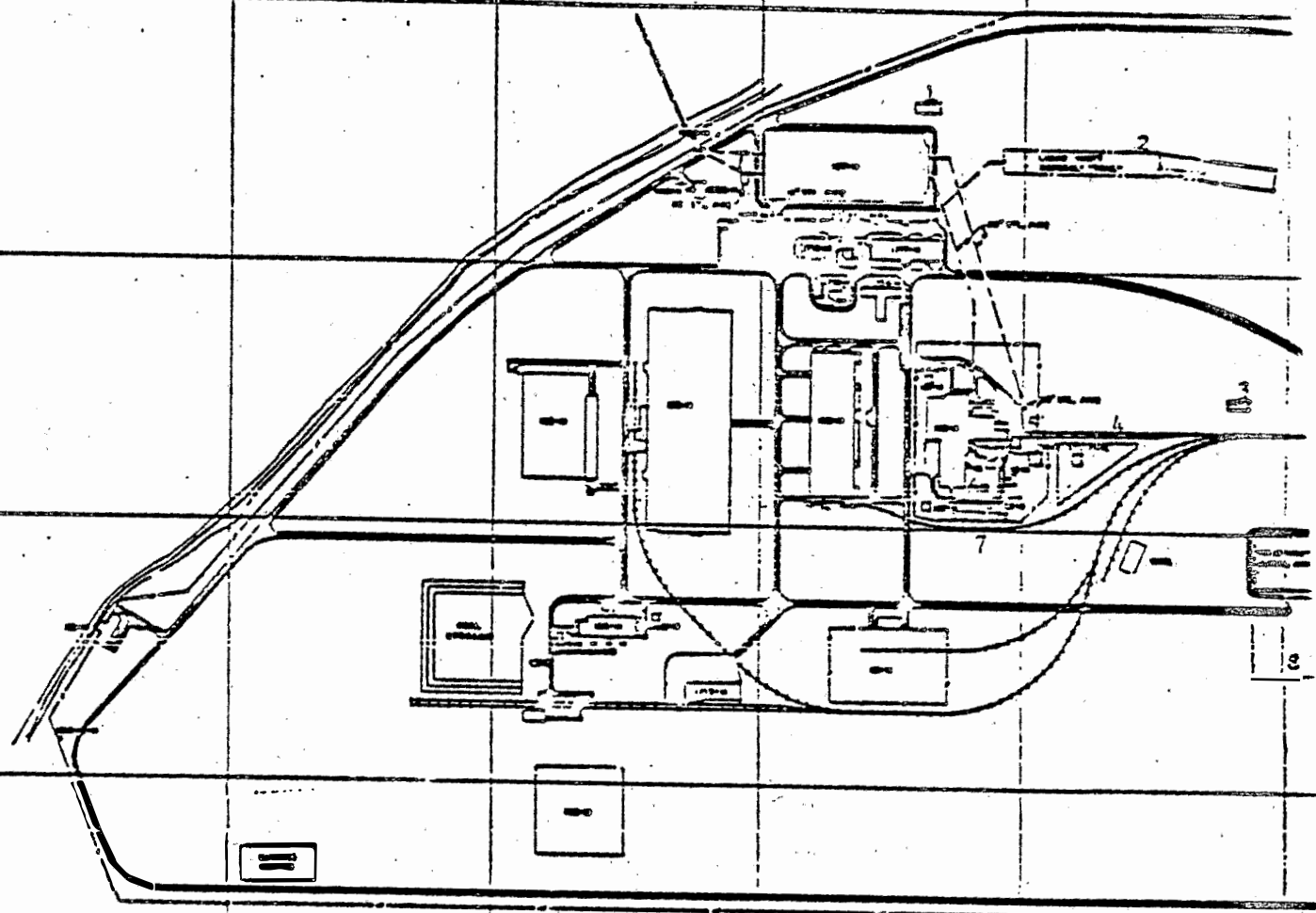

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100-F AREA

GARDEN NEAR 1705-F BUILDING

This garden is an experimental plot started in the summer of 1952 by Biology section personnel. The source of contamination is from various levels of effluent water which is used for irrigation. The plot is enclosed with a wire fence posted with radiation zone signs.
(Drawing reference 1, sketch D)

FRENCH DRAIN NEAR 148-F BUILDING

This drain, built in 1944, receives the overflow, priming water, etc. from the 148-F pumphouse, which in turn controls the flow of effluent water from the 107-F retention basin to the 146-F fish ponds. The drain is covered and is marked above ground with a wooden fence posted with radiation zone signs.
(Drawing reference 2, sketch D)

EFFLUENT LINE OVERFLOW

The source of this contamination is a large manhole north of the 107-F retention basin (outlet end). The effluent water had overflowed intermittently for an extended period before it was stopped. The area around the manhole is marked with a wooden fence posted with radiation zone signs.
(Drawing reference 3, sketch D)

SPREAD OF CONTAMINATION

Effluent water from 107-F flooded an area northeast of the basin in 1955, contaminating the area which is currently delimited with a chain fence and posted with radiation zone signs.
(Drawing reference 4, sketch D)

LEAKS FROM THE 107-F RETENTION BASIN

Leaks from the 107-F basin were not too serious from any outward evidence, although small leaks were found on all sides of the basin. The largest leak extended roughly twenty-five feet from the foot of the basin wall. Most of the leaks, which were never covered, are confined inside radiation zones.
(Drawing reference 5, sketch D)

BURIED CONTAMINATED SOIL

During the tie-in of pipes to the 148-FR pumphouse, a large hole was dug to drain water from the effluent pipe lines while welding was being done. The hole was covered with two feet of dirt. No additional signs were erected as this hole was already inside an established radiation zone.
(Drawing reference 6, sketch D)

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107-F LIQUID WASTE DISPOSAL TRENCH

This trench was dug in 1950 and has been in use since as an open french drain for effluent water during a shutdown involving a ruptured slug. This trench is surrounded with a chain fence on top of a dike and posted with radiation zone signs.
(Drawing reference 7, sketch D)

108-F FRENCH DRAIN

This is a drain to receive condensate from the hoods inside the 108-F Biology building. Considerable duct work is exposed and in cold weather some of the condensate flows back down to this drain. To date no activity has been detected in this condensate, but it is possible that contamination from plutonium as well as many beta emitting isotopes could be washed down the walls of the hoods and duct work in the future.
(Drawing reference 8, sketch D)

1608-F LIQUID WASTE DISPOSAL TRENCH AND OVERFLOW

This is an open trench dug during latter part of 1952 to hold water flowing from the 105 building during the ball 3X shutdown. The crib is enclosed by a chain fence posted with radiation zone signs. In the spring of 1956, the effluent water overflowed from this crib and flooded an area south of the crib. This contaminated area is delimited by a rope fence and is posted as a radiation zone.
(Drawing reference 9, sketch D)

105-F STORAGE BASIN TRENCH

Excavation date of this trench is uncertain. It was used to receive the effluent water during the time the pile building was down due to a ruptured slug. In addition all sludge removed from the basin in January, 1951 was discharged to this trench. It was covered in January, 1951 with about eight feet of soil and has not been used since. The location is not marked above ground.
(Drawing reference 10, sketch D)

105-F PLUTO CRIB

This crib was dug to receive water from process tubes containing a ruptured slug. The original construction date is uncertain but was probably some time in 1951. Since that date it has been covered with ten to twelve feet of soil. The location of the crib is marked above ground by a wooden fence posted with radiation zone signs.
(Drawing reference 11, sketch D)

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BALL WASHER CRIB

Wastes from the decontamination of boron balls in 1953 were buried and covered with several feet of soil. The area is marked with a chain fence and radiation zone signs.
(Drawing reference 12, sketch D)

115-F CRIB

This crib was dug in 1949 to hold the silica gel removed from the gel tower in one of the 115-F dryer rooms. It was covered at that time with five or six feet of soil and has not been disturbed. The location is marked above ground with a wooden fence posted with radiation zone signs.
(Drawing reference 13, sketch D)

MINOR CONSTRUCTION BURIAL GROUND NO. 1

Highly contaminated wastes such as old thimbles, step-plugs, etc. that were removed from the 105-F pile during the ball 3X shutdown in the last half of 1952 were buried just outside the south fence of the 105 exclusion area and covered with an average of five feet of soil. There is no information available as to the total activity buried. The area is marked above ground by concrete monuments which read "Do Not Excavate Within Twenty Feet".
(Drawing reference 14, sketch D)

SOLID WASTE BURIAL GROUND NO. 2

This burial site, first used in 1955, includes two open trenches for the disposal of Manufacturing wastes, two open trenches for the disposal of Biology solid wastes, and three holes for the disposal of liquid wastes and animal carcasses. All trenches and holes are delimited by a fence posted with radiation zone signs.
(Drawing reference 15, sketch D)

MINOR CONSTRUCTION BURIAL GROUND NO. 2

Two holes were dug in 1954 and used for the disposal of solid wastes from construction work in and near the reactor building. Both holes are still open for use and are inside a chain fence posted with radiation zone signs.
(Drawing reference 16, sketch D)

EFFLUENT BACKUP

During the ball 3X outages in 1953, the effluent water drained through a sanitary tile field and ditch to the river. Low-level contamination was deposited in this ditch which is now marked with a chain fence and radiation zone signs.
(Drawing reference 17, sketch D)

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CONTAMINATED DIRT

Low-level contamination removed during work on the 190-105F tunnel in the summer of 1956 was deposited near the old burial ground and covered with clean earth. The area is enclosed by a chain fence posted with radiation zone signs.
(Drawing reference 18, sketch D)

SOLID WASTE BURIAL GROUND NO. 1

This includes the old Operations solid waste burial ground consisting of eight trenches, the old Biology solid waste trench, and several large cylindrical sleeves used for liquid waste disposal from 108-F. All trenches and sleeves have been filled with at least six feet of soil and posted as a radiation zone by a wire fence and signs.
(Drawing reference 19, sketch D)

Sr^{90} GARDEN

Small quantities of radioactive strontium was spread over 4000 square feet of ground in the fall of 1954. The area is enclosed within a wire fence posted with radiation zone signs.
(Drawing reference 20, sketch D)

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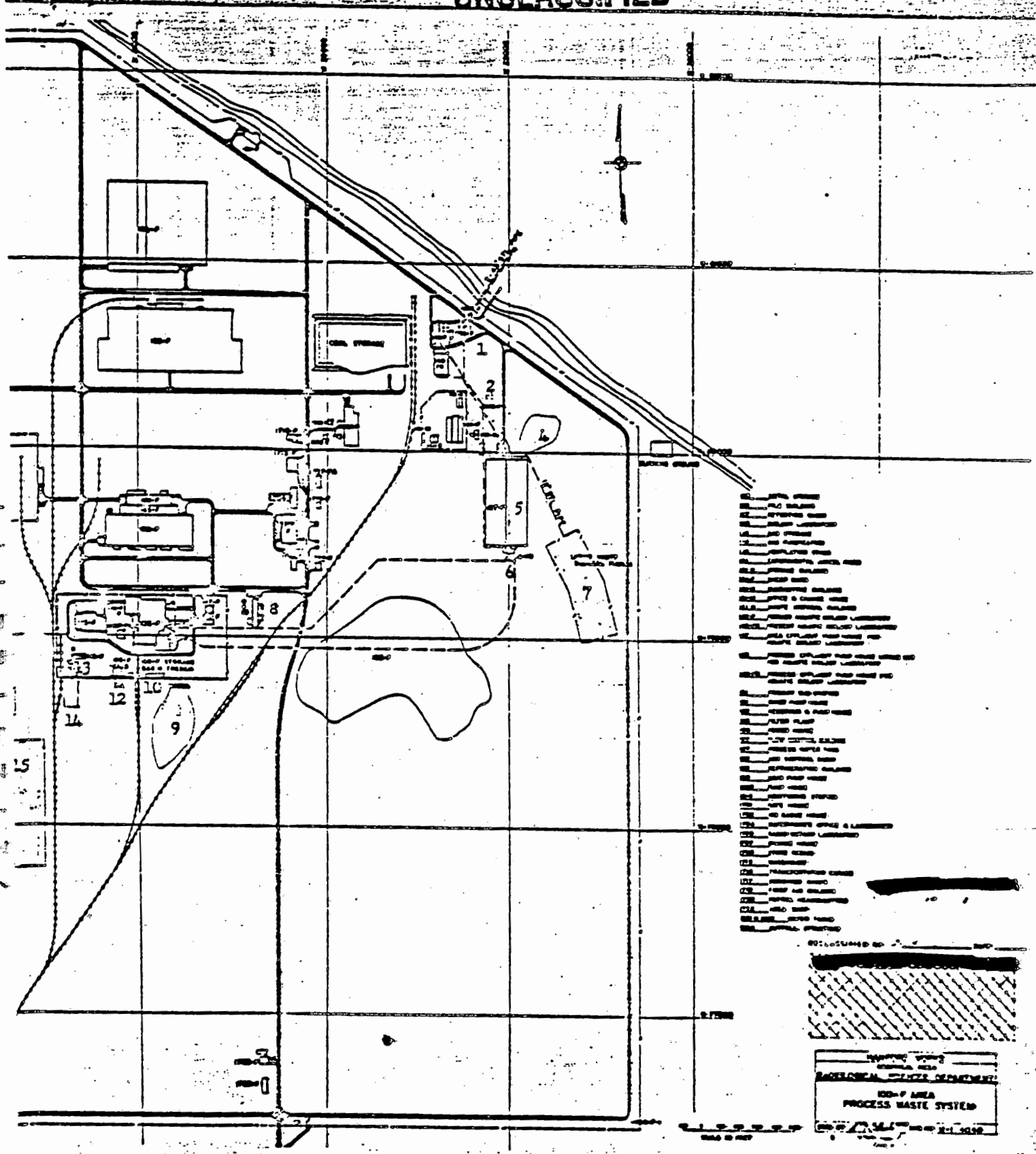

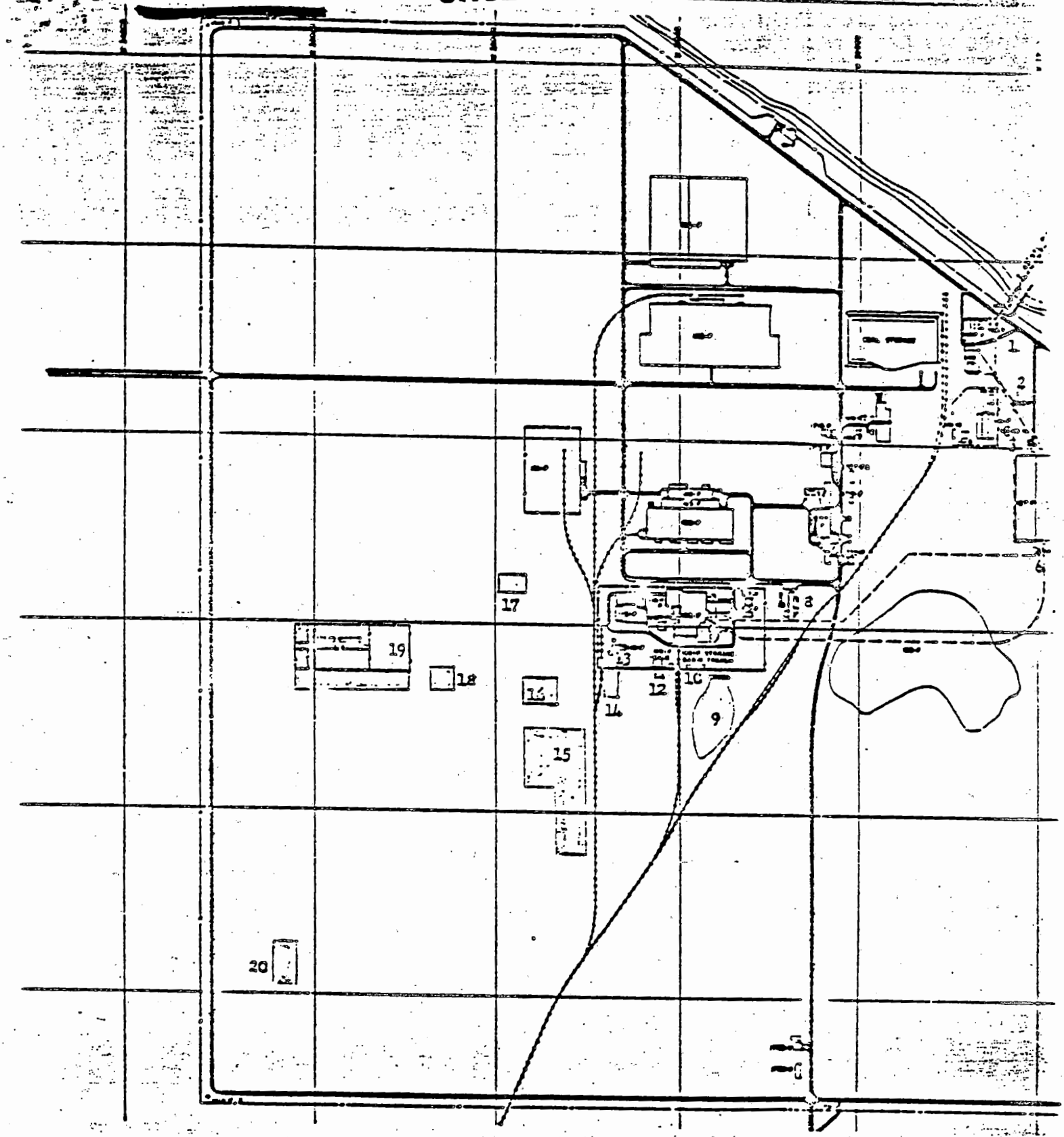

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100-K AREA

EMERGENCY POND

This pond was used during initial startup but one side of the crib washed out and has not been used since. Possibly contains low-level radioactive contamination. The pond is enclosed within a cyclone fence which is posted with radiation zone signs.
(Drawing reference 1, sketch E)

EMERGENCY TRENCH

This trench is several hundred feet long and was first used in the spring of 1955 for the disposal of effluent water during outages due to a ruptured slug. Signs on a chain fence designate the trench a radiation zone.
(Drawing reference 2, Sketch E)

BURIAL GROUND

There are currently two open trenches and six holes available for use. The burial ground was first used in the spring of 1955. A cyclone fence posted with radiation zone signs encloses the trenches. The fence is kept locked when the burial ground is not in use.
(Drawing reference 3, sketch E)

1706-KER CRIB

This crib has not been used to date. It is intended to discharge radioactive wastes from the cleanup columns in the 1706-KER loop to this site as necessary. The crib can also be used in an emergency during an outage caused by a ruptured slug.
(Drawing reference 4, sketch E)

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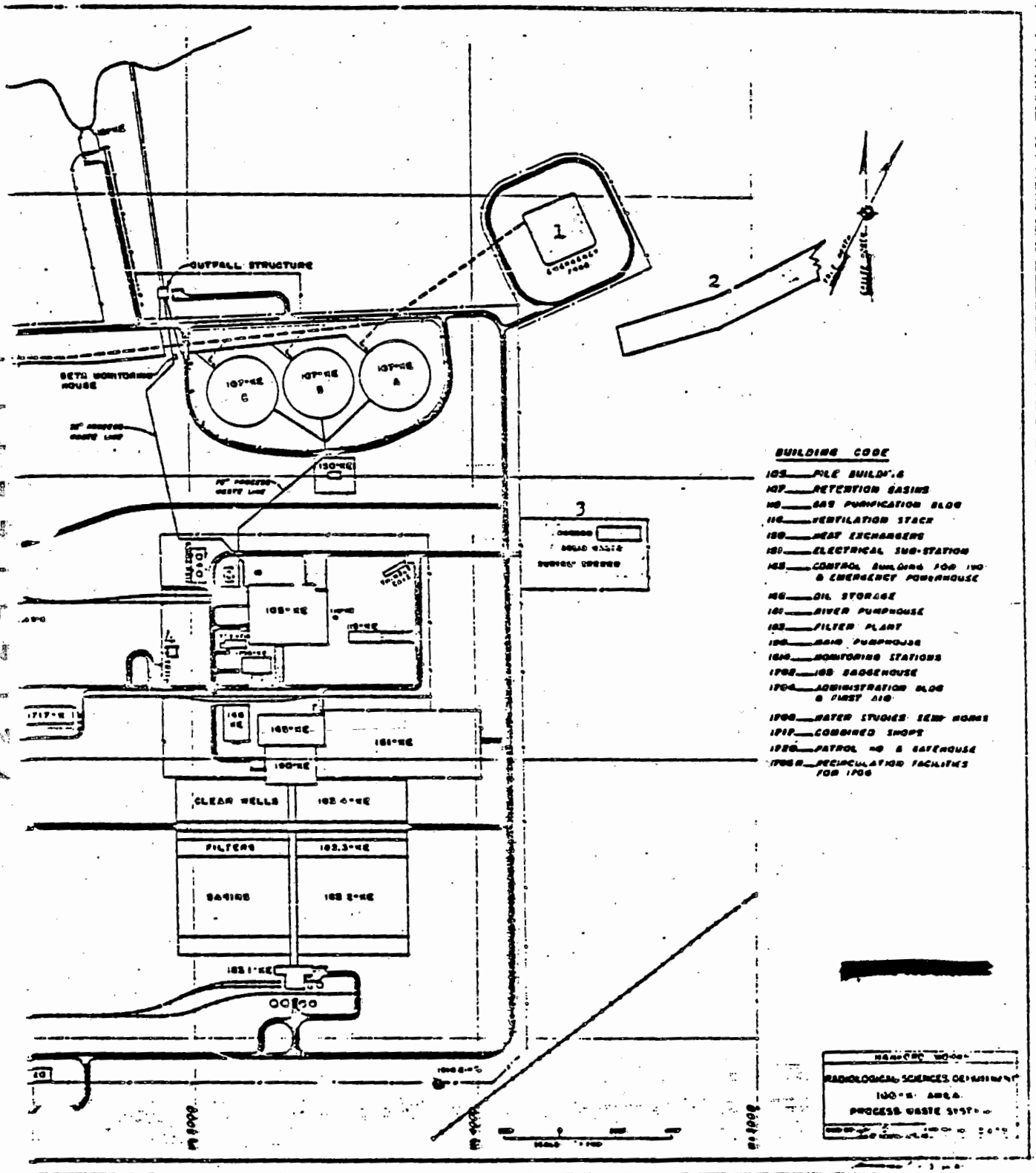
OUTFALL STRUCTURE
BETA MONITORING HOUSE
1
2
3
CLEAR WELLS
FILTERS
BASINS
BUILDING CODE
105 FILE BUILDING
107 RETENTION BASINS
110 GAS PURIFICATION BLDG
115 VENTILATION STACK
150 HEAT EXCHANGERS
180 ELECTRICAL SUB-STATION
165 CONTROL BUILDING FOR 190 & EMERGENCY POWERHOUSE
166 OIL STORAGE
181 RIVER PUMPHOUSE
183 FILTER PLANT
186 MAIN PUMPHOUSE
1640 MONITORING STATIONS
1702 165 BADGERHOUSE
1704 ADMINISTRATION BLDG & FIRST AID
1706 WATER STUDIES SEMI HOMES
1717 COMBINED SHOPS
1716 PATROL HQ & GATEHOUSE
1708 R RECIRCULATION FACILITIES FOR 1706
RADIOLOGICAL SCIENCES DEPARTMENT
100-B AREA
PROCESS WASTE SYSTEM

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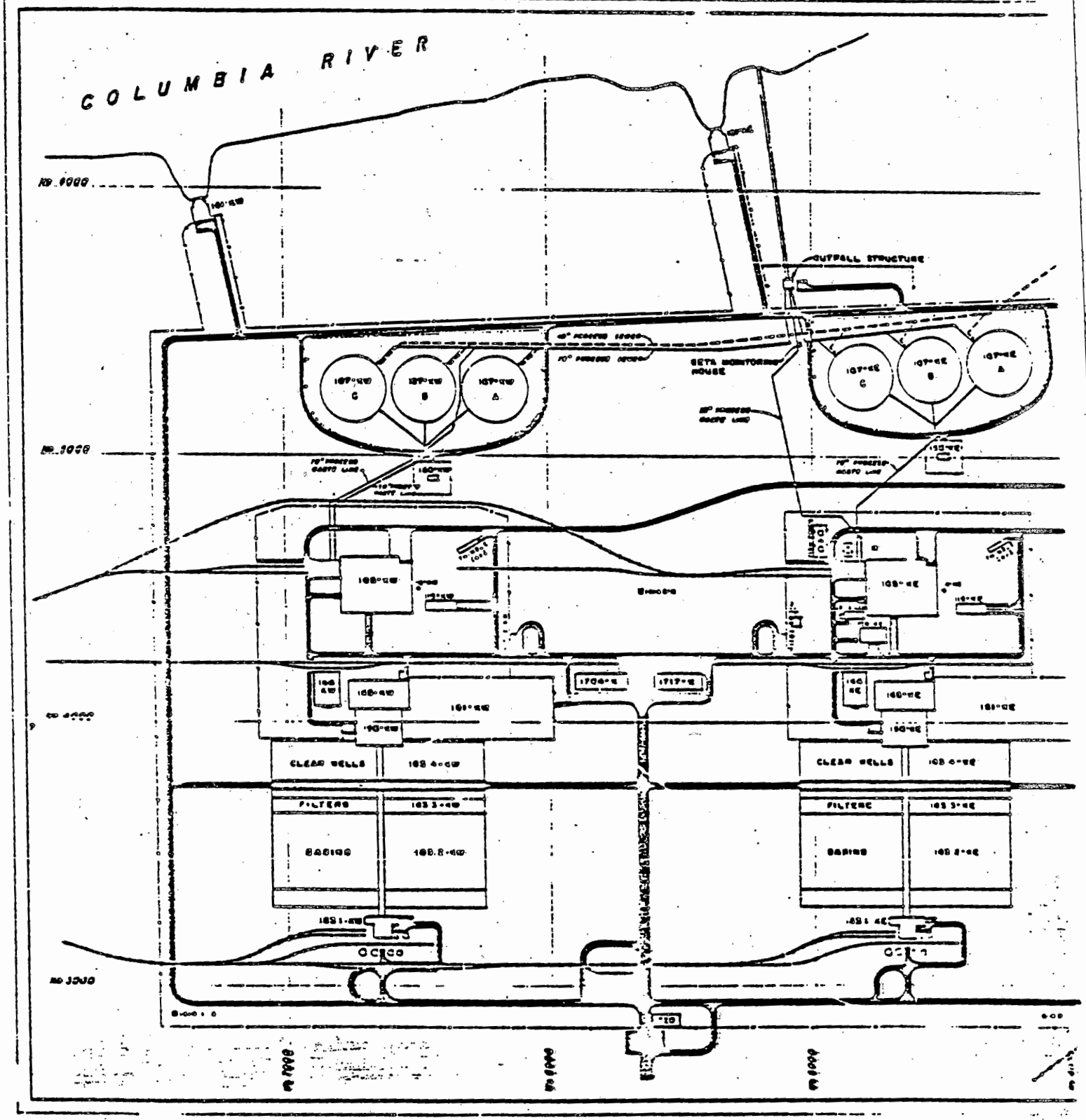
COLUMBIA RIVER
OUTFALL STRUCTURE
SETA MONITORING HOUSE
CLEAR WELLS
FILTERS
BASINS