Appendix D-8. Request for Waiver to Design and Operating Requirements for Waste Piles

Request for Waiver to Design and Operating Requirements for Waste Piles IDAPA 58.01.05.008 [40 CFR 264.251(b)]

Title 40 Code of Federal Regulations (CFR) Part 264.251(b) states, "The owner or operator will be exempted from the requirements of paragraph (a) of this section, if the Regional Administrator finds, based on a demonstration by the owner or operator, that alternate design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents (see section 264.93) into the ground water or surface water at any future time. In deciding whether to grant an exemption, the Regional Administrator will consider:

(1) The nature and quantity of the wastes;
(2) The proposed alternate design and operation;
(3) The hydrogeologic setting of the facility, including attenuative capacity and thickness of the liners and soils present between the pile and ground water or surface water; and
(4) All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to ground water or surface water."

A waiver is hereby requested for the storage units identified in Volume 18, of the *RCRA Part B Permit Application for the Idaho National Engineering and Environmental Laboratory* (INEEL) per 40 CFR 264.251(b) from the requirements in 40 CFR 264 Subpart L, except as outlined in 40 CFR 264.256, 40 CFR 264.257, 40 CFR 264.258(a), and the description that follows.

Pending treatment, spent high-efficiency particulate air (HEPA) filters and other debris may be stored in piles in the following rooms, in Building CPP-659 which is located at the Idaho Nuclear Technologies and Engineering Center (INTEC):

Filter Cell/Valve Cubicle	Room 216
Manipulator Parking and Maintenance Area	Room 218
Equipment Decontamination Storage Area	Room 306
Decon Cell	Room 308
Filter Handling Cell	Room 309
Crane Maintenance and Transfer Area	Room 323
Transfer Area	Room 326
Shielded Storage Area	Room 416

See Exhibits W-1 through W-5 for the location of the INTEC at the INEEL, the location of Building CPP-659 at the INTEC, and the locations of the rooms listed within CPP-659.

HEPA filters are generated from the off-gas systems of various INTEC operations including the New Waste Calcining Facility (NWCF), the Fluorinel Dissolution Process (FDP), the Special Power Excursion Reactor Test at the Power Burst Facility (PBF), and Argonne National Laboratory-West (ANL-W). A typical HEPA filter is composed of a corrugated filter medium of a mixture of fire-resistant glass fibers and special acid-resistant material strengthened with from 3 to 5% of an organic "latex" binding agent. The corrugated filter medium is folded back and forth and sealed on the edges to the metal housing with high-temperature-resistant silicone.

The filter medium is 18 to 22 millimeters thick. The typical filter housing is made of 14-gauge Series 300 stainless steel. Most filters have plastic mesh on top and a stainless steel screen on the bottom to ensure the filter medium remains intact. Other types of debris which may be stored in piles include, but are not limited to, piping, valves, pumps, and tools.

Acceptable knowledge may be used to determine applicable Environmental Protection Agency (EPA) hazardous waste numbers assigned to HEPA filters and other debris. This knowledge includes both process and/or chemical/physical testing of the waste. F, P, and U hazardous waste numbers may be applied, based on knowledge of the processes. F, P, and U hazardous waste numbers would be assigned to HEPA filters and other debris, primarily as a result of the contained in rule, as opposed to the F-, P-, or U-listed chemicals contacting the waste in a pure or concentrated form. Listed hazardous waste numbers that apply to the INTEC liquid waste system are documented in *A Regulatory Analysis and Reassessment of U.S. Environmental Agency Listed Hazardous Waste Numbers for the Applicability to the INTEC Liquid Waste System*, INEEL/EXT-98-01213, Rev 1, February 1999. The listed hazardous waste numbers and the associated waste constituents may be applicable to debris as a result of the contained in rule. Characteristic hazardous waste numbers may be applied to the waste by:

- Testing the waste according to the methods set forth in Subpart C of 40 CFR Part 261
- Testing the waste according to an equivalent method approved by the Director of the Idaho Department of Health and Welfare
- Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used.

Wastes awaiting storage will be verified as containing no free liquids prior to acceptance. This verification may be done in one of three ways: (1) visual examination of the waste, (2) testing by means of the paint filter liquids test (*SW-846* Method 9095), or (3) process knowledge of the waste.

The following process information assures no free liquids are in the FDP HEPA filters. The FDP dissolver off-gas system contained a series of fine mesh demisters, which trapped collected condensate from the vented air before it passed through the HEPA filters. The air was then subjected to a heating element, which raised the temperature to approximately 65 C and drove off the remaining moisture before it entered the filter. During the years that the FDP was operated, periodic inspections of the HEPA filter housing were conducted during filter change out to look for any signs of corrosion caused by moisture. These inspections have never shown evidence of moisture. The cell off-gas system also has a series of demisters and a preheater.

The following process information assures no free liquids are associated with the NWCF HEPA filters. Liquid droplets of scrub solution and dissolved solids are removed in a deentrainment separator and a mist eliminator. Process off-gas then passes through an adsorber superheater to ensure the off-gas temperature is above the dewpoint before the off-gas enters ruthenium

absorbers. Prior to passing through the final HEPA filters, the off-gas passes through a mist collector and heater to prevent condensation of water vapor in the HEPA filter housings. Vessel off-gas (air from sparging, purging, and jet operations) joins the process off-gas just prior to the mist collector.

Additional HEPA filters received for treatment will come from processes similar to those described above. All HEPA filters are evaluated for the presence of free liquids during the receipt process.

Building CPP-659 consists of three levels. The first is at ground level. The second and third levels are both below grade, with the third being the lowest. Waste may be stored in piles in rooms at all three levels. Design features of these rooms include thick concrete walls and floors (as thick as 3 to 4 ft), steel reinforcement, stainless steel-lined floors, stainless steel wainscots, epoxy coatings, and trenches and drains.

The process area floors of CPP-659 consist of a stainless steel-lined concrete slab poured on top of the CPP-659 structural slab. The floor slab is 9 to 12 in. thick. The liner is 10-gauge, Series 300 stainless steel. The stainless steel liner plate was fabricated and installed in accordance with Specification SP-453504-20-2, "Stainless Steel Liner Plate," which references American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, American Society of Testing and Materials (ASTM), and American Welding Society (AWS) codes and standards. These specifications assure the structural integrity of the base and that the base is free of cracks and gaps. Liner seam welds were tested for leak tightness by the vacuum box method performed in accordance with Article 1 of Section V of the ASME Code and SP-453404-20-2, Appendix A, "Vacuum Box Examination of Liner Seam Welds." Leak-tested welds meet the acceptance criteria of Section III, Division 2, CC-5546 of the ASME Code.

In CPP-659, below grade walls and floors and above grade floors, where storage and treatment will occur, are constructed of steel-reinforced concrete. The above grade building structure has been designed and constructed to meet applicable seismic and tornado design criteria. The above grade structure is constructed of a combination of a structural steel post and beam frame and steel-reinforced concrete. The above grade wall material is either steel-reinforced concrete, or exterior steel sheathing over 6-in. of insulation, with steel sheathing on the interior of the wall. Shielding walls limit radiation exposure to personnel and the environment.

Exterior concrete surfaces below grade were coated with a bituminous damp-proofing hot-application method using asphalt or coal-tar pitch. A cold-application method using fibrous asphalt was used in confined spaces where the use of hot bitumen would be hazardous to personnel.

The waste stored in waste piles are dry HEPA filters and debris. The design and operating practices of these rooms provide a barrier that eliminates the possibility of migration of any hazardous constituents into the ground water or surface water at any future time. Building entry floors are elevated above grade by several feet. The CPP-659 Level 1 floors are at an

elevation of approximately 4,917 ft, with the surrounding grade at elevations varying from 4,914 ft to below 4,913 ft near the bottom end of the south ramp up into the truck bay. This elevation difference of 3 to 4 ft prevents run-on from entering the building. Thus, the waste piles stored in CPP-659 will not be susceptible to run-on.

The following rooms which may contain waste piles could also offer secondary containment capacity during certain debris treatment operations:

Filter Cell/Valve Cubicle	Room 216
Manipulator Parking and Maintenance Area	Room 218
Decon Cell	Room 308
Filter Handling Cell	Room 309

Rooms 216 and 218 may provide secondary containment for the decon holdup tank (VES-NCD-123). Any liquids released by the decon holdup tank will drain to the decon holdup tank cell (Room 219). If a release were to continue, liquids will eventually overflow to Room 218, and ultimately, to Room 216. Room 216 is equipped with a sump to contain any liquids which might overflow from the decon holdup tank cell. Room 218 is equipped with a floor drain to VES-NCC-122. Both Rooms 216 and 218 are inspected weekly (when waste is present) for evidence of a leak. These inspections are documented.

Room 308 may provide secondary containment for portable storage tanks when used in the decon cell. The floor of the decon cell slopes toward a trench on the west side of the cell. Two drain valves are located at the southern end of the trench. Liquids can be routed through the drains valves to either the decon holdup tank (VES-NCD-123) or the decon collection tank (VES-NCD-129). Whenever portable storage tanks are used in Room 308, a flexible line, connected directly to the drain, will be used to drain liquids, in order to avoid contact between treatment solutions and any waste piles present.

Room 309 provides secondary containment for the HEPA Filter Leaching System (HFLS). The floor of the filter handling cell slopes toward a trench on the east side of the cell. Two drains are located at the southern end of the trench. Liquids can be routed through the drains valves to either VES-NCD-123 or VES-NCD-129. Whenever the HFLS is in use, a drain valve will remain open, in order to avoid contact between treatment solutions and any waste piles present.

All other rooms which may be used to store waste piles are separated from liquid sources by curbs, walls and/or liquid collection or drainage systems. Since all wastes received in these areas will contain no free liquids, leachate runoff is unlikely. In the event that process or other liquids come in contact with waste piles, the design and operating practices of these rooms provide a barrier that eliminates the possibility of migration of hazardous constituents into the ground water or surface water at any future time and ensure that any leachate is treated appropriately.

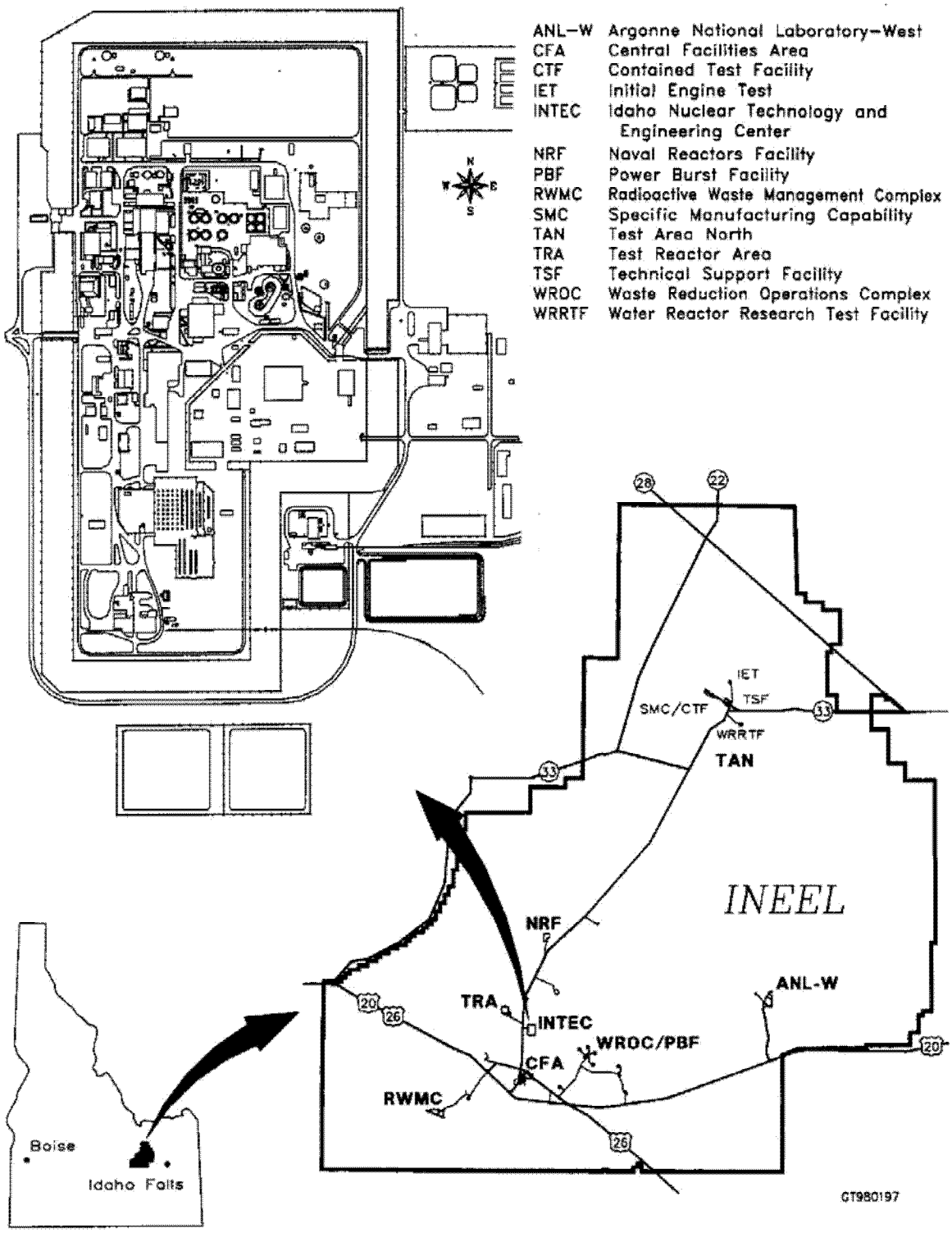

Exhibit W-1. Location of the INTEC at the INEEL.

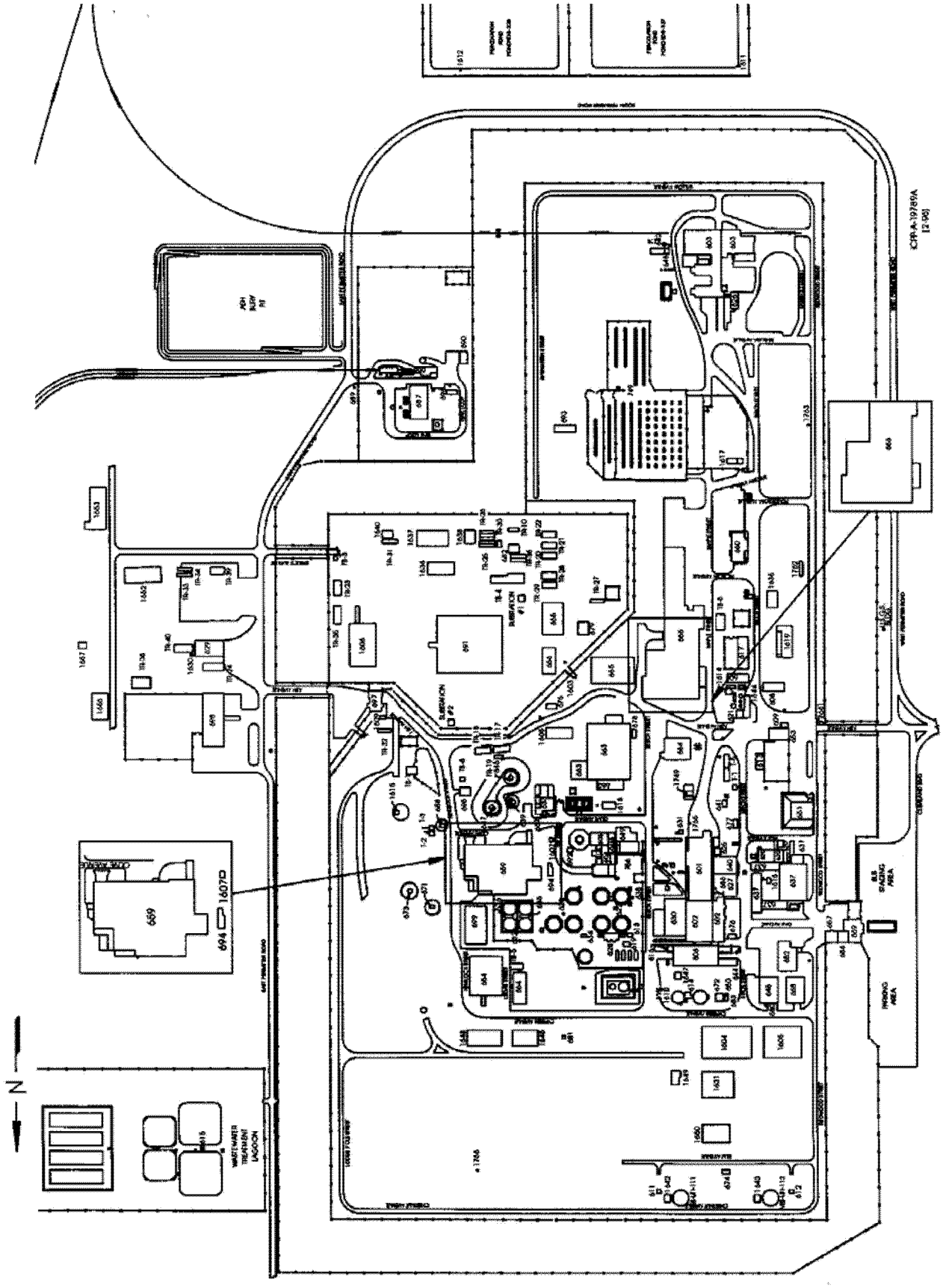

Exhibit W-2. Location of CPP-659 at the INTEC.

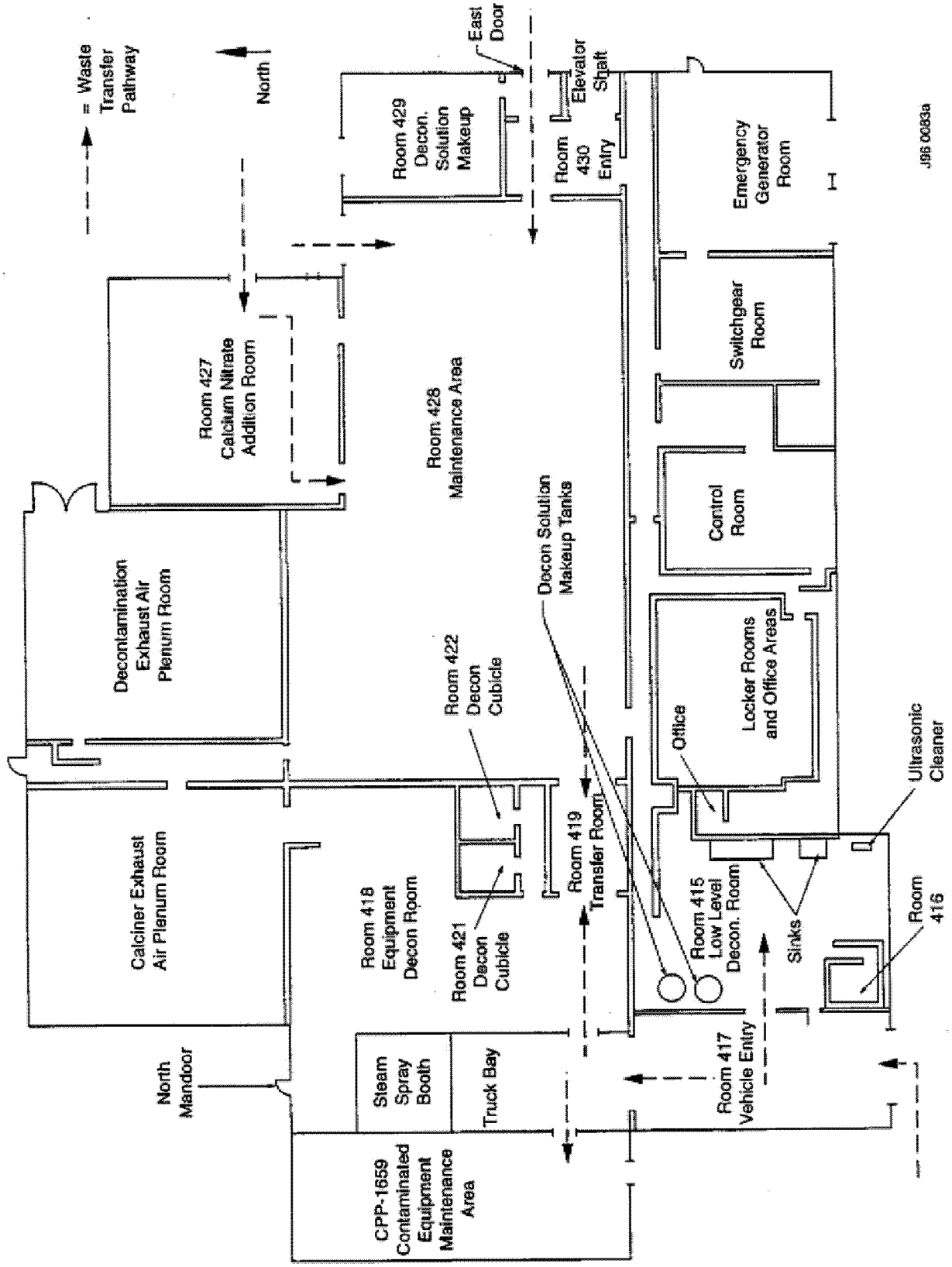

Exhibit W-3. Simplified Floor Plan for First Level of CPP-659.

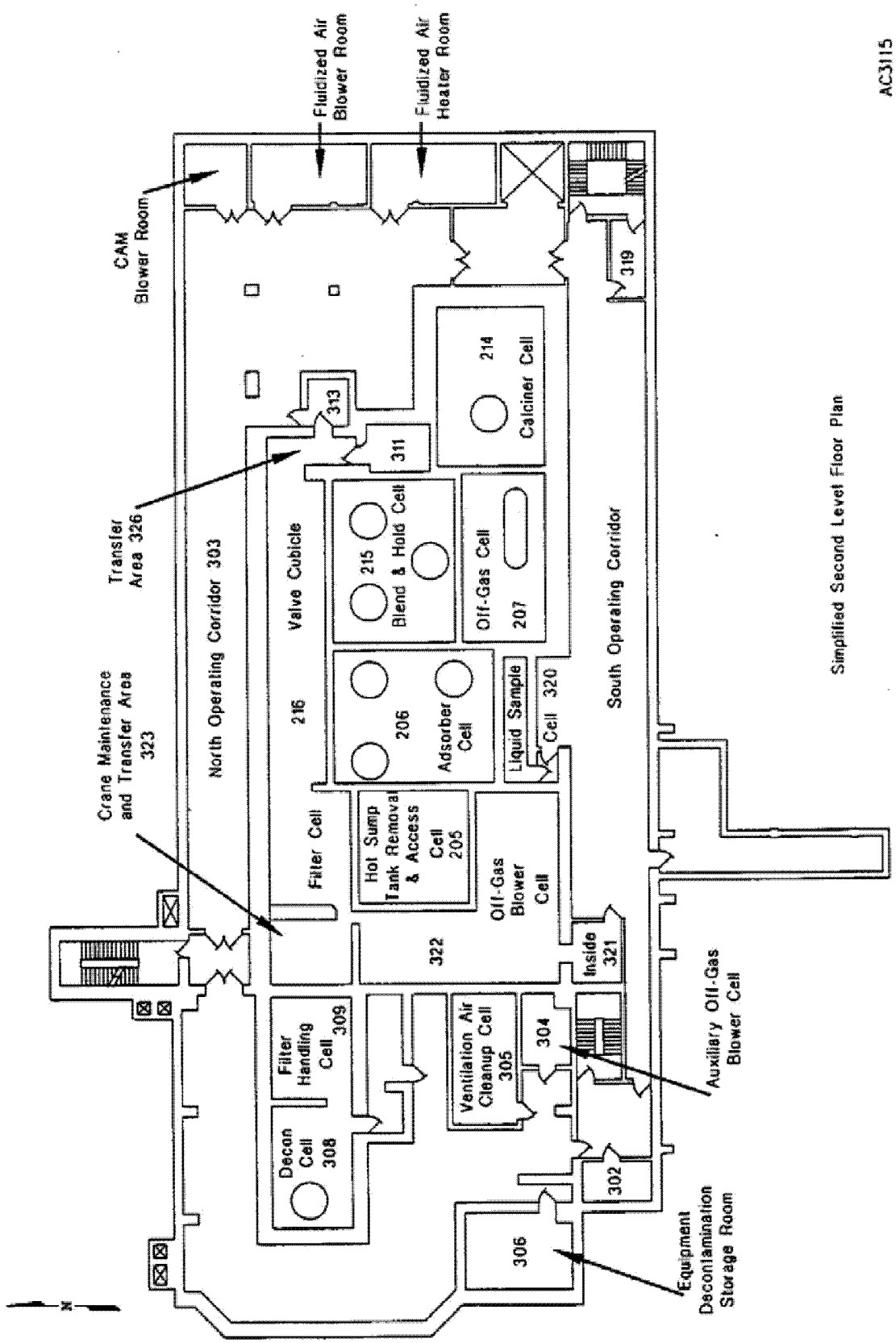

Exhibit W-4. Simplified Floor Plan for Second Level of CPP-659.

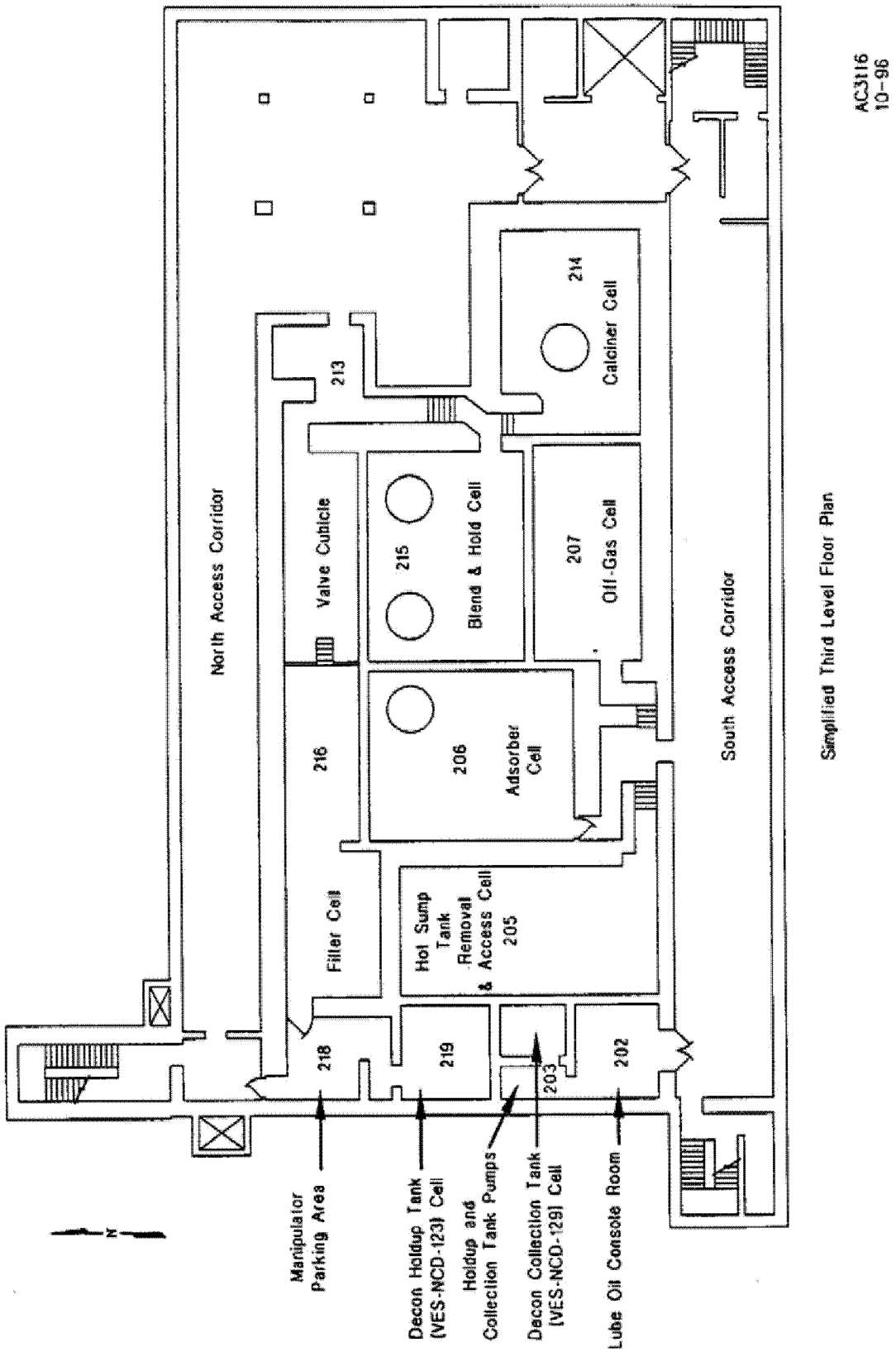

Exhibit W-5. Simplified Floor Plan for Third Level of CPP-659.