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U.S. Department of Energy
Idaho Operations Office

Action Memorandum for Decommissioning of TAN-607A

September 2006

Idaho Cleanup Project

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Prepared for the
U.S. Department of Energy
DOE Idaho Operations Office

Signature sheet for the Action Memorandum covering the Decommissioning of TAN-607A, Technical Support Facility, at the U.S. Department of Energy's Idaho National Laboratory. This action is conducted by the U.S. Department of Energy with the concurrence of the U.S. Environmental Protection Agency and the Idaho Department of Environmental Quality.

E. Kemmerich for

Richard B. Provencher
Deputy Manager
U.S. Department of Energy Idaho Operations Office

9/14/06

Date

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Nicholas Ceto

Nicholas Ceto
INL Program Manager
Region 10
U.S. Environmental Protection Agency

14 September 2006

Date

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Daryl F. Koch — September 14, 2006

Daryl F. Koch
FFA/CO Manager
Waste Management and Remediation Division
Idaho Department of Environmental Quality

Date

ABSTRACT

The Department of Energy is proposing to decommission the TAN-607A building using a Comprehensive Environmental Response, Compensation, and Liability Act non-time-critical removal action. The scope of the proposed removal action is limited to TAN-607A. An engineering evaluation/cost analysis has been prepared to assist the Department of Energy Idaho Operations Office in identifying the most effective method for performing the decommissioning of this structure whose mission has ended. TAN-607A is located at Test Area North Technical Support Facility within the Idaho National Laboratory Site. The non-time-critical removal action approach satisfies environmental review requirements and provides for stakeholder involvement, while providing a framework for selection of the decommissioning end states. The non-time-critical removal action approach also establishes an Administrative Record for documentation of the implemented action.

The selected alternative consists of the complete removal of the structure and components associated with TAN-607A.

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ACRONYMS

ACHP	Advisory Council on Historic Preservation
Ag	silver
ARAR	Applicable or Relevant and Appropriate Requirement
C	carbon
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Ci	curie
Co	cobalt
Cs	cesium
DEQ	Department of Environmental Quality (Idaho)
DOE Idaho	Department of Energy Idaho Operations Office
dpm	disintegrations per minute
EDF	Engineering Design File
EE/CA	engineering evaluation/cost analysis
EPA	Environmental Protection Agency
Eu	europium
FFA/CO	Federal Facility Agreement/Consent Order
g	gram
H	hydrogen
HWMA	Hazardous Waste Management Act
I	iodine
ICDF	Idaho CERCLA Disposal Facility
IDAPA	Idaho Administrative Procedures Act
INL	Idaho National Laboratory
kg	kilogram
L	liter
LOFT	Loss-of-Fluid Test
m	meter
MCL	maximum contaminant level
mg	milligram

MOA	Memorandum of Agreement
NCP	National Contingency Plan
Np	neptunium
NTCRA	non-time-critical removal action
OU	operable unit
PCB	polychlorinated biphenyl
pCi	picocurie
ppm	parts per million
PREPP	Process Experimental Pilot Plant
PRG	preliminary remediation goal
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
Sb	antimony
SHPO	State Historic Preservation Officer (Idaho)
Sr	strontium
TAN	Test Area North
Tc	technetium
TSCA	Toxic Substances Control Act
TSF	Technical Support Facility
TU	temporary unit
U	uranium
USC	United States Code
VCO	Voluntary Consent Order
WAC	Waste Acceptance Criteria
WRRTF	Water Reactor Research Test Facility
yr	year
Zn	zinc

Action Memorandum for Decommissioning of TAN-607A

1. STATEMENT OF BASIS AND PURPOSE

This Action Memorandum documents selection of the non-time-critical removal action recommended in the decommissioning of TAN-607A (ICP 2006). Development of this Action Memorandum has been performed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC § 9601 et seq.), as amended by the "Superfund Amendments and Reauthorization Act of 1986 (SARA)" (Public Law 99-499), and in accordance with the "National Oil and Hazardous Substances Pollution Contingency Plan" (40 CFR 300). This removal action is consistent with the remedial action objectives of the Record of Decision (ROD) and supports the overall remediation goals at Waste Area Group 1. This removal action will place the facility in a configuration that remains protective of human health and the environment. This action is consistent with the joint Department of Energy (DOE) and Environmental Protection Agency (EPA) Policy on Decommissioning of Department of Energy Facilities Under the Comprehensive Environmental Response, Compensation, and Liability Act (DOE and EPA 1995), which establishes the CERCLA non-time-critical removal action process as an approach for decommissioning (EPA 1993).

Test Area North (TAN) is the northern most facility at the Idaho National Laboratory (INL) Site (Figure 1). TAN-607 was constructed from 1955 to 1957 and was equipped with office and administration areas, manufacturing and maintenance areas, a storage pool, shielded work areas, overhead cranes, decontamination areas, and high bays. The southern portion of TAN-607 contains the manufacturing and maintenance areas, administration areas, decontamination areas, and high bays and is referred to as TAN-607A. The scope of the proposed removal action is limited to TAN-607A because the remainder of the TAN-607 facility is currently being evaluated under a separate action.

Limited deactivation and decontamination activities are currently being performed in TAN-607A. This includes asbestos abatement, decontamination of accessible abovegrade radioactively contaminated structures, and utility isolation. Two Hazardous Waste Management Act/Resource Conservation and Recovery Act (HWMA/RCRA) interim status units that were located in TAN-607A were closed in 2000. These two interim status units were the Process Experimental Pilot Plant (PREPP) incineration unit and the PREPP waste stabilization unit. In 2006, a third HWMA/RCRA closure in TAN-607A was completed for a sump and associated piping in the decontamination room.

The selected alternative consists of removing TAN-607A aboveground structures and components, removing belowground components, such as sumps and trenches, removing structural walls to 3 ft below grade, removing residual radiological and nonradiological contamination in the soil, and filling the void to grade with clean solid inert material. In addition, three CERCLA sites (TSF-42, TSF-52, and TSF-54) will be cleaned up under this alternative, if possible. If the nature and extent of contamination of these CERCLA sites are greater than the footprint to be cleaned up, follow-on remedial actions will be addressed under the Federal Facility Agreement/Consent Order (FFA/CO) (DOE-ID 1991).

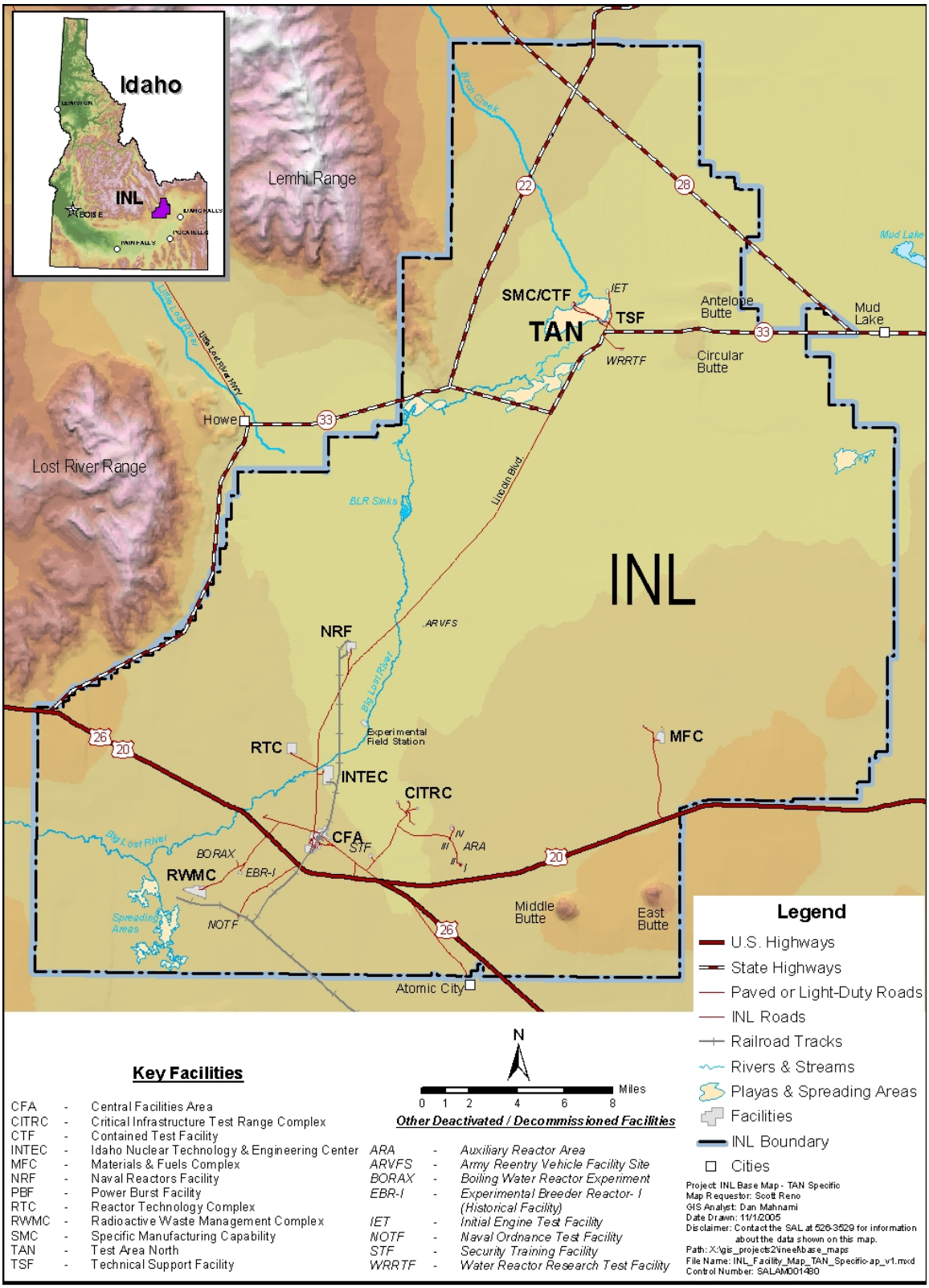

Figure 1. Idaho National Laboratory Site.

Specific components of the selected alternative are as follows:

- Isolate utilities from TAN-607 (Hot Shop)
- Remove equipment, ducting, and piping
- Remove any loose contamination or components with fixed contamination
- Remove contaminated piping
- Collapse entire structure and remove debris
- Remove slab and all sumps
- Remediate sites TSF-42, TSF-52, and TSF-54
- Backfill area with clean soil.

2. BACKGROUND AND FACILITY DESCRIPTION

This section provides summary background information, a description of TAN-607A, and a discussion of previous cleanup actions in the area.

2.1 Site Description and Background

2.1.1 Test Area North Area, Specifically TAN-607A

TAN was established in the 1950s by the U.S. Air Force for the Atomic Energy Commission Aircraft Nuclear Propulsion Program to support nuclear-powered aircraft research (Figure 1). Upon termination of this research, TAN structures were redirected to support a variety of DOE research projects. The southern portion of TAN-607, referred to as TAN-607A, is an expansion to the original building and was added in 1957. TAN-607A served as the Aircraft Nuclear Propulsion Program's main decontamination center. This area included the engine maintenance and large machine shops; high bay assembly shop; chemical cleaning (decontamination) room; and office/administrative areas on the second floor (east side of TAN-607A) (DOE 1995). See Figure 2 for an exterior view of building. In 1983-84, a portion of the area within TAN-607A was redesigned to support the PREPP project. PREPP's mission was to demonstrate a full-scale method for processing transuranic waste into an acceptable form for disposal in the Waste Isolation Pilot Plant (*Historical American Engineering Record, Idaho National Engineering and Environmental Laboratory, Test Area North*, Stacy 2005). However, PREPP never treated actual waste and was HWMA/RCRA closed in 2000.

The plan view of the portion of TAN-607A that is being addressed under the TAN-607A Engineering Evaluation/Cost Analysis (EE/CA) (ICP 2006) is shown in Figure 3 as the unshaded area. TAN-607A is built on a concrete slab at grade. The only belowgrade portions in TAN-607A are the decontamination room sump, cask pit sump, assembly pit, sand blast pit, and the bed plate. Second-story portions of TAN-607A include the office/administrative areas and the second floor added to support the PREPP project.

Figure 2. TAN-607 and TAN-607A.

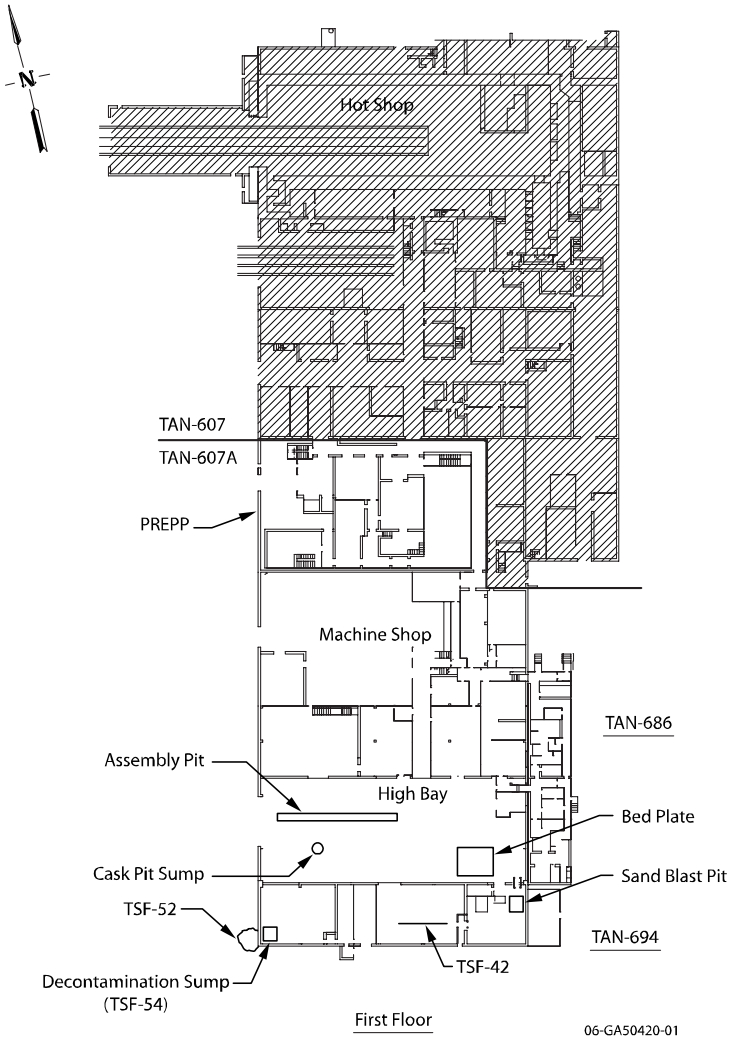

Figure 3. TAN-607A interior view.

2.2 Previous Closure/Cleanup Activities at TAN-607A

Recent CERCLA activities at TAN have been focused predominantly at the Technical Support Facility (TSF) area, which is where TAN-607A is located. In addition, over the last 2 years, 32 buildings and structures have been decommissioned at the TSF and at the Loss-of-Fluid Test (LOFT) Facility, along with the completion of several HWMA/RCRA closure activities.

2.2.1 CERCLA Activities

CERCLA remedial actions have occurred or will occur in accordance with the *Record of Decision Amendment for the V-Tanks (TSF-09 and TSF-18) and Explanation of Significant Differences for the PM-2A Tanks (TSF-26) and TSF-06, Area 10, at Test Area North, Operable Unit 1-10* (DOE-ID 2004a). These CERCLA remedial actions are addressed as follows:

- V-Tanks (TSF-09 and TSF-18) – This action should be completed during the fall of 2006.
- PM-2A Tanks (TSF-26) – This action was completed during the summer of 2005.
- Soil Contamination Area South of the Turntable (TSF-06, Area B) – This action was completed during the summer of 2004.
- Disposal Pond (TSF-07) – This action is on hold as long as TAN-607 is operational.
- Burn Pits (TSF-03 and WRRTF-01) – This action was completed during the summer and fall of 2004.
- Fuel Leak (WRRTF-13) – This action was completed during the summer of 2004.

As noted above, some CERCLA remediations have been completed (e.g., the PM-2A Tanks, Burn Pits) while others are still ongoing. The V-Tanks are currently undergoing remediation. For two sites, the TSF Injection Well (TSF-05) and the Contaminated Ground Water Beneath TSF (TSF-23), the CERCLA remedial action is being implemented under the Operable Unit (OU) 1-07B Work Plan (DOE-ID 2004b).

One existing CERCLA site (TSF-42) and two new sites (TSF-52 and TSF-54) are beneath or adjacent to TAN-607A. These sites will be cleaned up under the TAN-607A EE/CA, if feasible. If the extent of the contamination is greater than the footprint to be cleaned up, then follow-on actions will be addressed under the terms of the FFA/CO.

2.2.2 HWMA/RCRA Interim Status Closure Activities

Two interim status units were closed in compliance with the HWMA/RCRA. The two units were the PREPP incinerator and the waste stabilization unit. The closure was performed in compliance with the *Hazardous Waste Management Act Closure Plan for the Process Experimental Pilot Plant Incinerator and Waste Stabilization Units* (DOE-ID 1999). Closure actions were performed during 1999 and certification was obtained in March 2000.

PREPP was designed and constructed to demonstrate a full-scale method for processing transuranic waste into an acceptable form for disposal in the Waste Isolation Pilot Plant. A single campaign using circuit boards containing characteristic metals was completed. No radionuclides were processed through PREPP.

HWMA/RCRA closure activities included cleaning treatment process equipment identified for reuse and auxiliary equipment not part of the treatment process and removing scrap metal for reuse and recycling. PREPP facility walls and floors were cleaned by vacuuming, mopping, or wiping. The hazardous waste, consisting of unusable and/or contaminated equipment, was sent off-Site for disposal.

2.2.3 Voluntary Consent Order HWMA/RCRA Closure Activities

Voluntary Consent Order (VCO) actions have been implemented to ensure compliance with HWMA/RCRA regulations. The VCO is a consent order between DOE Idaho and Idaho Department of Environmental Quality (DEQ) to address potential HWMA/RCRA waste issues. These VCO HWMA/RCRA closure actions were closing a sump located in the Decontamination Room (see Figure 3) and associated pump and piping as documented in *HWMA/RCRA Closure Plan for the TAN/TSF Intermediate-Level Radioactive Waste Management System, Phase I: Treatment Subsystem (TAN-616)*, (DOE-ID 2004c). Closure actions were performed during 2005 and closure certification was obtained in November 2005. DEQ approved the closure certification on March 2, 2006.

Closure activities for the piping included removing the piping, rinsing, and cleaning (decontamination). Closure activities for the sump included removing the sump pump, equipment, and waste residuals; stripping paint from the liner; removing stained areas or areas with elevated radiation levels; and inspecting the liner and underlying concrete. The initial closure actions for the sump were not completely successful at removing all residual contamination from the sump, so the stainless-steel liner and much of the underlying grout and concrete, including the sump floor, were removed. Where structural walls of the building were located around the sump, scabbling of the walls was performed. HWMA/RCRA closure-generated waste was dispositioned as outlined in the closure plan. Following removal of the sump liner and underlying concrete, soil sampling was completed. The sump was backfilled and a cover was placed over the soils for future identification. Because of the unacceptable risk posed by the contamination beneath the sump, a New Site Identification Form was completed and approved by DOE Idaho, EPA, and DEQ, which is identified as TSF-54. This residual contamination is further addressed in Section 2.4.

2.3 Current Closure/Cleanup Activities at TAN-607A

Currently, deactivation actions are being performed. The actions include asbestos abatement, utility isolation, decontamination, removing the radiologically contaminated ventilation system, and sampling and removing the radiologically contaminated filter banks. All potential HWMA/RCRA and Toxic Substances Control Act (TSCA) materials are also being removed. This includes, but is not limited to, lead, circuit boards, mercury switches, ballasts, and fluorescent tubes. These materials will be characterized and dispositioned per appropriate regulatory requirements as they are removed. In the decontamination room, the high-efficiency particulate air filters were removed from the banks and managed appropriately.

3. THREAT TO PUBLIC HEALTH, WELFARE, AND/OR THE ENVIRONMENT

3.1 Remaining Radionuclide Inventory

Conditions at this site meet the criteria for a non-time-critical removal action as stated in the National Contingency Plan (NCP), 40 CFR 300.415, as follows:

- Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations or the food chain (40 CFR 300.415(b) (2) (i)). While access to the Site is restricted, there is the potential that over time the structure will decay and the radionuclides could be released into the environment. This would create the potential for exposure to high concentrations of radionuclides via inhalation of windblown dust from the debris or tailings pile or direct ingestion of contaminated soils by nearby populations and users of the Site. (Burns 2006)

- Actual or potential contamination of a drinking water supply or sensitive ecosystem (40 CFR 300.415(b) (2) (ii)). If no action is taken, there exists a potential for the contaminants to migrate to the Snake River Plain Aquifer and result in exceedances of the maximum contaminant levels (MCLs). (EDF-6926)

Extensive surveys performed to date show little or no removable surface contamination in TAN-607A (EDF-6900). Removable surface radiological contamination is confined to the decontamination room and some of the sumps in TAN-607A. An elevation drawing showing the first floor slab area of TAN-607A, including the sumps and pits associated with TAN-607A, is shown in Figure 4.

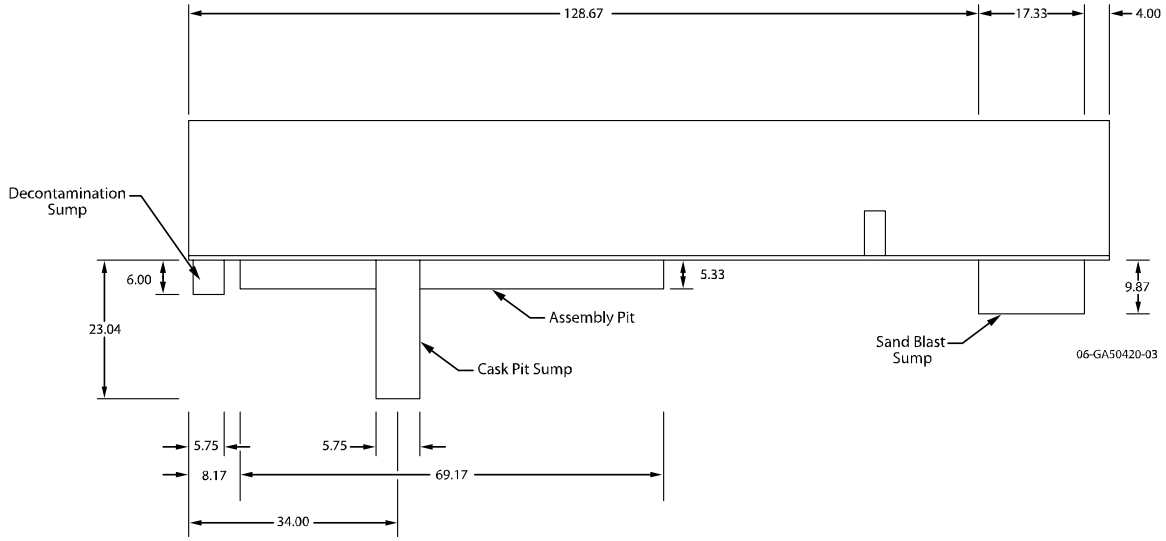

Figure 4. TAN-607A elevation view showing sumps and pits (looking north).

To determine the radiological source term for the TAN-607A slab, insitu gamma spectroscopy measurements were taken from 70 locations. In addition, historical sampling and analytical data were used for those radiological isotopes that cannot be measured by gamma spectroscopy. The radiological inventory for the slab at TAN-607A was determined as described in "TAN-607A Maintenance and Assembly Area Slab Radiological Status" (EDF-6900). Key assumptions in determining the radiological characterization are

- A majority of the radiological activity in the TAN-607A slab is fixed in paint or sealed in grout or concrete.

- Some residual radiological contamination is above the concrete floor slab. However, that contribution is not included as part of the radiological source term since, under Alternative 1, it will be removed, and, under Alternative 2, the abovegrade radiological contamination would be removed as part of deactivation and would not remain long term.

- Residual radiological contamination exists in several inaccessible areas in TAN-607A, such as drains and piping or sumps grouted under or in the concrete slab. The insitu gamma spectroscopy characterization included several biased measurements near drains or sumps to provide an estimate of the radiological inventory in these inaccessible areas.

- Soil samples were collected and analyzed after the stainless-steel liner and concrete were removed from the TAN-607A decontamination room sump in accordance with the HWMA/RCRA Closure Plan. The analytical data indicate elevated radionuclide concentrations of cesium-137 ranging from 55 pCi/g to 12,100 pCi/g.

- Insitu gamma spectroscopy measurements were used since the radiological isotopes present in TAN-607A are known and supported by samples spanning the life of the facility. This allows for identifying radiological contamination at depth, and using conservative assumptions allows the generation of bounding estimates of the radiological inventory.

- The TAN-607A slab thickness is 8 in. and some areas have additional concrete, such as in the assembly pit in the high bay. All concrete is assumed to be radiologically contaminated to the level estimated for the first 6 in.

- The primary isotopes based on historical information are depleted uranium (U-238), the fission product cesium 137, and the activation product cobalt 60. These isotopes all have characteristic gamma rays that can be readily identified by gamma spectroscopy.

- Historical sampling and analytical data from previous characterization activities were used for those radiological isotopes that cannot be measured by gamma spectroscopy. This historical radiological isotopic information was added as a percentage to the total curies identified by gamma spectroscopy, which derives a total TAN-607A slab radioactive inventory as listed in Table 1. The current (2006) radiological inventory is 0.042 Ci, and the activity for 2095, following radioactive decay, is 0.014 Ci. The inventory for 2095 is included since that is currently the date assumed for loss of DOE Idaho institutional control of the TAN area.

The maximum dose rate in TAN-607A is 0.100 mR/hour, which is localized to a relatively small area of TAN-607A. The total activity from radionuclides at this site is 0.042 Ci. This localized area is less than 2,000 ft^2 surface area with a total volume of concrete less than 10% of the total. For comparison, the natural background radiological dose rate at the INL North Gate is 0.013 mR/hour.

Table 1. Year 2006 current inventory and 2095 decayed maximum TAN-607A slab inventory.

Isotope	Current Fractional Abundance	Half-life (yr)	Current (April 2006) Inventory (curies)	2095 Inventory (curies)
Co-60	1.84×10^{-02}	5.27	7.99×10^{-04}	6.60×10^{-09}
Cs-137	5.90×10^{-01}	30.07	2.58×10^{-02}	3.32×10^{-03}
C-14	8.55×10^{-06}	5715	3.63×10^{-07}	3.59×10^{-07}
H-3	2.82×10^{-03}	12.32	1.20×10^{-04}	8.02×10^{-07}
I-129	5.13×10^{-05}	1.57×10^{07}	2.18×10^{-07}	2.18×10^{-07}
Np-237	2.57×10^{-07}	2.14×10^{06}	1.09×10^{-08}	1.09×10^{-08}
Pu-239	3.08×10^{-04}	2.41×10^{04}	1.31×10^{-05}	1.30×10^{-05}
Sr-90	1.41×10^{-01}	28.78	5.99×10^{-03}	7.03×10^{-04}
Tc-99	4.28×10^{-05}	2.13×10^{05}	1.82×10^{-06}	1.81×10^{-06}
U-234/235	2.57×10^{-04}	2.46×10^{05}	1.09×10^{-05}	1.09×10^{-06}
U-238	2.47×10^{-01}	4.47×10^{09}	9.68×10^{-03}	9.68×10^{-03}
Total	1.00		4.24×10^{-02}	1.37×10^{-02}

3.2 Remaining Nonradionuclide Inventory

The relevant Code of Federal Regulation (CFR) is 40 CFR 300.415(b)(2)(iv), which addresses the following: High levels of hazardous substances or pollutants in soils largely at or near the surface that may migrate. Based on previous characterization and ongoing deactivation activities, the known nonradionuclide inventory in TAN-607A is confined to the decontamination room sump and soils (ICP 2005) in the southwest portion of the building. The 600-gal sump that measures 1.2 m (4 ft) by 1.2 m (4 ft) by 1.6 m (5 ft) in depth was HWMA/RCRA closed in 2005. Samples of soils were collected from beneath the TAN-607A decontamination room sump to evaluate the potential for release of contaminants because the integrity of the sump structure could not be confirmed. Table 2 lists nonradiological contaminants detected in the soil beneath the TAN-607A decontamination room sump.

The contaminants identified in Table 2 are compared against EPA Region 9 preliminary remediation goals (PRGs). Region 9 PRGs are risk-based tools for evaluating and cleaning up contaminated sites. They are used to streamline and standardize all stages of the risk decision-making process. PRGs should be viewed as EPA guidelines, not legally enforceable standards. The PRGs combine current human health toxicity values with standard exposure factors to conservatively estimate contaminant concentrations in environmental media (soil, air, and water) that are considered by EPA to be health-protective of human exposures (including sensitive groups) over a lifetime. Chemical concentrations above these levels would not automatically trigger a response action. However, exceeding a PRG suggests that further evaluation of the potential risks that may be posed by site contaminants is appropriate.

Table 2. Soil sample results from beneath the TAN-607A decontamination room sump.

Group and Detected Constituents	Parameters Defining Sump Sample Results (in mg/kg)		Group and Detected Constituents	Parameters Defining Sump Sample Results (in mg/kg)	
	Maximum Detected	PRGs		Maximum Detected	PRGs
Metals and cyanide			Volatile organic compounds		
Arsenic	17.3	0.39[a]	Acetone	0.0514	14,000
Barium	225	5,400	Tetrachloroethene	3.01	0.48
Beryllium	1.02	150	Toluene	0.0055	520
Cadmium	1.9	37	1,1,1-trichloroethane	0.0066	1,200
Chromium	34.4	30	Trichloroethene	1.09	0.053
Cobalt	8.6	900	Trichlorofluoromethane	0.0019	390
Copper	44.6	3,100	Xylene (total)	0.012	370
Lead	79	400	Semivolatile organic compounds		
Mercury	226	23	Aramite	0.519	19
Nickel	43.2	1,600	Di-n-butyl phthalate	0.105	NA[b]
Selenium	2.11	390	Di-n-octyl phthalate	0.0897	2,400
Silver	0.612	390	Disulfoton	0.113	2.4
Vanadium	41.8	78	Isophorone	1.32	510
Zinc	151	23,000	Phenol	5.11	18,000
Cyanide	0.919	1,200	Polychlorinated biphenyls (PCBs)		
			Aroclor-1260	2.80	0.2

a. The background for arsenic at the INL Site is averaged at 27 mg/kg (INEL 1995).
b. NA = not applicable. The constituent is not listed in the EPA Region 9 Preliminary Remediation Goals Table (Region 9 PRGs 2004 Table, EPA 2006a).

The decontamination sump was backfilled and a cover was placed over the soils. As required in the HWMA/RCRA closure plan for the decontamination room sump, a risk assessment was performed to determine if the residual contamination posed an unacceptable risk that requires further actions. The risk assessment identified an unacceptable risk and, therefore, the area was identified and included in the FFA/CO for future CERCLA actions. This site is identified as CERCLA site TSF-54. This site will be cleaned up under the TAN-607A EE/CA, if the preferred alternative is selected. If TSF-54 cannot be adequately cleaned up under the TAN-607A EE/CA, it will be addressed under the FFA/CO.

CERCLA site TSF-52 is located outside the decontamination room door on the west side of the southwest corner of TAN-607A. The site was discovered while completing the HWMA/RCRA closure activities for the decontamination room as previously discussed. Radiological surveys of the soil under the asphalt revealed radiation levels at varying degrees of contamination, with the highest at 40,000 cpm (400,000 dpm) in the soil. Historical information indicated that there was at least one release from the firewater system in the decontamination room. The firewater system is located next to the overhead door, and the falling water could have easily leaked under the door, resulting in the soil contamination observed during excavation. The Agencies agreed that this is a release site to soils that should be addressed under the FFA/CO. The site has not been completely characterized for nonradiological contaminants. This site will be further characterized and cleaned up under the TAN-607A EE/CA if the preferred alternative is selected.

TSF-42 is the site of a 6-in.-diameter pipe known to be internally radiologically contaminated. The pipe is surrounded by concrete and is located under the floor of Room 161 in TAN-607A. Under the FFA/CO process, TSF-42 was identified as a No Action site in 1993; however, the FFA/CO documents indicated the TSF-42 site would be cleaned up when the TAN-607A facility is decommissioned. The site has not been completely characterized for nonradiological contaminants. This site will be further characterized and cleanup will be effected under the TAN-607A EE/CA if the preferred alternative is selected. If TSF-52 and TSF-42 cannot be adequately characterized and cleaned up under the TAN-607A EE/CA, they will be addressed under the FFA/CO.

4. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this site have the potential to present a threat to public health or the environment.

This section provides information regarding the proposed action and alternatives considered.

4.1 Proposed Action

The proposed action consists of removing TAN-607A aboveground structures and components, removing belowground components, such as sumps and trenches, removing structural walls to 3 ft below grade, removing residual radiological and nonradiological contamination in the soil, and filling the void to grade with clean solid inert material. In addition, three CERCLA sites (TSF-42, TSF-52, and TSF-54) will be cleaned up, if possible. If the nature and extent of contamination of these CERCLA sites are greater than the footprint to be cleaned up, follow-on actions will be addressed under the FFA/CO. The specific components of Alternative 1 are as follows:

- Isolate utilities from TAN-607 (Hot Shop)
- Remove equipment, ducting, and piping
- Remove any loose contamination or components with fixed contamination
- Remove contaminated piping

- Collapse entire structure and remove debris
- Remove slab and all sumps
- Clean up sites TSF-42, TSF-52, and TSF-54
- Backfill area with clean soil.

4.2 Removal Action Objectives

The removal action objective for this non-time-critical removal action is as follows: Reduce risk from external radiation exposure to a total excess cancer risk of less than 1 in 10,000 for a hypothetical resident at 2095 and the current and future worker. Per OU 1-10 ROD Amendment (DOE-ID 2004a), the TAN area is expected to be under the control of the government until 2095 (DOE-ID 2004a). In addition, general CERCLA protectiveness standards at INL Site seek to prevent future releases to the Snake River Plain Aquifer that would result in migration of contaminants to the aquifer such that drinking water MCLs may be exceeded and to ensure cumulative excess cancer risks from multiple contaminants of concern remain less than 1 in 10,000 for a hypothetical resident at 2095.

The removal action objective is consistent with the remedial action objectives of the ROD. The removal action objective is predicated on the current and future land uses established for the TAN area in the ROD, which includes industrial land use until at least 2095 and possible residential land use thereafter. If any newly identified release sites are discovered during implementation of the selected alternative, DOE Idaho will consult with DEQ and EPA regarding potential inclusion of the newly identified release site for evaluation under the TAN-607A EE/CA or the FFA/CO or whether to address the newly identified release site under other regulatory programs.

4.3 Engineering Evaluation/Cost Analysis

The EE/CA is contained in the Administrative Record. The EE/CA evaluated two alternatives (Complete Removal and No Action) as described below.

4.3.1 Alternative 1–Complete Removal

Alternative 1 consists of removing TAN-607A aboveground structures and components, removing belowground components**,** such as sumps and trenches, removing structural walls to 3 ft below grade, removing residual radiological and nonradiological contamination, and filling the void to grade with clean solid inert material. In addition, three CERCLA sites (TSF-42, TSF-52, and TSF-54) will be cleaned up, if possible. If the nature and extent of contamination of these CERCLA sites **are** greater than the footprint to be cleaned up, follow-on actions will be addressed under the FFA/CO. Waste managed under CERCLA will most likely be disposed at the Idaho CERCLA Disposal Facility (ICDF) landfill and the TAN demolition landfill**,** subject to meeting the Waste Acceptance Criteria (WAC). If the waste does not meet TAN demolition landfill or ICDF WAC for disposal, a suitable off-Site disposal location will be determined.

The specific components of Alternative 1 are as follows:

- Isolate utilities from TAN-607 (Hot Shop)
- Remove equipment, ducting, and piping
- Remove any loose contamination or components with fixed contamination
- Remove contaminated piping
- Collapse entire structure and remove debris

- Remove slab and all sumps
- Remediate sites TSF-42, TSF-52, and TSF-54
- Backfill area with clean soil.

4.3.2 Alternative 2-No Action

The No Action alternative will leave the building in a cold, dark, and dry condition. In this condition, the TAN-607A facility will require surveillance and maintenance until a later date when decommission actions would be complete. Under this alternative, the residual radiological and nonradiological contamination will remain in the concrete floor slab and sumps in the building floor. CERCLA sites TSF-42, TSF-52, and TSF-54 will be addressed solely under the terms of the FFA/CO.

4.4 Compliance with Environmental Regulations, Including Those That Are Applicable, or Relevant and Appropriate Requirements

4.4.1 CERCLA

Section 121 of CERCLA (42 USC § 9621) requires the responsible CERCLA implementing agency to ensure that the substantive standards of HWMA/RCRA and other applicable laws will be incorporated into the federal agency's design and operation of its long-term remedial actions and into its more immediate removal actions. DOE Idaho is the implementing agency for this non-time-critical removal action. EPA and DEQ will have reviewed the EE/CA and will concur if appropriate in the Action Memorandum.

Implementation of Alternative 1 will result in the generation and subsequent management of radioactive and nonradioactive wastes. Table 3 lists the proposed applicable or relevant and appropriate requirements (ARARs) that have been identified for this alternative. These ARARs are a compilation and expansion of the ARARs identified in the OU 1-10 ROD Amendment (DOE-ID 2004a). The ARARs list is based on several key assumptions:

- Waste managed under CERCLA will most likely be disposed of at the ICDF landfill and the TAN demolition landfill, subject to meeting the WAC.
- If decontamination liquids are generated, they will be disposed of at the ICDF evaporation ponds subject to meeting the WAC.
- Debris generated during demolition of TAN-607A may have paint that has PCBs. If encountered, such wastes may trigger substantive requirements of the TSCA. Lead-contaminated paint may be generated during demolition, which will be subject to the substantive requirements of RCRA hazardous waste regulations. These wastes are planned for disposal at either the ICDF landfill or TAN demolition landfill if they are found to be eligible for disposal as solid waste.
- Asbestos-containing material will be encountered incidental to performance of the non-time-critical removal action. This waste will be subject to specific asbestos regulations and will be acceptable for disposal at the ICDF and/or, if not radiologically contaminated, at the TAN demolition landfill. Friable asbestos will be removed and disposed of as required by the National Emission Standards for Hazardous Air Pollutants.

A summary of ARARs for TAN-607A is found in Table 3.

Table 3. Summary of applicable or relevant and appropriate requirements for TAN-607A non-time-critical removal action.

Requirement (Citation)	ARAR Type	Comments
Clean Air Act and Idaho Air Regulations		
"Toxic Substances," IDAPA 58.01.01.161	A	Applies to any toxic substances emitting during implementation of the removal action.
"National Emission Standards for Hazardous Air Pollutants" <10 mrem/yr, 40 CFR 61.92, "Standard"	A	Applies to building demolition and the waste-handling activities.
"National Emission Standards for Hazardous Air Pollutants" "Emission Monitoring and Test Procedures," 40 CFR 61.93	A	Applies to building demolition and the waste-handling activities.
"National Emission Standards for Hazardous Air Pollutants" "Compliance and Reporting," 40 CFR 61.94(a)	A	Applies to building demolition and the waste-handling activities.
"National Emission Standards for Hazardous Air Pollutants" "Standards for Demolition and Renovation," 40 CFR 61.145	A	Applies to any asbestos-containing materials removed during the decommissioning.
"Rules for Control of Fugitive Dust," and "General Rules," IDAPA 58.01.01.650 and .651	A	Applies to building demolition and the waste-handling activities.
RCRA and Idaho Hazardous Waste Management Act		
"Standards Applicable to Generators of Hazardous Waste," IDAPA 58.01.05.006, and the following, as cited in it:		
"Hazardous Waste Determination," 40 CFR 262.11	A	Applies to waste that would be generated during the removal action.
General Facility Standards		
IDAPA 58.01.05.008, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," and the following, as cited in it:		
"Temporary Units (TU)," 40 CFR 264.553	A	Waste may be treated or temporarily stored in a temporary unit prior to disposal.
"Staging Piles," 40 CFR 264.554	A	Waste may be temporarily staged prior to disposal.

Table 3. (continued).

Requirement (Citation)	ARAR Type	Comments
"General Inspections Requirements," 40 CFR 264.15	A	Applies to a facility staging, storing, or treating hazardous waste prior to transfer to the ICDF or an off-Site facility.
"Preparedness and Prevention," 40 CFR 264, Subpart C	A	Applies to a facility staging, storing, or treating hazardous waste prior to transfer to the ICDF or an off-Site facility.
"Contingency Plan and Emergency Procedures," 40 CFR 264, Subpart D	A	Applies to a facility staging, storing, or treating hazardous waste prior to transfer to the ICDF or an off-Site facility.
"Disposal or Decontamination of Equipment, Structures, and Soils," 40 CFR 264.114	A	Applies to contaminated equipment used to remove, treat, or transport hazardous waste.
"Use and Management of Containers," 40 CFR 264.171–178	A	Applies to containers used during the removal and treatment of hazardous waste.
Land Disposal Restrictions		
IDAPA 58.01.05.011, "Land Disposal Restrictions," and the following, as cited in it:		
"Applicability of Treatment Standards," 40 CFR 268.40(a)(b)(e)	A	Applies to hazardous waste and secondary waste, if treatment is necessary to meet the disposal facility's WAC or if treatment is required before placement.
"Treatment Standards for Hazardous Debris," 40 CFR 268.45	A	Applies to hazardous debris, if treatment is necessary to meet the disposal facility's WAC or if treatment is required before placement.
"Universal Treatment Standards," 40 CFR 268.48(a)	A	Applies to non-debris hazardous waste and secondary waste, if treatment is necessary to meet the disposal facility's WAC or if treatment is required before placement.
"Alternative LDR Treatment Standards for Contaminated Soil," 40 CFR 268.49	A	Applies to contaminated soil, if treatment is necessary to meet the disposal facility's WAC or if treatment is required before placement.
Idaho Groundwater Quality Rules		
"Ground Water Quality Rule," IDAPA 58.01.011	A	The waste-handling activities must prevent migration of contaminants from the facility that would cause the Snake River Plain Aquifer groundwater to exceed applicable State of Idaho groundwater quality standards in 2095 and beyond.

Table 3. (continued).

Requirement (Citation)	ARAR Type	Comments
TSCA		
"Decontamination Standards and Procedures: Decontamination Standards," 40 CFR 761.79(b)(1)	A	Applicable to decontamination of equipment with PCB contamination, if PCB waste is generated.
"Decontamination Standards and Procedures: Self-Implementing Decontamination Procedures," 40 CFR 761.79(c)(1) and (2)	A	Applicable to decontamination of equipment with PCB contamination, if PCB waste is generated.
"Bulk Product Disposition," 40 CFR 761.62(b)	A	Applicable to disposition of waste in a non-municipal solid waste landfill with concentrations of PCBs greater than 50 ppm.
"Decontamination Standards and Procedures: Decontamination Solvents," 40 CFR 761.79(d)	A	Applicable to decontamination of equipment used to manage PCB-contaminated waste, if PCB waste is generated.
"Decontamination Standards and Procedures: Limitation of Exposure and Control of Releases," 40 CFR 761.79(e)	A	Applicable to decontamination activities of equipment with PCB-contaminated waste, if decontamination is performed.
"Decontamination Standards and Procedures: Decontamination Waste and Residues," 40 CFR 761.79(g)	A	Applicable to management of decontaminated waste and residuals from PCB-contaminated equipment, if PCB waste is generated.
Solid Waste Management Rules		
IDAPA 58.01.06.012, Solid Waste Management Rules for Tier II Landfills	A	Applicable to operation and management of TAN demolition landfill.
To-be-Considered Requirements		
"Radiation Protection of the Public and the Environment," DOE Order 5400.5, Chapter II(1)(a,b)	TBC	Applies. Substantive design and construction requirements would be met to keep public exposures as low as reasonably achievable.
Region 10 Final Policy on the Use of Institutional Controls at Federal Facilities, (EPA 2006b)	TBC	Applies to residual waste following completion of the removal action.

A = applicable requirement
ARAR = applicable or relevant and appropriate requirement
CFR = Code of Federal Regulations
DOE = Department of Energy
EPA = Environmental Protection Agency
ICDF = Idaho CERCLA Disposal Facility
IDAPA = Idaho Administrative Procedures Act
LDR = land disposal restriction
PCB = polychlorinated biphenyl
RCRA = Resource Conservation and Recovery Act
TAN = Test Area North
TBC = to be considered
TSCA = Toxic Substances Control Act

4.4.2 Cultural Resources

Section 106 of the National Historic Preservation Act of 1966, as amended, requires agencies to consider the impact of undertakings on properties listed or eligible for listing in the National Register of Historic Places and to consult with the Idaho State Historic Preservation Officer (SHPO) and other interested parties when impacts are likely (16 USC § 470 et seq.). It also requires federal agencies to invite the Advisory Council on Historic Preservation (ACHP) to participate in consultation when impacts may be adverse. The Section 106 process has been tailored to meet the unique needs of the INL Site and is described in the INL Cultural Resources Management Plan (DOE-ID 2005).

TAN-607 proper (including TAN-607A) is a historic property eligible for nomination to the National Register of Historic Places. TAN-607 proper has been designated a Signature Property by DOE Headquarters. DOE Idaho has decided to proceed with demolition of TAN 607A. As a Signature Property, public review of the disposition of the facility is required. To mitigate the adverse impacts caused by such action, DOE Idaho, through formal consultation with the Idaho SHPO, has developed a Memorandum of Agreement (MOA) that outlines measures to preserve the TAN-607 proper history, as well as commitments to edit and republish a public history book on the INL, publish and distribute historical reports that are written for inclusion in the Library of Congress collections, endow a university scholarship for students pursuing a degree in a preservation-related discipline, and preserve technical reports, engineering drawings, historic photographs, and other important documents in an INL archive via the support of a professional archivist. DOE Idaho invited ACHP to participate in consultation and to be a signature to the MOA. However, the ACHP declined to participate. The MOA was signed by DOE Idaho and the Idaho SHPO in October 2005 and outlines a schedule for completing each stipulated mitigation measure. (DOE and SHPO 2005)

5. PROJECT SCHEDULE

This removal action is expected to begin in Fall 2006 with anticipated completion by July 2007. These are baseline dates and the project will continue to look for opportunities to safely accelerate work where appropriate to perform more efficiently. The current working schedule reflects an approximate 6-month acceleration of the completion date. A schedule for the removal action is provided in Table 4.

Table 4. Schedule for the removal action.

Activities	Completion Date
Complete TAN-607A Decon Shop deactivation	November 9, 2006
Complete demolition of TAN-607A Decon Shop	March 6, 2007
Complete TAN-607A machine shop (PREPP, high bay) deactivation	November 6, 2006
Complete demolition of TAN-607A machine shop	July 12, 2007

6. PROJECT COST

The cost of the selected alternative (Alternative 1) takes into consideration capital outlay and resource allocation. The cost estimate associated with the selected alternative is summarized and shown in Table 5. These costs have taken into consideration direct capital costs and indirect capital costs.

Table 5. Cost estimates for selected alternative.

Cost Description	Alternative 1
Decommissioning	$20,867,637
TOTAL	$20,867,637

The above-cited cost estimate is based upon performing the work associated with the proposed actions over the next calendar year. Cost associated with Alternative 1 is straightforward. DOE Idaho is responsible for removal action costs and the funds are available to implement the action. The project cost estimate is available in the Administrative Record for the EE/CA for decommissioning of TAN-607A for this action (ICP 2006).

7. EXPECTED CHANGE SHOULD ACTION BE DELAYED OR NOT TAKEN

The expected change to the decommissioning of TAN-607A, should action be delayed or no action taken, would be that the facility would remain as it is today. However, because the facility would continue to age, the potential exists that water from rain and snowmelt, contribute to contaminated material being released to the subsurface at an increasing frequency with time. Although the potential is low, contaminants, such as PCBs and the longer half-life isotopes in TAN-607A, could migrate to the aquifer. If the action is not taken at this time, greater surveillance and maintenance costs would be incurred during the time interval before final decommissioning activities can be performed.

8. STATUTORY AND REGULATORY AUTHORITY

The proposed removal action is being undertaken by DOE Idaho, as lead agency, pursuant to CERCLA Section 104 (a), Executive Order 12580, as recognized by Section 5.3 the *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory* (DOE-ID 1991). In accordance with 40 CFR 300.415(j) and DOE guidance, on-Site removal actions conducted under CERCLA are required to meet ARARs to the extent practicable considering the exigencies of the situation. The DOE Idaho will comply with the ARARs and "to-be-considered" guidance as set forth in Section 4.4.

9. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues.

10. ENFORCEMENT

DOE Idaho is conducting this removal action as the lead agency under the authority of 40 CFR 300.5, "Definitions," and 40 CFR 300.415 (b)(1), "Removal Action."

11. RECOMMENDATION

This decision document represents the selected removal action for TAN-607A at the TAN TSF developed in accordance with CERCLA as amended, and consistent with the NCP. This decision is based on the Administrative Record for the Site.

Conditions at this site meet the NCP section 40 CFR 300.415(b)(2) criteria for a removal and are recommended for approval of the proposed action.

The recommended action is to perform Alternative 1. The recommended alternative meets the proposed removal action objectives regarding long-term risk, minimizes short-term worker risk and radiation exposure, is cost-effective, and provides a safe and stable configuration that is environmentally sound. DOE Idaho also considers Alternative 1 to be consistent with the remedial action objectives of the *Record of Decision Amendment for the V-Tanks (TSF-09 and TSF-18) and Explanation of Significant Differences for the PM-2A Tanks (TSF-26) and TSF-06, Area 10, at Test Area North, Operable Unit 1-10* (DOE-ID 2004a) and compliant with the ARARs.

12. PUBLIC PARTICIPATION

The public participation period for the TAN-607A EE/CA was from July 19, 2006, through August 18, 2006. A public notice was sent to nine different Idaho and Wyoming newspapers on July 18, 2006, the notice was posted in the DOE Administrative Record electronically, and hard copies of the document were sent to the DOE Public Reading rooms in Idaho Falls and Boise. There were no comments from the Citizens Advisory Board, the Snake River Alliance, or the Shoshone-Bannock Tribes. Comments were received from the public and addressed in the Responsiveness Summary, which is Appendix A of this Action Memorandum.

13. REFERENCES

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Appendix A

Responses to Significant Comments on the TAN-607A Decommissioning

Appendix A

Responses to Significant Comments on the TAN-607A Decommissioning

Comment No.	Comment/Issue	Resolution
1	D. J. Kenoyer ***GENERAL COMMENTS:*** G1 – EE/CA does not address the typical Alternative for "Partial Removal of above Grade Structures" or to a certain depth below grade (similar to EE/CA for the Decommissioning of TAN-630/650 ==> DOE/ID-11253). Why was this Alternative not considered in the development of this EE/CA?	*Thank you for your comments. The TAN-607A EE/CA has a preferred alternative of Complete Removal of the structure due to an evaluation of the chemical and radiological hazards, an engineering evaluation of the demolition processes, and the cost of completely removing the structure vs. partial removal and long-term stewardship. No change to Action Memorandum (AM) document.*
2	G2 – EE/CA does not address what will be done with the TAN-607 proper and/or the ancillary utility systems [Electrical Power, Fire Protection, Water, Waste Water, etc.]?	*RPT-214 addresses the specifics of TAN-607A, there will be temporary power and fire suppression systems operational in the northern half of TAN-607 while the decommissioning of TAN-607A is underway. No change to AM document.*
3	G3 – EE/CA does not Reference the Actual Cost Estimate that was prepared in support of this EE/CA. Will this document be made available for Public Review also? One of the main focus areas of the EE/CA is the cost estimate itself. How is it possible to evaluate this EE/CA when the cost estimate is not included or made available for review?	*The complete cost estimate has been reviewed and approved by CWI and DOE personnel, since it contains company sensitive information it will not be made available for Public Review. No change to AM document.*
4	G4 – EE/CA there is not enough detailed information concerning technical approach included in *Section 5.2 – Implementability of Alternatives* to allow adequate review.	*The same level of detail has been incorporated in the TAN-607A EE/CA as in the LOFT EE/CA, and after agency review it has been determined to be sufficient for the two alternatives. No change to AM document.*
5	G4 – This EE/CA has similar sections and in some cases much of the exact wording (word-for-word) from the previous EE/CA reviewed *Decommissioning of TAN-630/650 ==> DOE/ID-11253*. Are these documents being written by same personnel or subcontractor?	*This document has been written in accordance with EPA's, "Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA" (1993). No change to AM document.*

Comment No.	Comment/Issue	Resolution
6	***SPECIFIC COMMENTS:*** S1 – Executive Summary, pages iii-iv ==> Does NOT address the specific level of radiological contamination removal to be accomplished. Alternative 1 – "… removing residual radiological and non-radiological contamination, …" Does this mean ALL radiological contamination requiring (1) removal of ALL "loose contamination" requiring HEPA vacuuming and wet wiping, () removal of all "fixed contamination" requiring the scabbling of surfaces and/or saw cutting and removal of concrete or steel, (3) What is "non-radiological contamination" (Hazardous Constituents as defined under RCRA or in this case CERCLA, more specifically PCB, mercury, trichloroethene)? Section 4 does not address this radiological contamination removal issue either.	*The Executive Summary gives a summary of the actions that will take place under each alternative. Section 4.0 gives details of how each alternative will be implemented. Currently, deactivation and decontamination activities are being conducted throughout TAN-607A. Section 2.3 details the activities being conducted to decontaminate TAN-607A. Section 2.4.1 details the current radionuclide inventory in TAN-607A (0.042 curies), while Section 2.4.2 along with Table 2, gives great detail on the non-radionuclide inventory. The radiological contamination remaining during the decommissioning of TAN-607A will be fixed in localized areas of the building. The non-radiological contamination will be limited to PCB contamination remaining under the slab in the decon sump. No change to AM document.*
7	S2 – Acronyms, pages vii-viii ==> The listing of Acronyms for this EE/CA is incomplete and inconsistent. Many items are not identified such as those listed below: • BEA Battelle Energy Alliance • CFA Central Facilities Area • Cs Cesium • All Other Elements similar to Sr – Strontium {Co – Cobalt / C – Carbon / H – Tritium / I – Iodine / Np – Neptunium / Pu – Plutonium / Tc – Technetium / U -Uranium} This is typically not done as Acronyms? • DOE-NE Department of Energy Office of Nuclear Energy, Science, and Technology • EDF Engineering Design File • FFA/CO Federal Facility Agreement / Consent Order • HEPA High Efficiency Particulate Filters • LDR Land Disposal Restrictions • PCB Polychlorinated Biphenyl • RCRA Resource Conservation and Recovery Act	*The changes to the acronym list have been incorporated in the AM document.*

Comment No.	Comment/Issue	Resolution
	• SMC Special Manufacturing Capability • TBC to be considered • TU Temporary Units • USC United States Code • WRRTF Water Research Reactor Test Facility	
8	S3 – Section 1 – Introduction, page 2 ==> Alternative 1 – Complete Removal is not really "*Complete Removal*" but removal only to 3 feet below grade of structural walls? This should be stated as a "Partial Removal".	*The preferred alternative will completely remove all surfaces to 3 feet below grade leaving only load bearing structures such as footers in place. All contaminated surfaces will be removed with the preferred alternative leaving only inert material (concrete and steel) in the ground. No change to AM document.*
9	S4 – Section 2.1.2 – Test Area North, page 3 ==> States in part "… *The IET and WRRTF have previously been completely demolished.*" This should be restated to correctly identify status of these facilities since both were completely demolished above grade and the below grade structures broken so as to not retain water and demolition debris buried within substructures. These facilities also had been decontaminated of radiological and hazardous constituents. Also, include references for the Final Reports of these DD&D projects.	*The WRRTF and IET facilities were completely demolished with some of the material being buried in place. Even though not all of it was removed, the hazards were mitigated leaving inert material in the ground. No change to AM document.*
10	S5 – Section 2.2.3 – VCO HWMA/RCRA Closure Activities, page 7 ==> States in part "… *because of the unacceptable risk posed by the contamination beneath the sump, a New Site Identification Form was completed and approved by DOE-ID, EPA, and DEQ, which is identified as TSF-54*". Why was the contamination beneath the sump left in place during the previous HWMA/RCRA Disposition Closure Plan operations? This "unacceptable risk" is the associated future residential use scenario risk?	*Contamination was left in place after the HWMA/RCRA Disposition Closure Plan because the contaminants were under the slab where they could not be removed without demolition of the decon shop. The unacceptable risk is for an occupational scenario only. Please refer to "ICP, 2005, TAN-616 HWMA/RCRA Closure Risk Assessment for Environmental Media Beneath the TAN-607 Decontamination Room Sump, ICP/EXT-05-00899, October 2005". No change to AM document.*
11	S6 - Section 2.3 – Cleanup Activities Currently Ongoing at TAN-607A, page 7 ==> States in part "… *This includes, but is not limited to, lead, circuit boards, mercury switches, ballasts, and fluorescent tubes.*" Does this also include the typical PCB contaminated oils utilized in pre-1960s equipment and transformers? Assume this is covered in the *Waste Disposition Schedule* that is part of the typical *Detailed DD&D Plan*?	*All transformers at TAN contain non-PCB oils. The current deactivation and decontamination activities include but are not limited to the items listed in Section 2.3. In some instances, equipment will be encountered that is not included in the current waste profile and this will be analyzed for suspected contaminants. No change to AM document.*

Comment No.	Comment/Issue	Resolution
12	S7 – Section 2.4.1 – Remaining Radionuclide Inventory, page 8, 3rd bullet ==> States in part "… *the in-situ gamma spectroscopy characterization included several biased measurements near drains or sumps to provide an estimate of the radiological inventory in these inaccessible areas*." This is a very risky assumption to make without some historical process knowledge and the confirmation of these inaccessible piping status … being "full or empty". Previous working of systems with biased sampling at the K-1420 Facility at ORNL found that many systems previously identified as "Full" were in fact not and many "Empty" were in fact full or partially full.	*EDF-6900, "TAN 607 Maintenance & Assembly Area Slab Radiological Status" defines how the radiological source term was derived. Where assumptions were made concerning inaccessible piping, we assumed the worst-case scenario and were very conservative in our estimates (0.042 Ci). In addition, we knew the processes that took place in TAN-607A and had no reason to be concerned about the source term calculated. No change to AM document.*
13	S8 - Section 2.4.1 – Remaining Radionuclide Inventory, page 9, 2nd bullet ==> States in part "… *The primary isotopes based on historical information are: depleted uranium (U-238), the fission product Cesium 137, and the activation product Cobalt 60*." Typically, at the INL, Strontium 90 (Sr-90) and Cesium 137 (Cs-137) are found together as fission products. This is reflected in Table 1 on the same page where Sr-90 is the 3rd highest radiological contamination Inventory item (curies).	*As per "TAN 607 Maintenance & Assembly Area Slab Radiological Status", several methods can be employed including in situ gamma spectroscopy and laboratory analysis of samples for the various isotopes and radiations potentially present (alpha, pure beta emitters). After consultation with the project management team and the Environmental Monitoring and Reporting group, a decision was made to utilize in situ gamma spectroscopy for this characterization effort since the isotopes present in TAN-607A are generally well established and supported by samples spanning the life of the facility. This would allow identification of radiological contamination at depth, and using conservative assumptions, would allow the generation of bounding radiological estimates while providing a desired rapid turn around time. The primary isotopes based on historical information are: depleted uranium (U-238), the fission product Cesium 137 and the activation product Cobalt 60. For purposes of groundwater modeling and to generate a waste profile, isotopes not identifiable by gamma spectroscopy must be accounted for. TAN characterization data provides abundances for these isotopes at various locations around the facility. Since the levels of radioactivity are low, it is recognized that COCs generally associated with areas where there are significant levels of fuel product may not be present in TAN 607A. However, for conservatism this report scales these isotopes from available information. To ensure the estimate remains bounding of actual conditions, the maximum activity concentrations (abundance) found at TAN as listed in other published sources were used and added to the curies*

Comment No.	Comment/Issue	Resolution
		measured by in situ gamma spectroscopy. Therefore, Sr-90 was known to exist in the TAN-616/666 buildings from previous operations, but was never actually detected in TAN-607A. No change to AM document.
14	S9 - Section 2.4.2 – Remaining Non-radionuclide Inventory, page 10, 4th bullet ==> States in part "… *Radiological surveys of the soil under the asphalt revealed radiation levels at varing degrees of contamination with the highest at 40,000 cpm (400,000 dpm) in the soil.*" What were the specific radiological constituents found during sampling and analysis?	*As per the "Supporting Documentation for TAN-616 Closure Report", "… elevated radiation levels, with counts as high as 400,000 dpm, were detected in the soils along the west wall of TAN-607 and above the sump discharge pipe. The form also notes that the physical integrity of the discharge line was confirmed when it was uncovered and that there was no visible leaking. The form indicates that there was at least one historical release of the shop's firewater system that could have carried contamination out of the shop door". It has been determined that the radiological constituents are primarily CS-137 with the balance similar to what is listed in Table 1 of the TAN-607A EE/CA. No change to AM document.*
15	S10 – Section 4.1 – Alternative 1 – Complete Removal, page 15, ==> Does not state how the common internal wall between TAN-607 and TAN-607A will be handled and/or if new walls will be required to provide protection of TAN-607 during TAN-607A DD&D Operations. This should be addressed.	*TAN-607A was added on to the northern portion (TAN-607) in 1957. The decommissioning of TAN-607A will encompass removing the addition with no effect to the northern portion of the building since TAN-607 will maintain the load bearing walls. No change to AM document.*
16	S11 – Section 4.1 – Alternative 1 – Complete Removal, page 15, ==> References the "solid inert material". What is this material to be? It is assumed that this would be some "E*ngineered Fill Material"* that would meet the intent of most compaction requirement documentation that requires a specific gradation be utilized and material is to be placed in lifts of certain height and compacted to a specific "Percentage Compaction at Optimum Moisture" {typically 85%-90% Compaction at Optimum Moisture is required for general backfill areas}. This is usually accomplished with stated hydraulic impact plate processor attachment and /or use of a vibratory sheeps-foot roller {track walking is typically not allowed as an approved compaction technique}.	*In accordance with IDAPA 58.01.06.012, "solid inert material" is defined, as any material that will retain its chemical and physical characteristics under the conditions expected to occur while being buried. This would include asphalt, concrete, soil, gravel, steel beams, rock, etc. In the case of the void space being filled after the decommissioning of TAN-607A, there are several borrow sources near the TAN facility that will be utilized. There is no requirement to achieve any compaction since no waste is being left in the ground, thus track walking will be an effective method in this case. No change to AM document.*

Comment No.	Comment/Issue	Resolution
17	S12 – Section 5.1.1.2 – Protection of Workers, page 16, 2nd paragraph ==> States in part "… *excavation activities will place employees at an increased risk to cave-in/inundation by soils and other loosely unconsolidated materials associated with this undertaking*." These are not legitimate reasons for not performing work. OSHA has specific guidance for "Excavation Shoring" and the INL has specific Excavation and Shoring MCPs in place to allow for deep excavations utilizing appropriate shoring techniques. Shoring is more expensive than open or sloped excavations but provides for less material to be excavated and assure worker safety.	*Section 5.1.1.2 is stating the potential risk to the worker during the decommissioning of TAN-607A. Properly sloped excavations and shoring have been utilized successfully at TAN during various projects. The work will be performed; at this time the method of excavation is being evaluated. No change to AM document.*
18	S13 – Section 5.1.1.2 – Protection of Workers, pages 16-17, 2nd and 1st paragraph ==> States in part "…*additionally, the excavation and handling of excavated materials (cubic yards of soil/material) would be significant due to the requirement to ascertain/maintain an angle of repose (side slope of excavation) to a maximum of 34 degrees from horizontal*." These are not legitimate reasons for not performing work. OSHA has specific guidance for "Excavation Shoring" and the INL has specific Excavation and Shoring MCPs in place to allow for deep excavations utilizing appropriate shoring techniques. Shoring is more expensive than open or sloped excavations but provides for less material to be excavated and assure worker safety.	*Section 5.1.1.2 is stating the potential risk to the worker during the decommissioning of TAN-607A. Properly sloped excavations and shoring have been utilized successfully at TAN during various projects. The work will be performed; at this time the method of excavation is being evaluated. No change to AM document*

Comment No.	Comment/Issue	Resolution
19	S14 – Section 5.1.1.2 – Protection of Workers, page 17, 3rd paragraph ==> States in part "… *Ergonomic hazards presented by the handling of equipment and building debris include lifting, reaching, repetitive motion, and the use of hand tools. Cutting and grinding would be required to remove structural steel associated with TAN-607A*." What is the specific DD&D Technical Approach for the Demolition of the TAN-607A Steel Structure? Utilize Outside Commercial DD&D Contractor that has specialized DD&D Equipment Utilize Outside Commercial Implosion Contractor that has specialized expertise {TAN-725 LOFT Exhaust Stack was demolished utilizing an Implosion Contractor} Utilizing existing INL DD&D Equipment would require extensive earth ramp configuration to allow equipment access {limited height access for tracked crawler excavators with hydraulic processing attachments} Utilize additional "Remote Equipment" that specialize in this type of application {WOPPS Reactor Containment Structures were demolished utilizing BROKK equipment that worked from the top down … INL DD&D owns a BROKK 250 that has been utilized on numerous projects} Without Stating or Knowing the preferred DD&D Technique to accomplish this work … How was the Cost Estimate done?	*The LOFT DD&D technical approach will be used as a template for portions of the TAN-607A decommissioning. Additionally, an asbestos abatement contractor will be brought on to remove the transite material on the exterior of TAN-607A. The complete cost estimate has been reviewed and approved by CWI and DOE personnel, since it contains company sensitive information it will not be made available for Public Review. No change to AM document.*
20	S15 – Section 5.2.1 – Technical Feasibility, page 18 ==> States in part "… *the deepest sump is 23 feet. To meet OSHA requirements for excavations, the excavation must be 1.5 times as wide as it is deep.*" This is NOT the only option for excavation presented by OSHA. OSHA provides many options including *Shoring* for deeper excavations, whereas the referenced 1.5 times as wide as it is deep reference is for *Non-Shored Excavations*. Deep Excavations [over 45 feet in depth are common in the industry with many being as deep as 15-stories deep for skyscrapers foundations, etc.] are technically feasible and are accomplished safely routinely in the construction industry. Standard shoring and trenching boxes eliminate the need for this 1.5 times requirement that would generate huge excavation quantities.	*Non-shored excavations would be the preferred method in the case of cask-pit sump in TAN-607A since the equipment is already staged and has been successfully utilized during the LOFT decommissioning, V-Tank project, TAN-666, TAN-616, and TAN-633. No change to AM document.*

Comment No.	Comment/Issue	Resolution
21	S16 – Section 6.1.1 – CERCLA, page 21, 3rd bullet ==> States in part "… *Lead-contaminated paint may be generated during demolition, which will be subject to the substantive requirements of RCRA hazardous waste regulations.*" Typically, lead-contaminated paint on demolition debris is handled under the "RCRA Debris Rule" and only if the lead-contaminated paint is removed from the debris itself such as in a paint striping operation does it fall under the substantive requirements of RCRA hazardous waste regulations.	*The painted surfaces, if they contain RCRA metal constituents, can be mass balanced across the total mass and thus disposed of in the ICDF or the TAN Demolition Landfill without removing the painted surfaces. Since the decommissioning of TAN-607A is to be performed under a CERCLA NTCRA, the substantive requirements of RCRA apply as an ARAR. No change to AM document.*
22	S17 – Section 6.1.1 – CERCLA, page 21, 4th bullet ==> States in part "… *Asbestos-containing material may be encountered incidental to performance of the noontime critical removal action.*" Typically, ACM is found in many building materials in facilities of this type and age {e.g. drywall taping, floor tile, roofing felt, siding, and exterior caulking materials}. ACM will be encountered.	*Much of the asbestos containing material will be removed during the deactivation and decontamination activities prior to decommissioning of TAN-607A. Change "may" to "will" in AM document.*
23	S18 – Subsection 6.1.2 – Cultural Resources, page 22 ==> States in part "… *However, the ACHP declined to participate*." What was the reasoning behind this decline by the State/Federal Agency, *Advisory Council* to participate in the Memorandum of Agreement (MOA)?	*The information the ACHP received through electronic and hard copies, along with telephone consultations, was sufficient for their needs and decisions. No change to AM document.*
24	S19 – Section 6.3 – TAN Demolition Landfill Waste Acceptance Criteria, page 26 ==> Last sentence has a font change that is inconsistent with the rest of the document.	*Font change has been corrected in AM document.*

Appendix B

Citizens Advisory Board Comments

No comments from the Citizens Advisory Board.

Appendix C

Shoshone-Bannock Tribes' Comments

No comments from the Shoshone-Bannock Tribes.