

Drywells, Sumps, and Source Areas Located within the Historic Anaconda Yerington Mine Site Process Areas Operable Unit (OU-3)

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INTRODUCTION

This technical memorandum was prepared in response to a request by Brown and Caldwell to provide documentation of known drywells, sumps and potential source areas that remain uninvestigated, or whose investigations have not defined the complete lateral and vertical extent of associated contamination. These features are of continuing concern and represent possible sources of contamination to groundwater beneath the Yerington Mine Site Anaconda Process Areas. The location of the drywells, sumps and potential source areas were determined by review of historic plans, documents, maps, and photographs that provide insight into the processing operations at the Anaconda-Yerington Copper Mine Site which occurred from 1953 to 1978. The following listing represents a summary of information known presently and does not reflect an exhaustive, all-encompassing and complete listing of possible Process Areas source areas. This research was conducted in support of the Atlantic Richfield Company (ARC) Process Areas investigation, but ARC should independently verify the following information to (1) determine its completeness and (2) document any data gaps that may remain for a subsequent phase of work.

DRY WELLS

There are 5 drywells recorded within the former Anaconda Process Areas, the locations of which are generally shown on Figure 2-1 (Attachment A). Drywells within the Anaconda Process Areas appear to be designed as subsurface structures used to dispose of unwanted water by allowing infiltration and dissipation into the subsurface. Based on records review, the general descriptions of these drywell locations are as follows:

IRON LAUNDERS

A drywell exists at the strong solution influent at the iron launders. This drywell is depicted on several Anaconda plans including YD-12 and YD-49 (Attachment A), which provide the location, size, and configuration. Based on the surrounding ancillary structures, solution conveyance lines, and sumps, this drywell probably received fluids over an extended period of time.

ASSAY LABORATORY AND WAREHOUSE

A drywell exists proximal to the southeast corner of the historic assay laboratory and warehouse. An untitled historic map with the subtitle *administrative support areas* provides the approximate location of this drywell. A copy of this map is in the possession of Brown and Caldwell staff. The nature and extent of fluids discharged into this drywell are not known.

LEACH VATS

Based on review of historic Anaconda plans and documents, a drywell exists northeast of Leach Vat No. 8. According to plans YC-11 and YC-35 (Attachment A), this drywell is associated with the compressor and pumphouse that conveyed fluids to and from the leach vats. Plans do not provide the exact location of the drywell, however indicate that the influent to the drywell is a 1" malleable iron pipe.

FORMER COOLING TOWER

Although not located on historic maps reviewed in the archived documents, based on comments provided by the former RPM for the Region 9 US EPA to the *Draft Process Areas OU-03 Work Plan* submitted on August 30, 2007 by Brown and Caldwell on behalf of ARC, a drywell is suspected to be located proximal to the former cooling tower, positioned north west of the strong solution storage tanks.

TANK FARM

Although not located on historic maps reviewed in the archived documents, based on comments provided by the former RPM for the Region 9 US EPA and the an unnamed map depicting the administrative support areas, a drywell is suspected to be located south of the former fuel tank storage and west of the grease storage shop. A 6" conveyance line is shown to terminate on the map.

SUMPS & CONVEYANCE LINES

There are numerous sumps and associated fluid/solution conveyance lines located within the former Process Areas. Based on historic documents, maps, and plans, sumps are commonly associated with process area features including drains, low-lying areas, the leach vats, iron launders, solution storage, and the associated pumphouses. Two locations, including the spill sump as shown on YD-51 (Attachment A) and a sump located at the north pumphouse adjacent to the sulfide tailings are specifically identified and have a potential to have released fluids historically. Another sump within the iron launders contains fluids based on previous observations. Review of design drawings and plans should occur to (1) document the occurrence of fluid/solution conveyance lines and sumps, (2) catalogue sumps and lines and (3) prioritize sump/lines within each category based on the potential for/severity of historic releases and develop the sampling design accordingly.

SOURCE AREAS

In addition to the above, numerous locations represent potential source areas within the Process Areas, including the leach vats, iron launders (cementation) and ditches. Based on analytical data presented in the *Draft Data Summary Report for Process Areas Soils Characterization*, several locations previously sampled fall into either of the following two categories:

- 1) Locations where concentrations are increasing with depth; or
- 2) Locations where concentrations do not decrease with depth

Additional source areas are historic low-lying areas where fluids released to the surface may have ponded (adjacent to the sulfide tailings, for example) and unlined conveyance ditches (a formerly unidentified ditch, which has since been covered by historic VLT material). This ditch is shown to contain fluids in historic mine photos (Attachment B).

Appendix A

Mine Site Plans and Schematics

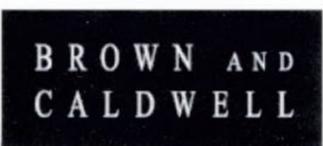


NOTES:
 1.) PROJECTION: NEVADA STATE PLANE, WEST ZONE 1927 NORTH AMERICAN DATUM (FEET)
 2.) BASE PHOTO TAKEN OCTOBER 3, 2001

EXPLANATION

--- Area Boundary
 [] Process Area Boundary

| | | | |
|---------------------|---------------------|-----------------------|----------------------|
| [Orange] Area 1 | [Pink] Area 4 | [Light Purple] Area 7 | [Green] Area 10 |
| [Light Blue] Area 2 | [Light Pink] Area 5 | [Light Orange] Area 8 | [Light Blue] Area 11 |
| [Blue] Area 3 | [Purple] Area 6 | [Yellow] Area 9 | |



Date: August 2007
 Atlantic Richfield Company
 Project Number: 132799

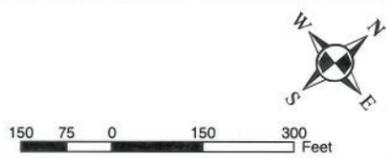
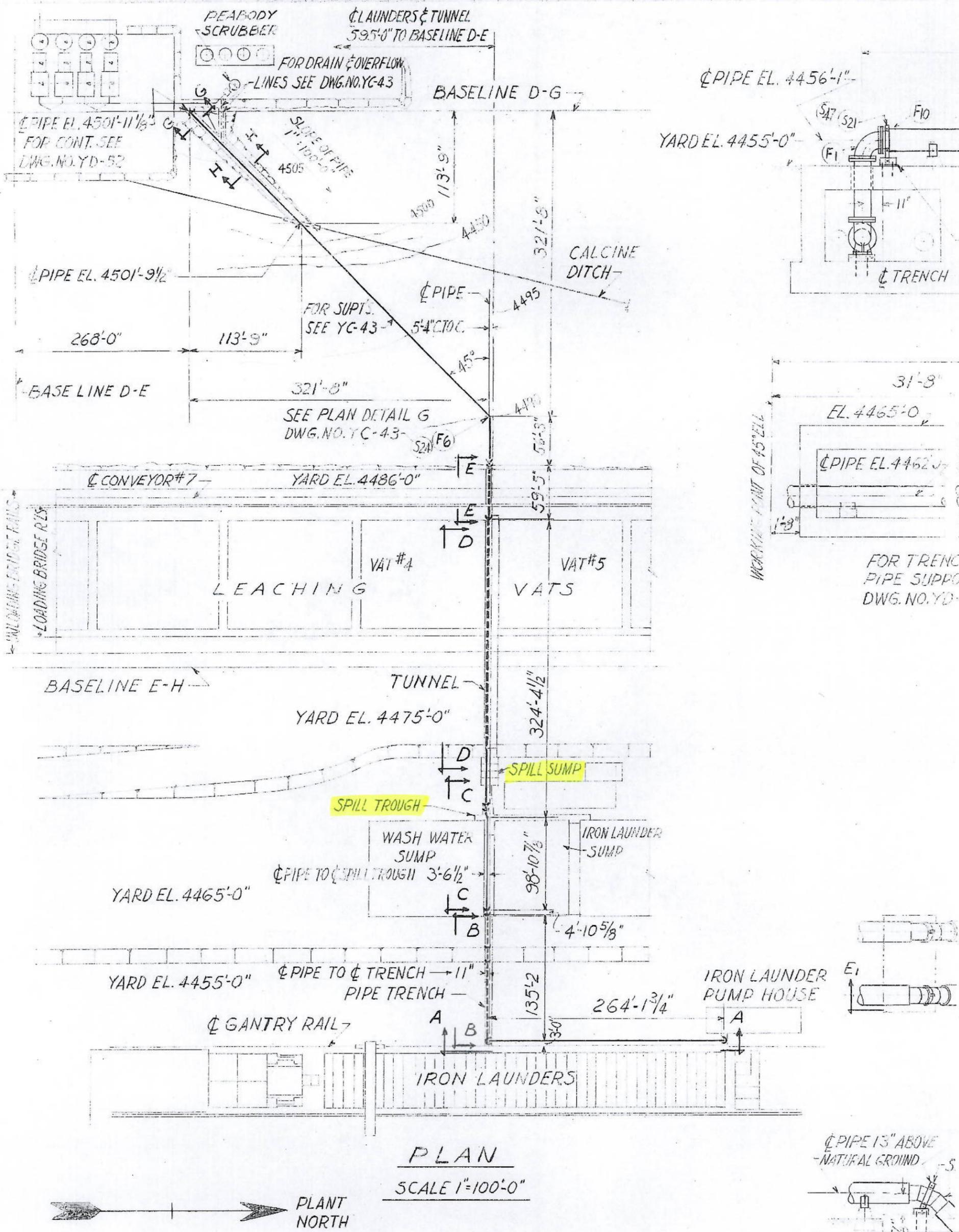


Figure 2-1
Process Sub-Areas 1 through 11



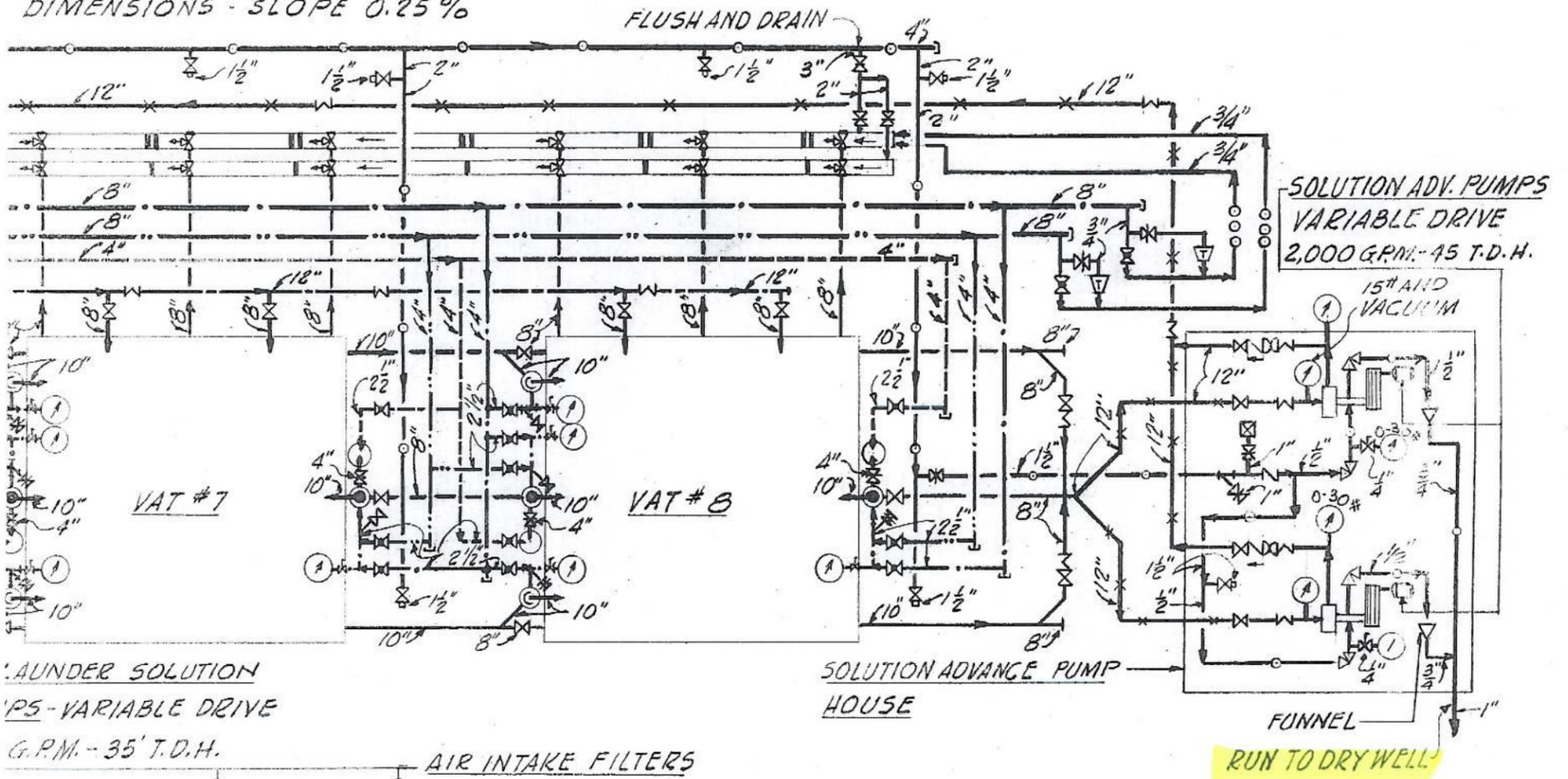
**CEMENTATION
SPENT SOLUTION LINE
TO FLUO SOLIDS PLANT
GENERAL ARRANGEMENT**

1/4" = 1'-0" & AS NOTED
YD-51

YERINGTON MINE
YERINGTON, NEVADA
ENGINEERING DEPARTMENT NEW YORK, N.Y.

| NO. | DESCRIPTION | DATE | LOCATION | BY | CHKD. | REV. |
|-------------------|-------------|------|----------|----|-------|------|
| BILL OF MATERIALS | | | | | | |

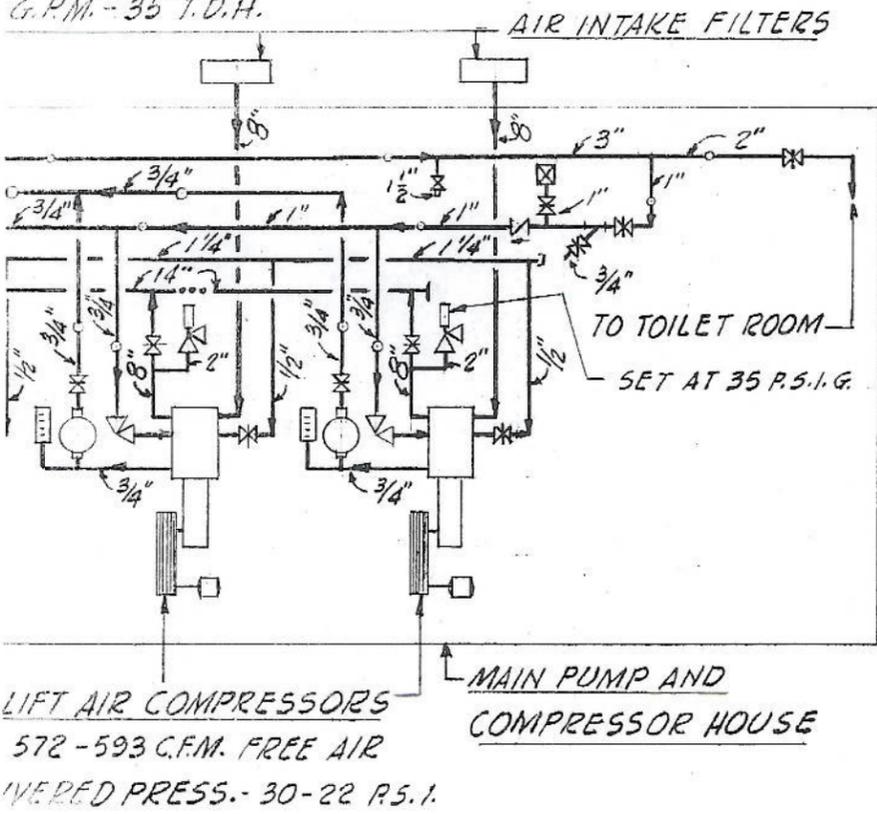
- LAUNDERS - 1'-6" x 1'-4" INSIDE
DIMENSIONS - SLOPE 0.25%



LAUNDRER SOLUTION
P.S. - VARIABLE DRIVE
G.P.M. - 35' T.D.H.

SOLUTION ADVANCE PUMP
HOUSE

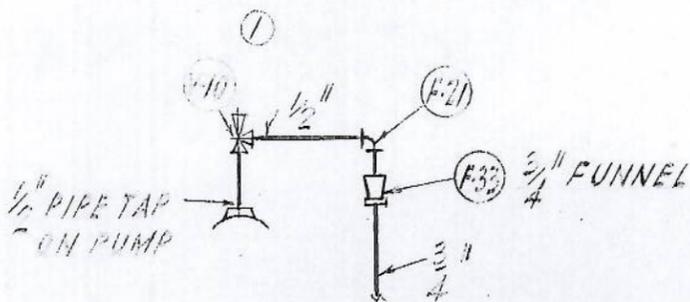
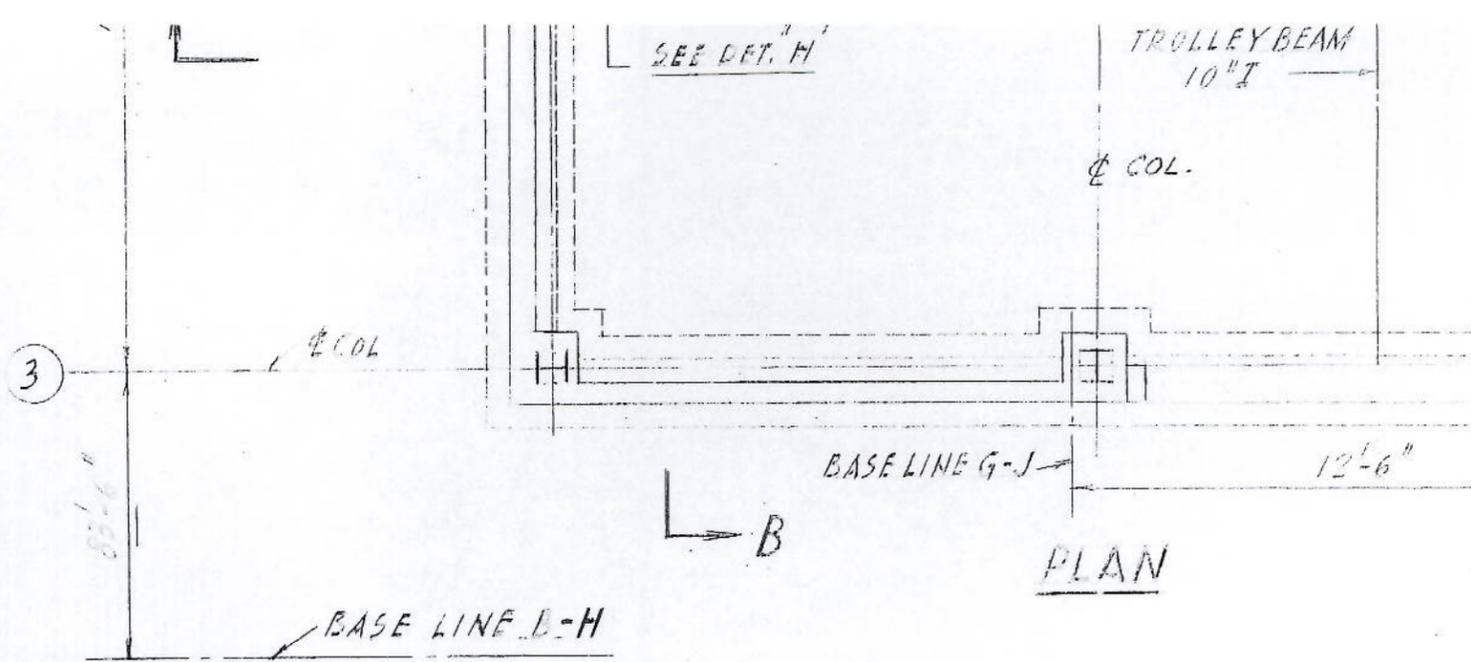
RUN TO DRY WELL



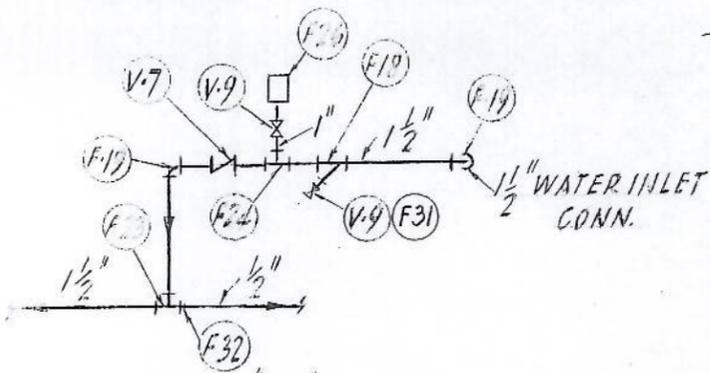
LIFT AIR COMPRESSORS
572 - 593 C.F.M. FREE AIR
INVERTED PRESS. - 30 - 22 P.S.I.

MAIN PUMP AND
COMPRESSOR HOUSE

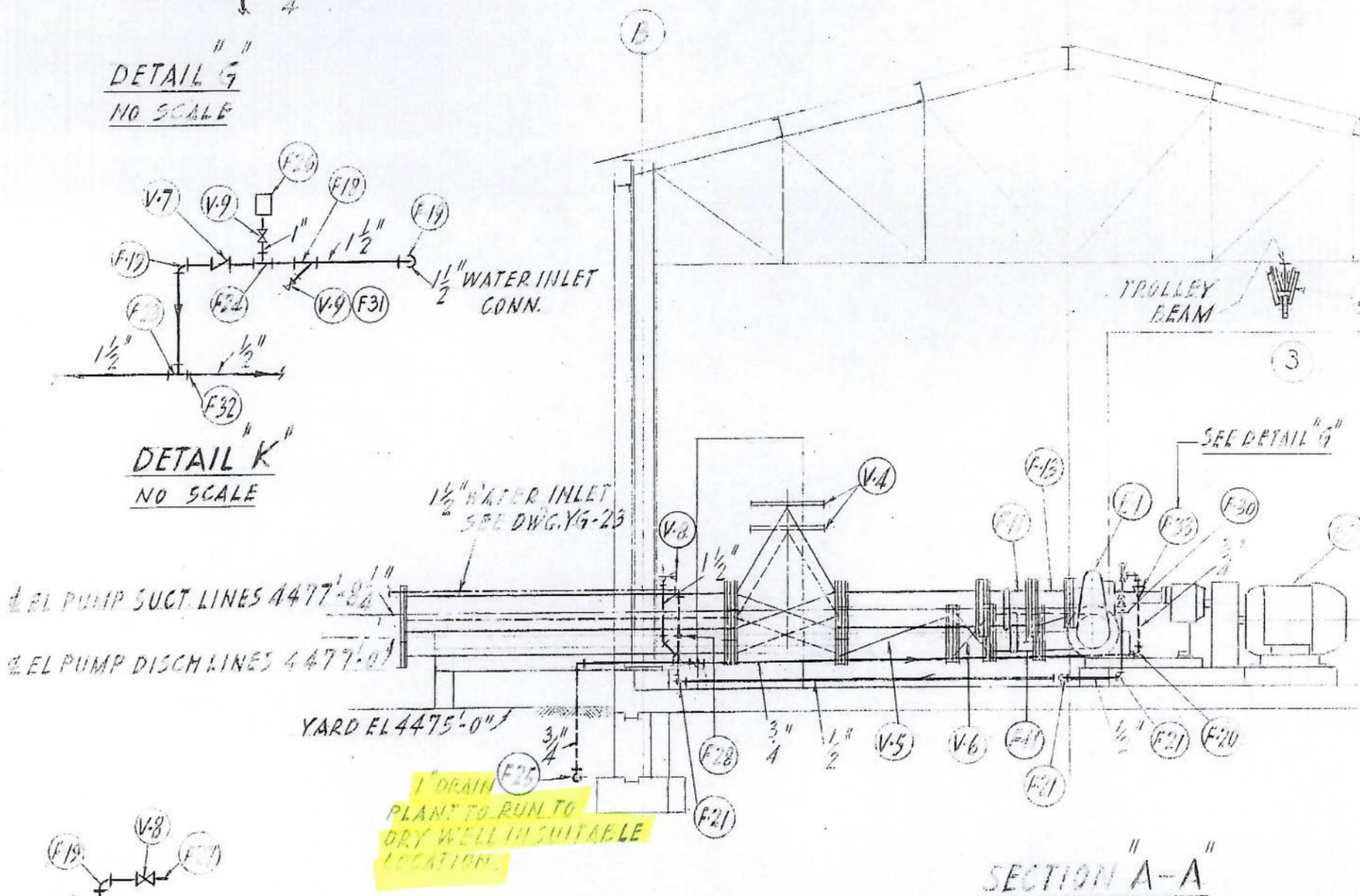
| ITEM NO. | DESCRIPTION | QTY. | UNIT | LOCATION | DATE OF ISSUE | SCALE |
|--|-------------|------|------|----------|---------------|-------|
| BILL OF MATERIAL | | | | | | |
| LEACHING VATS AND CEMENTATION LAUNDERS PIPING AND LAUNDERS FLOW SHEET | | | | | DATE OF ISSUE | NONE |
| YERINGTON MINE YERINGTON, NEVADA ENGINEERING OFFICE, NEW YORK, N. Y. | | | | | YC-11 | |



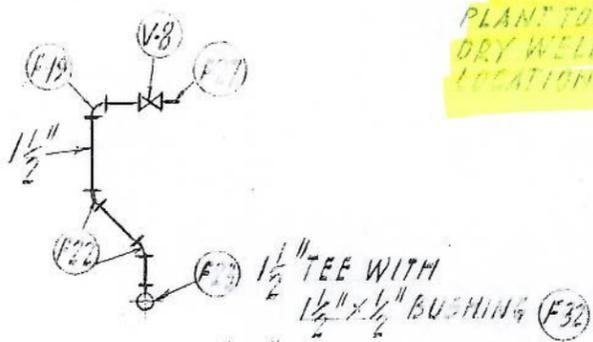
DETAIL "G"
NO SCALE



DETAIL "K"
NO SCALE



SECTION "A-A"



DETAIL "H"
NO SCALE

BILL OF MATERIALS

LEACHING VATS
SOLUTION ADVANCE PUMP HOUSE
PUMPS & PIPING
GENERAL ARRANGEMENT

DATE OF ISSUE
SCALE 1/4" = 1'-0" AS NOTED

YG-3F

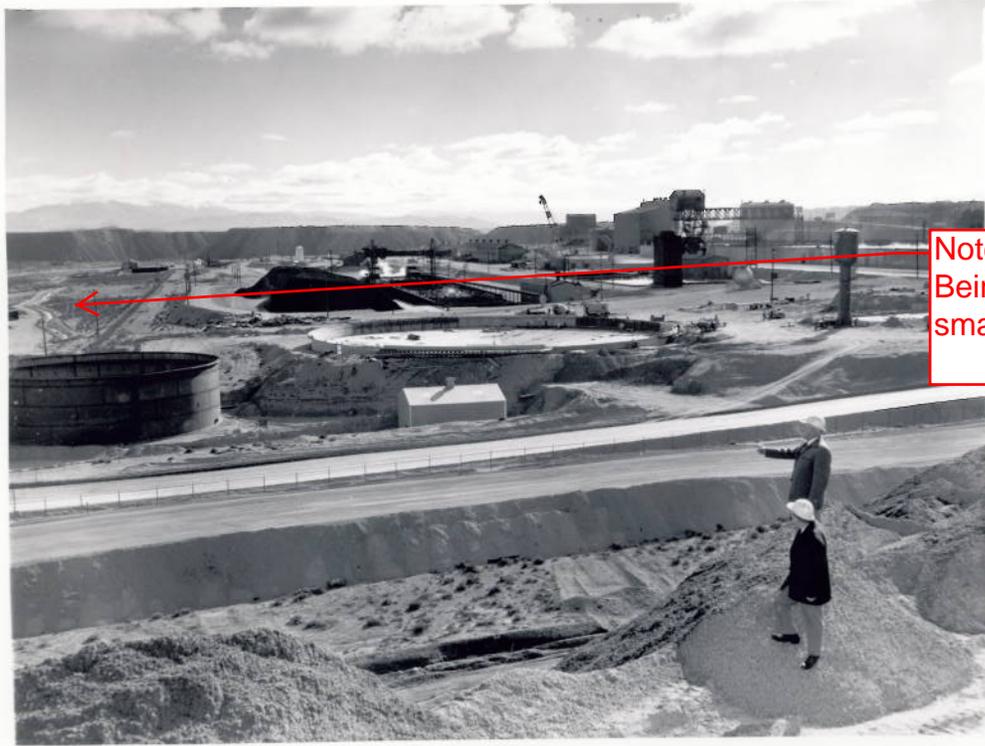
PERKINSON MINE

NEVADA

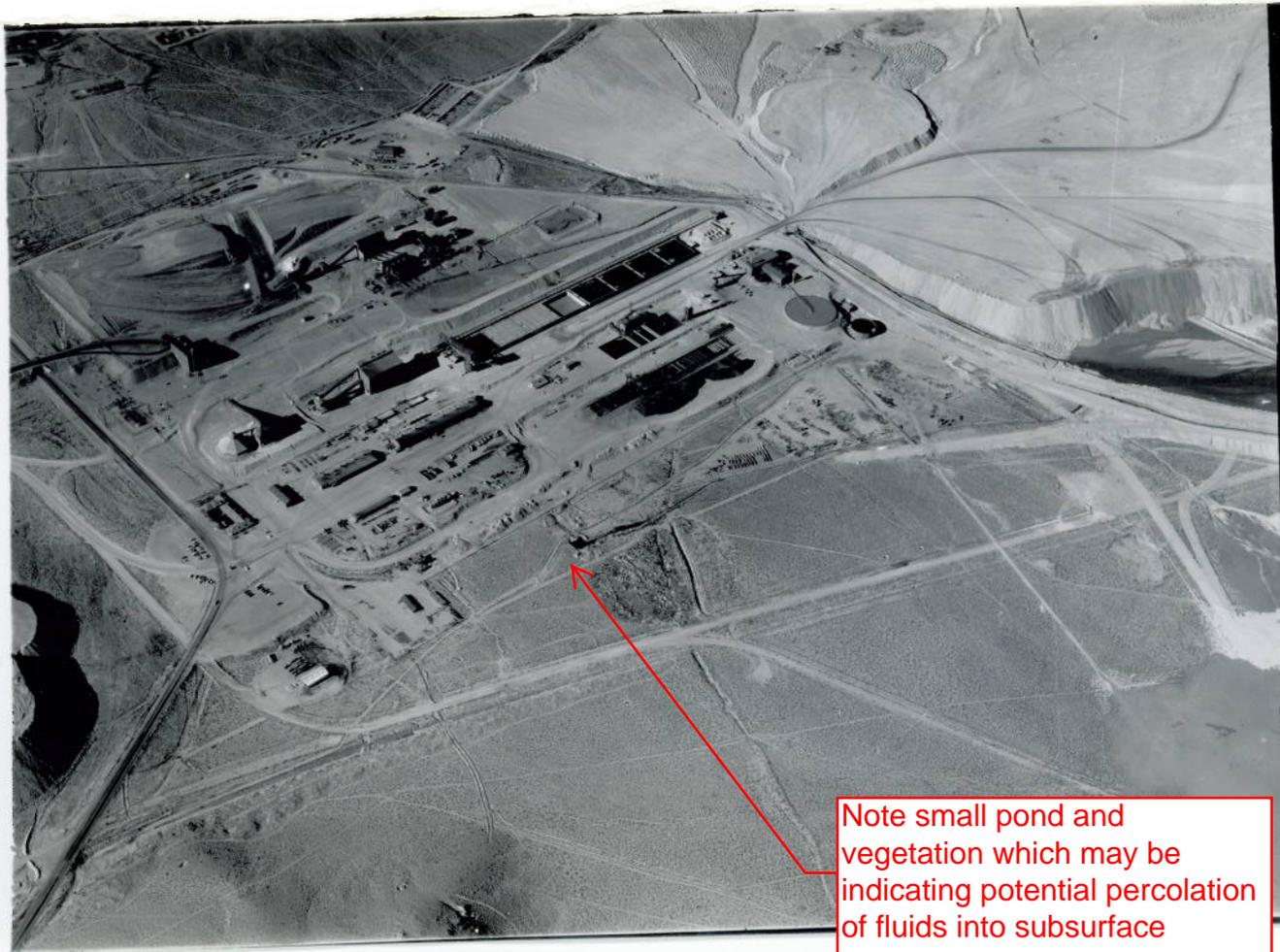
PROPERTY

Appendix B

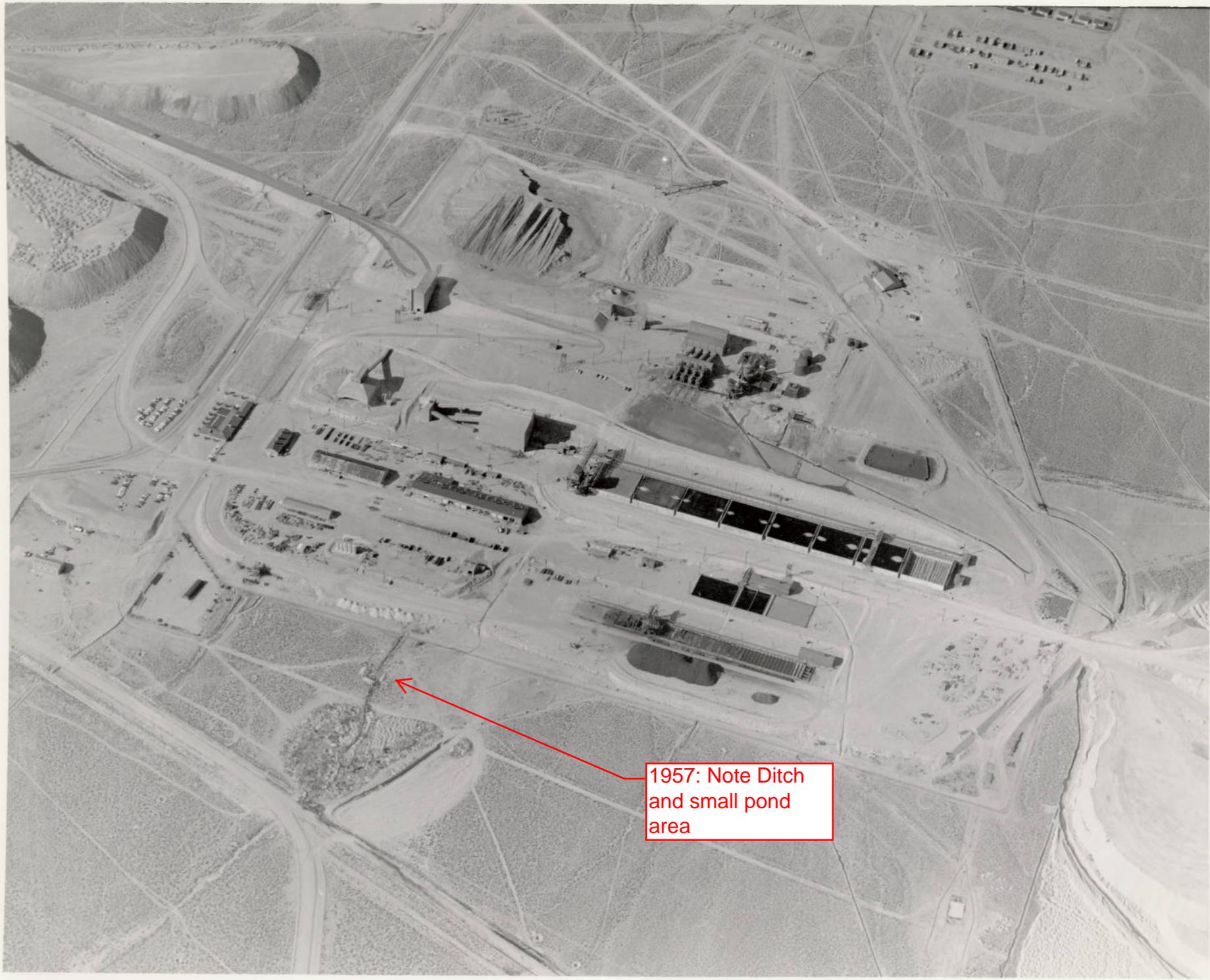
Historical Photos



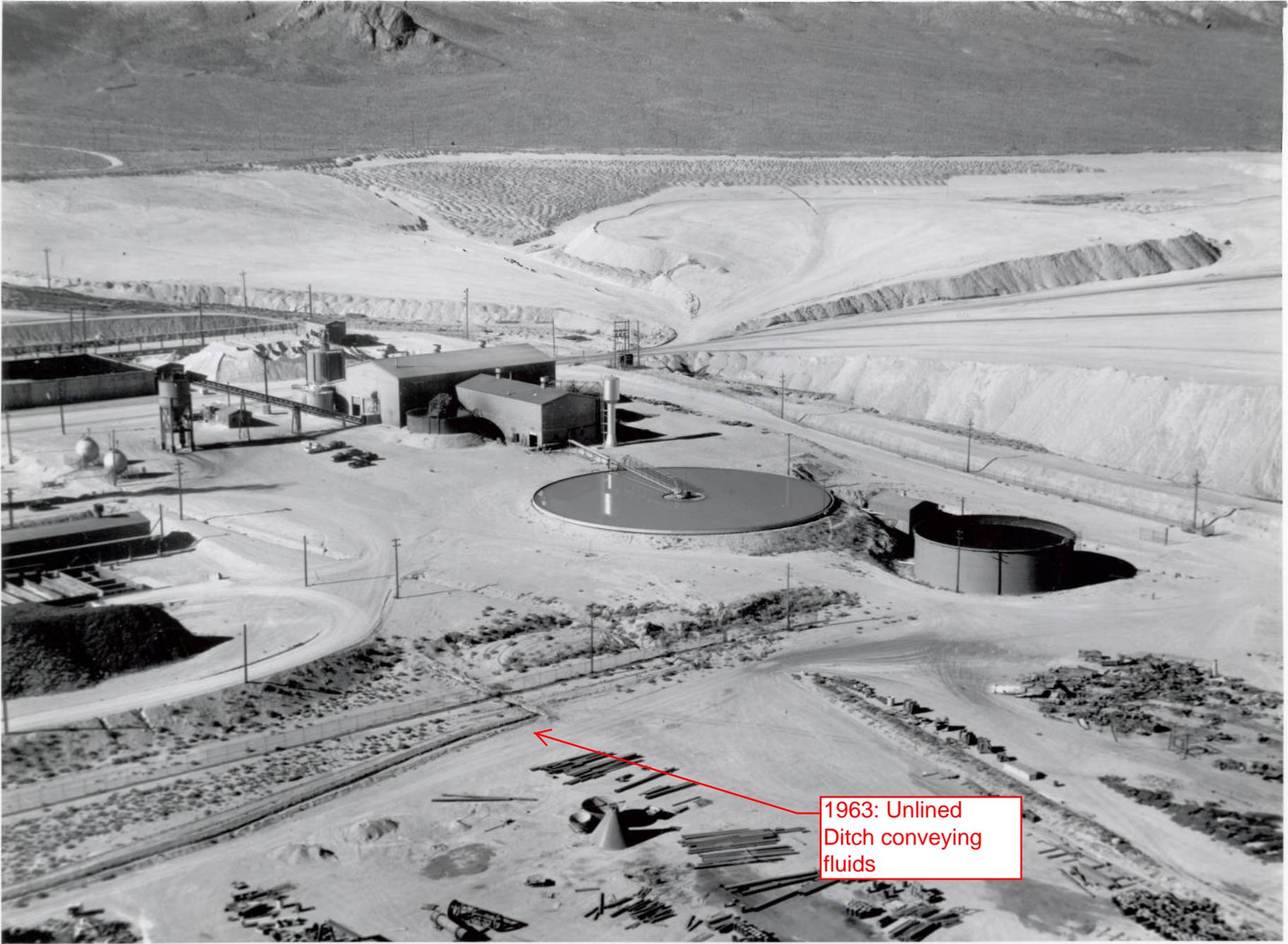
Note Fluids in Ditch
Being conveyed to
small pond



Note small pond and vegetation which may be indicating potential percolation of fluids into subsurface

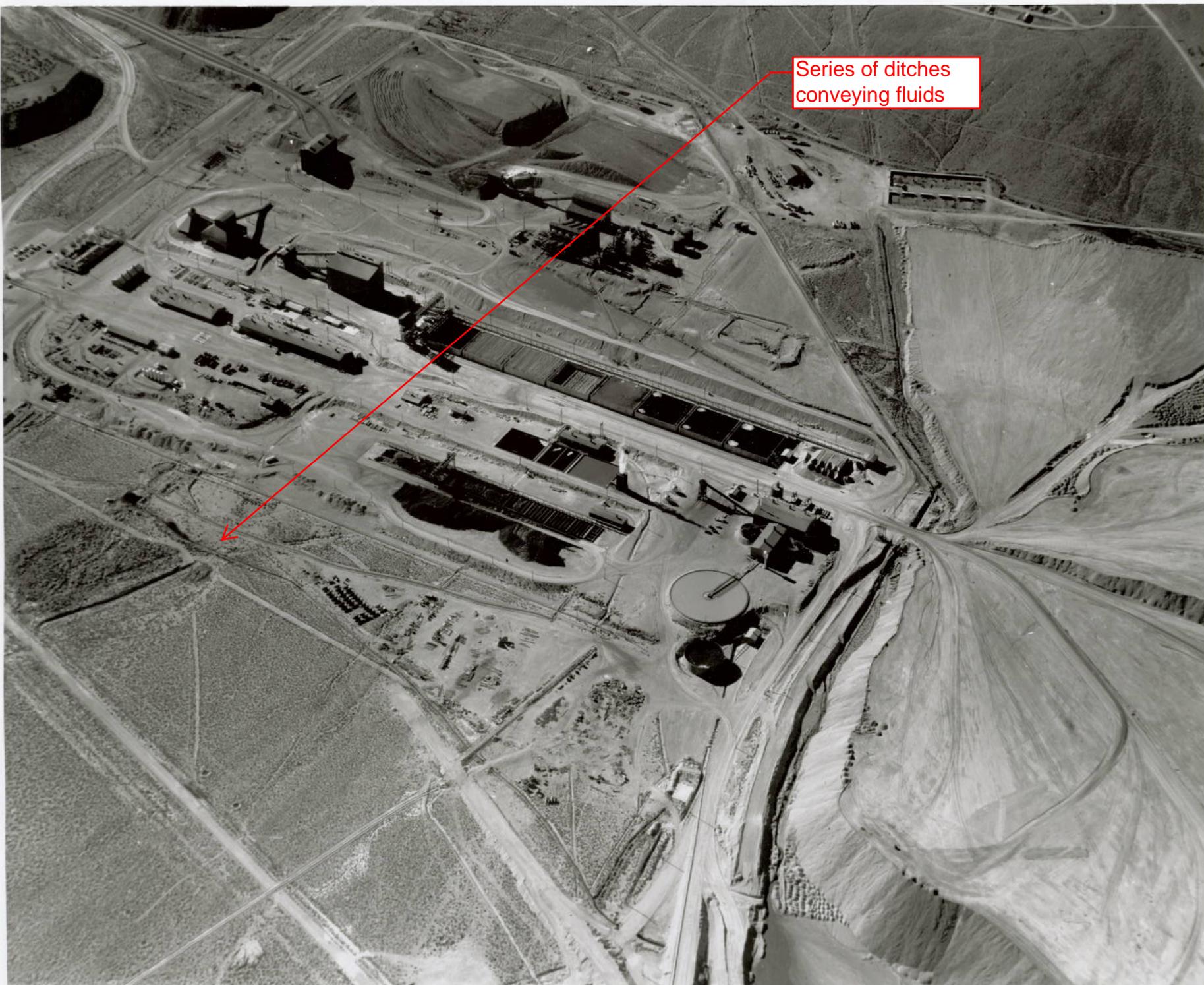


1957: Note Ditch and small pond area



1963: Unlined
Ditch conveying
fluids

Series of ditches
conveying fluids



An aerial photograph of an industrial facility, likely a recycling plant, situated in a valley. The facility includes several large buildings, a central processing area with smokestacks, and various storage tanks and ponds. A red arrow originates from a text box in the upper right and points to a specific area in the lower center of the image. The surrounding landscape is arid with mountains in the background.

1965: Unknown
Unlined Pond East
of the former the
W-3 Solution
Recycling Pond