RHO-WM-PL-10



# Long-Range Decommissioning Plan for Rockwell Hanford Operations Surplus Facilities Management Program

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## 276-S Facilities

10.1 Field Office - Richland Operations Office

10.2 Contractor - Rockwell Hanford Operations

10.3 Funding Source - Defense

10.4 Work Breakdown Structure - 4.7.__

10.5 Facilities Included - 276-S Solvent Handling Building
276-S-141 Solvent Storage Tank
276-S-142 Solvent Storage Tank
296-S-12 Stacks (2)

10.6 Reference Decommissioning Method - In-place disposal

10.7 Total Estimated Cost - $410,000 (Preliminary Engineering Estimate, see Appendix B)

10.8 Estimated Project Duration - 1 year

10.9 Priority - Medium

| Rockwell | Hanford | SFMP |
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| 10 of 15 | | |

10.10 Facility Descriptions

The facilities included in this project are systems that have processed organic solution used in Redox.

The 276-S Building is 58 ft by 43 ft by 23 ft tall (Fig. 8-25). The process area has three 2-ft thick concrete walls; the fourth wall and the roof are made of structural steel and transite siding. The floor is about 12 ft below-grade. Three 13-ft dia. by 13-ft high tanks are located in the process area.

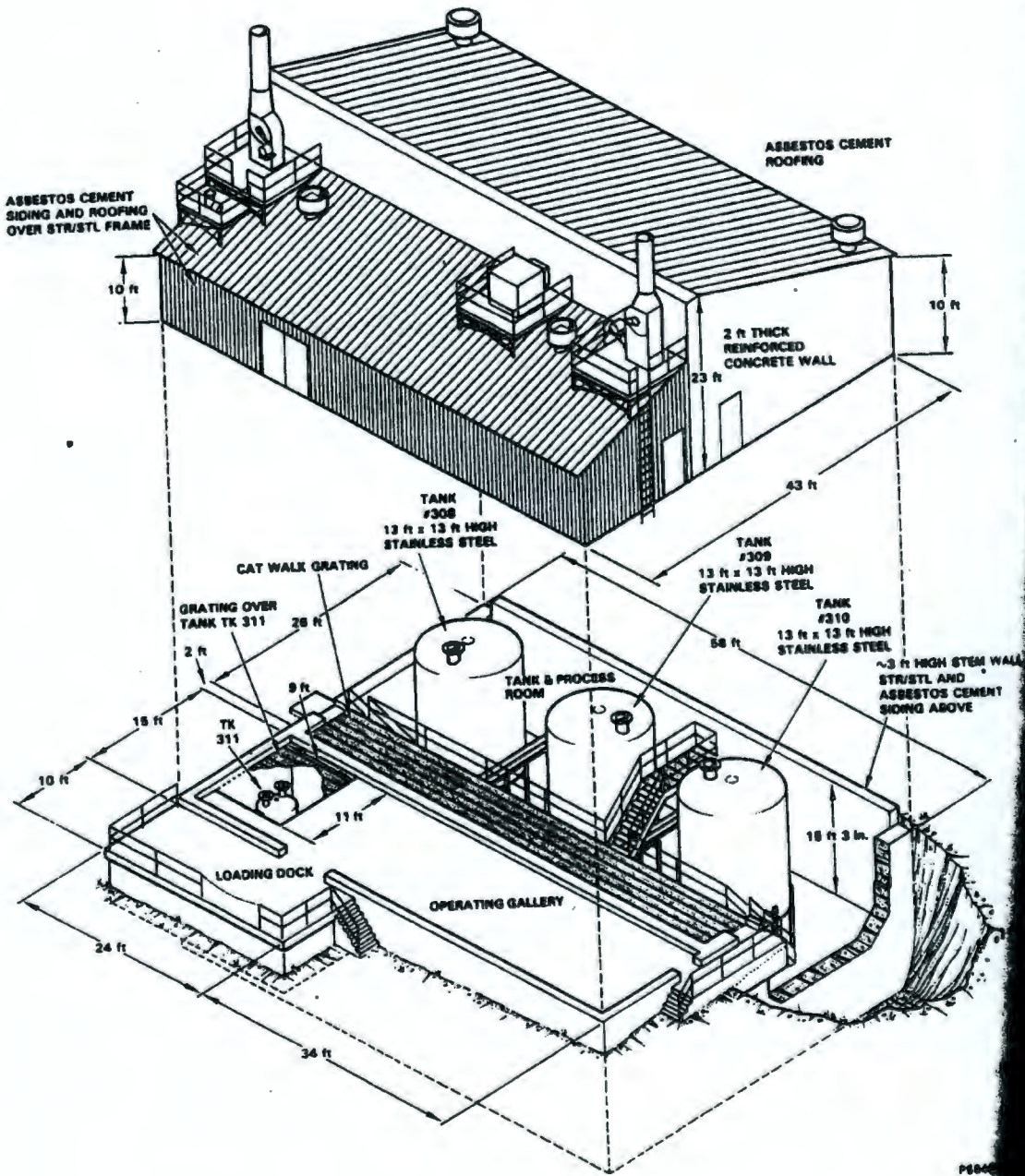


FIGURE 8-25. 276-S Solvent Handling Facility.

The operating gallery shares one of the concrete walls with the process area. The remainder of the structure over the operating area is made of structural steel and transite. There is one tank in a below floor level section of the operating gallery. The two 20-in. square 296-S-12 Stacks and their associated fans and motors are mounted on the roof of the operating area.

The 276-S-141 and -142 tanks are buried 3 ft below-grade 55 ft north of the 276-S Building. These 12-ft dia. by 23-ft long tanks and the associated tank car unloading station are connected to the 276-S Building by process piping (Fig. 8-26).

Additional facility data is included in Appendix A.

## 8.10.11 Special Conditions

The 276-S Building and tanks were used to process organic solvent (hexone) for Redox. The process piping, pumps, and tanks may still contain hexone. Special procedures will be necessary for working around the hexone and for disposing of any solvents.

The two buried tanks are included Isolation Project B-231. The current Project B-231 scope includes removing the hexone from the tanks and filling them with sand.

## 8.10.12 Decommissioning Alternatives

The reference decommissioning mode for the 276-S system is partial dismantlement and in-place disposal. The stacks and above-grade portion of the building will be removed or razed. The 276-S-141 and -142 tanks and the remainder of the 276-S Building will be disposed of in-place.

Initial work on this project will be to isolate the building from utilities and establish temporary services as needed. The anticipated temporary services are electricity and water.

The building surfaces will be sprayed with a fixative to reduce the potential for airborne radioactivity. After the fixative has been applied, equipment removal will begin. The stacks, fans, motors, roof vents, and evaporative cooler mounted on the roof will be removed. The miscellaneous equipment, piping, instrument panels, and motor control center in the operating area will also be removed. Outside supply piping and supports will be dismantled. This waste will be packaged and sent to the burial ground.

In the processing area, the three tanks will be separated from all of their piping connections. Any piping above ground level will be removed. Piping below ground level will be left and disposed of in-place. It will be possible to flush the tanks and collect the flush solution after all the pipelines have been detached, if flushing is necessary.

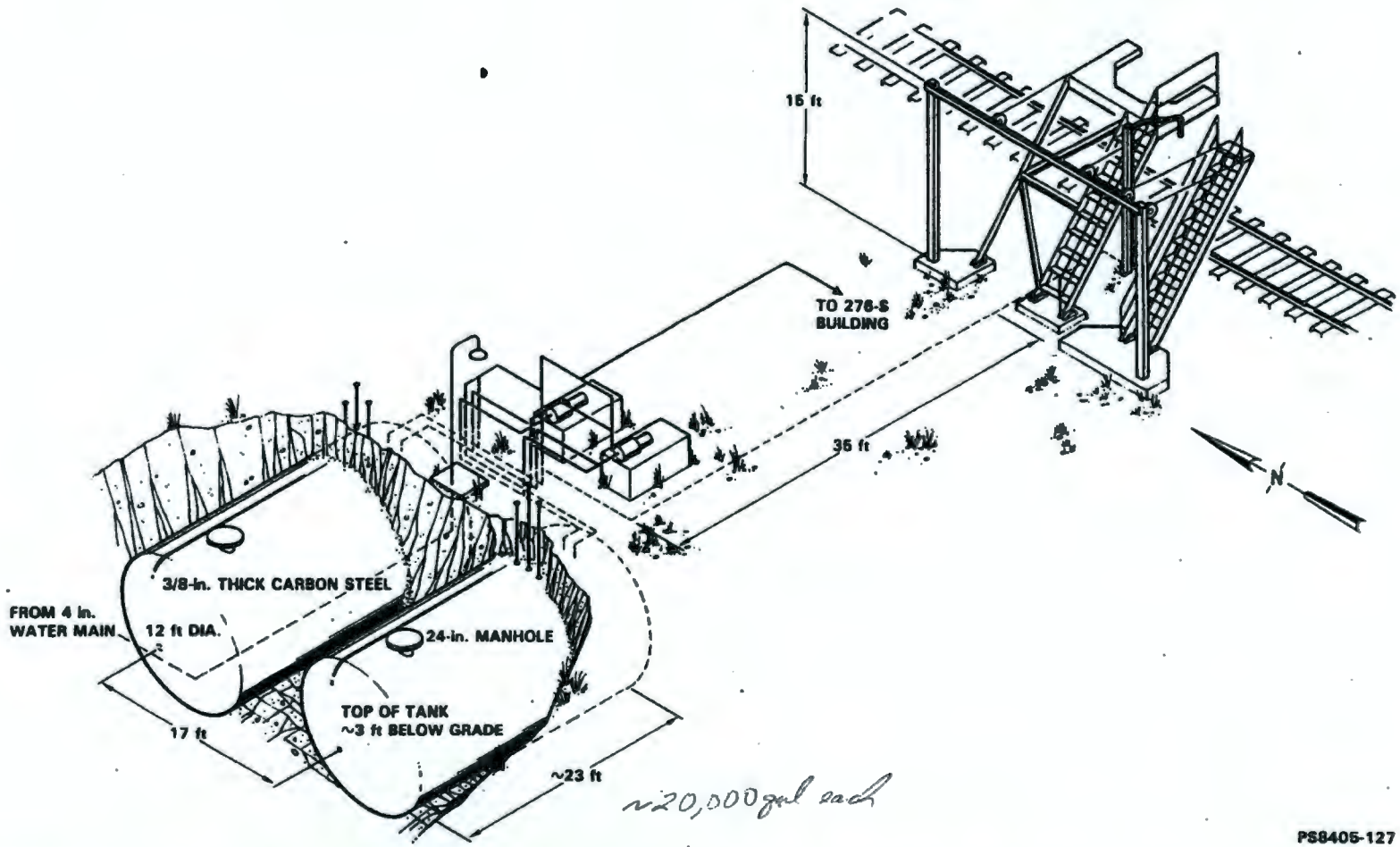


FIGURE 8-26. Hexone Storage Tanks 276-S-141,-142.

The roof of the process area will be partially or totally removed depending on the contamination control requirements. Each of the tanks will be lifted from the building with a crane. The tanks will be transported to an equipment storage area for possible reuse.

After the tanks and equipment have been removed, and the below-grade voids filled, the structural steel and transite portions of the building will be dismantled and disposed of. This will be followed by the demolition of the 2-ft thick concrete walls. One concept being considered for demolishing these walls is to cut them into slabs and lay them down. A crane would be attached to the top of the wall panel, then the panel would be cut loose from the side panels and severed at the bottom. The crane would then lay the entire slab down over the building floor area. The side panels would also be severed near grade and layed flat over the sand filled area.

The two below-grade tanks will have been previously filled with sand by Project B-231. The sand fill will be topped off with concrete and the tanks isolated from any pipelines. The above grade piping, pumps, and railcar platform will be dismantled and removed from the site.

The final activity will be the construction of a barrier over the tanks and building areas. The barrier, as currently conceived, is a multilayered earthen barrier. It is made of ascending layers of gravel, sand, and rock covered with dirt and topsoil.

Alternatives to the reference decommissioning method are safe storage, in-place disposal with no dismantling, and total dismantlement. The safe storage option is viable for an interim period. These facilities do not have large radionuclide inventories and do not present any immediate danger. Eventually the facilities will have to be permanently decommissioned by one of the other methods.

In-place disposal of the facility as it is standing is feasible. The air treatment and exhausting equipment mounted on the roof would still be removed, but very little dismantling of building internals would be done. The tanks could be removed if their potential reuse or salvage warrants it. The building then would be filled with gravel, sand or, if necessary, concrete. Because the structure has transite walls which may not hold lateral pressures well, it may be necessary to stagger filling on the inside with filling on the outside, or to pour concrete in layers to eliminate the transmitting of lateral forces from overlying layers. The benefits of this will have to be weighed against the reference mode prior to making a choice.

Total dismantlement could be accomplished at the site without excessive radiation exposure. Much higher cost would be incurred from excavating and removing the two buried tanks and the below-grade concrete portion of 276-S.