

PROJECT PURPOSE AND SCOPE

OBJECTIVE:

The primary objective of this project is to remove liquids from the Solar Evaporation Ponds as expeditiously as possible.

BACKGROUND:

The Solar Evaporation Ponds consist of five impoundments; 207A, 207B North, 207B Center, 207B South, and 207C. An underground interceptor trench system is located north of the ponds for the purpose of collecting contaminated groundwater and surface water from the area of the Solar Evaporation Ponds. Water from this system is returned to the 207B North Pond from a sump located north of the ponds.

The Agreement in Principle (AIP) between the U.S. Department of Energy (DOE) and the State of Colorado dated June 28, 1989, requires cleanup of the Solar Evaporation Ponds at the Rocky Flats Plant. In addition, the Interagency Agreement (IAG) between DOE and the State of Colorado dated January 22, 1991, requires final remediation of the solar ponds.

ALTERNATIVES:

The following are the alternatives that were considered for removing the water from the Solar Evaporation Ponds:

a. Preferred Alternative: Portable Evaporators and Temporary Surge Tanks:

Portable evaporators would be used to remove liquids in the 207A and 207B Solar Evaporation Ponds. In addition, the evaporators would be used to evaporate water that is currently discharged into the 207B North Pond from the interceptor trench system. (NOTE: The portable evaporators will not be used to evaporate the remaining liquids in the 207C Pond since the level and density of the liquids in that pond are already sufficient for final remediation.) The evaporators would be located in Building 910, which is located immediately south of the 207B ponds. The evaporators have been described in detail by Department of Energy letters submitted to the Colorado Department of Health on December 21, 1990, and April 16, 1991.

In order to prevent additional accumulation of water in the 207B North Pond, a surge capacity needs to be built in the vicinity of the ponds to contain the interceptor trench water before it is sent to the portable evaporators. To provide the surge capacity, three temporary surge tanks would be located in the plant's buffer zone, north of the Solar Evaporation Ponds (see attached drawing No. 15510-77). Drainage from the tank location would flow into the A-3 Terminal Pond in the buffer zone via North Walnut Creek. The tanks would be accessible to authorized personnel only.

Each tank will have a capacity of approximately 500,000 gallons and will be constructed of galvanized steel and high-density polyethylene liners. One liner will serve as primary

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containment while a second liner will serve as secondary containment in the event the primary liner fails (see attached drawing No. 39670-D02). In addition, each tank will have a third high-density polyethylene liner that will be located inside the primary liner. The third liner will protect the primary liner from ultraviolet degradation. The tank walls will be structurally supported by galvanized steel panels. Each tank will have a sump located underneath it to provide for a system for detecting leaks from the primary containment.

Groundwater will be pumped from the existing interceptor trench sump to the tanks and then from the tanks to the portable evaporators via double-walled piping. Above ground piping will be made of polyvinylchloride and underground piping will be made of polyethylene. All exposed portions of the piping will be heat-traced for freeze protection.

b. No Action:

If nothing is done to clean out the Solar Evaporation Ponds or to address the interceptor trench water, it will be impossible to perform final remediation of the ponds. This is inconsistent with the AIP and IAG as discussed above.

c. Portable Evaporators with Discharge to Walnut Creek:

Portable evaporators could be used solely for evaporating the remaining liquids in the 207A and 207B solar evaporation ponds and the interceptor trench water could be discharged to Walnut Creek. The interceptor trench water would then be contained by the A-series terminal ponds downstream of the interceptor pump house. However, this could result in the spread of contaminants that are found in the solar pond water (such as nitrates).

d. Portable Evaporators with Permanent Steel Tanks:

Portable evaporators could be used for evaporating the interceptor trench water and liquids in the 207A and 207B ponds. Permanent steel tanks could be built (instead of the temporary surge tanks) to store the interceptor trench water prior to evaporation. However, it would take approximately one year longer to design, build and install the permanent surge tanks. This schedule does not support the objective of cleaning out the ponds as expeditiously as possible.

e. Surface Impoundments:

New surface impoundments could be built to store and evaporate liquids from the Solar Evaporation Ponds and the interceptor trench system. This option has the undesirable feature of creating a new waste management unit on the plantsite that cannot be easily removed. In addition, even though new surface impoundments would be less likely to leak than the older Solar Evaporation Ponds, it would be difficult to ensure that the impoundments would never leak.

RATIONALE FOR THE ALTERNATIVE SELECTED:

The portable evaporators and temporary surge tanks were selected as the preferred alternative because they offered the most effective and timely solution to the objective of removing the water from the Solar Evaporation Ponds in an expeditious manner.

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARAR's):

a. Chemical Specific ARAR's:

The portable evaporators should not pose a threat to human health or the environment. The evaporators will be closed systems. In addition, Building 910 will provide containment for any leaks from the portable evaporation system. Air Pollution Emission Notices (APEN's) will be filed with the State of Colorado for the diesel generators that supply power to the emergency evaporators.

Based on the expected contamination levels in the interceptor trench water, the surge tanks should not pose a threat to human health or the environment. In the unlikely event of catastrophic failure of the surge tanks, the tanks' water would be contained in the A-series ponds, and thus not leave the plantsite.

Some excavation will be required for installation of the surge tanks. The tanks are not located in an area that is suspected to be contaminated. However, the areas of excavation will be monitored prior to excavation to ensure worker safety and ensure that no contaminants will become airborne as a result of the excavations.

b. Location Specific ARAR's:

The proposed locations of the portable evaporators and temporary surge tanks do not fall within the following location restrictions: National Historic Preservation Act of 1966, Endangered Species Act, Wilderness Act, Fish and Wildlife Coordination Act, Wild and Scenic Rivers Act, Coastal Zone Management Act, Section 404 of the Clean Water Act. In addition, the proposed site is not located within a 100-year floodplain, wetlands, a salt dome formation, underground cave or mine or within 200 feet of a fault displaced by the Holocene Fault, or within an area where the proposed action may cause harm, loss, or destruction of significant artifacts.

c. Action Specific ARAR's:

The Colorado Hazardous Waste Regulations (6 CCR 1007-3, Part 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities) will be the applicable standards for the portable evaporators and temporary surge tanks. All relevant standards of those regulations will be met.

CONSISTENCY WITH THE FINAL REMEDY FOR THE SOLAR EVAPORATION PONDS:

The portable evaporators and temporary surge tanks are consistent with the final remedy for the solar evaporation ponds. In fact, if the portable evaporators and temporary surge tanks are not installed and operated, no final remediation of the ponds can begin.
