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CHANGE OF SCOPE
RELOCATION OF PUREX COOLING WATER SWAMP
PROJECT CA-683

Prepared by:

V. W. Wood

October 26, 1956

Process Design and Development
Facilities Engineering Operation
Chemical Processing Department
General Electric
Hanford Atomic Products Operation

This document has been reviewed and approved by the appropriate members of the Facilities Engineering Operation as a basis for modifications of Project CA-683 to include an alternate routing and site for disposal of Purex Cooling Water.

_____ Manager, Process Design and Development	<u>11-2-56</u> _____ Date
_____ Manager, Facilities Engineering Operation	<u>11-5-56</u> _____ Date

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October 26, 1956

C. E. Kent, Manager
Project Engineering Operation
FACILITIES ENGINEERING OPERATION

CHANGE OF SCOPE
RELOCATION OF PUREX COOLING WATER SWAMP
PROJECT CA-683

References:

- (1) Letter, V. W. Wood to C. E. Kent, October 17, 1956
- (2) Letter, W. E. Johnson to J. E. Travis - AEC, October 9, 1956
- (3) Minutes of Meeting held September 20, 1956 on same subject
- (4) Letter, O. C. Schroeder to H. P. Shaw dated September 17, 1956
- (5) Letter, D. W. Pearce to H. P. Shaw dated September 11, 1956
- (6) Project Proposal HW-41099, dated January 26, 1956
- (7) Scope Document HW-38468, dated September 21, 1955

It has been proposed that facilities be provided which can be used to divert the Purex cooling water from the facilities already proposed on this project to a depression within the 540 ft. elevation contour at approximate plant coordinates 34,300 N, 40200 W. These facilities are in addition to the change of scope referred to in reference (1). The purpose of these new facilities is to form a hydrologic dam as part of the ground water table which would aid in the confining of contamination and/or restricting the movement of contamination in the south easterly direction.

In order to expedite action on the suggested facilities, we have prepared a preliminary scope writeup and have attached a copy for your action.

It is recommended that the project proposal be revised to include detailed scope and detailed design of facilities outlined in the attached preliminary scope dated October 26, 1956. The estimated cost of this facility is \$300,000 which includes \$88,000 for Engineering (including A & E engineering fee), contingencies and administration expense. At completion of detailed design a review will be made of information available at that time and a recommendation will then be made as to whether the construction phase of the facilities should proceed or not.

Radiological Design and Development
Facilities Engineering Operation
CHEMICAL PROCESSING DEPARTMENT

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PRELIMINARY SCOPE
PROPOSED PUREX EFFLUENT LINE TO S.E.
OF 200 EAST AREA

Reference: (1) SK-2-2911 2nd. issue
(2) Letter V. W. Wood to C. E. Kent dated October 26, 1956
(3) Letter V. W. Wood to C. E. Kent dated October 17, 1956

This scope shall include the detailed scope and detailed design of a waste handling facility as indicated on drawing SK-2-2911. The structures to be detail scoped and designed to include an outfall disposal facility near plant coordinates N34,300 - W40,200, and a continuous effluent line connecting the outfall structure and the multiple flow diversion structure referred to in paragraph 3 of reference 3.

The design criteria are as follows:

- A) Line to handle waste cooling water at approximate temperature of 125° F.
- B) Effluent line material shall be double-dipped asphalt-coated, galvanized corrugated metal pipe.
- C) Effluent line capacity shall be designed for a maximum flow of 14,000 GPM.
- D) Minimum effluent line velocity shall be 3.0 fps at a flow of 7,000 GPM.
- E) Critical line slopes shall be avoided in order to have stable flow conditions at the expected flow range of 7,000 to 14,000 GPM and minimize pipe coating erosion.
- F) Line alignment shall approximate the alignment shown on SK-2-2911.
- G) Minimum line cover shall be 3 ft. of earth.
- H) Connections of pipe sections shall be reasonably tight and leakage shall not exceed one gallon per hour total at any joint when flowing full.
- I) Effluent line base shall be essentially undisturbed or selected and thoroughly compacted soil.
- J) Main effluent line road crossing shall be designed with an acceptable encasement and provisions made for no obstruction of traffic on the highway during construction.

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- K) Effluent discharge shall be protected to prevent the entrance of small animals, etc. during periods of low or no flow.
- L) Outfall structure shall be designed and located in such a manner that it will not be undermined through discharge of the effluent during operations. It shall so discharge the effluent that no backflow shall migrate back toward the main highway to the north and east.
- M) Concrete structures shall be designed for 3,000 psi concrete and in accordance with the latest ACI requirements.
- N) Hanford Works Standards shall be used where applicable unless otherwise noted.
- O) Drawings and specifications shall be prepared for use in a lump sum contract.

A handwritten signature in black ink, appearing to be 'V. L. Smith', is written over a horizontal line.

Radiological Design and Development
Facilities Engineering Operation
CHEMICAL PROCESSING DEPARTMENT

Attach: 11 X 17 Copy - SK-2-2911

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END