

RCRA PART B PERMIT
FOR THE
IDAHO NATIONAL LABORATORY

Volume 22
Idaho Nuclear Technology and Engineering Center
Calcined Solids Storage Facility

Attachment 1 - Section B
Facility Description

Revision Date: August 18, 2008

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B. FACILITY DESCRIPTION

B-1. General Description [IDAPA 58.01.05.012; 40 CFR 270.14(b)(1)]

1 Although, the Calcined Solids Storage Facility (CSSF) bins are not currently receiving any waste, the
2 Idaho High-Level Waste and Facilities Disposition Final Environmental Impact Statement Record of Decision
3 may select a waste treatment option that would require the use of the bin sets. This permit would allow the
4 continued use of the Bin Sets 1, 2, 3, 4, and 5 for storage and Bin Sets 6 and 7 for storage and to receive future
5 waste transfers.

6 This Hazardous Waste Management Act (HWMA)/Resource Conservation and Recovery Act (RCRA)
7 permit addresses storage of calcine (Process Code S02 – storage in tanks) located at the Idaho Nuclear
8 Technology and Engineering Center (INTEC) at the Idaho National Laboratory (INL). The CSSF includes
9 seven bin sets. The bins are functionally the same and contain calcine, which is a solid stable dry granular
10 mixed waste. The bins are described in detail in Attachment 1 - Section D of this permit.

11 The INTEC is located in the south-central portion of the INL in Butte County. The location of this
12 complex on the INL Site is shown in Exhibit B-1. The physical conditions around these buildings are typical
13 for the INL Site, approximately 5,000 ft above mean sea level, as shown on the topographic map, Exhibit B-2.
14 The area is relatively flat and receives little rainfall. However, poor drainage patterns can produce localized
15 flooding during periods of rapid snowmelt and/or heavy rainfall. Due to the lack of rainfall and the poor
16 quality of the surficial soils, the site has little agricultural value. Wind patterns are generally in a
17 northeast/southwest axis, with some seasonal variability.

18 Appendix 1 of the Part B permit application contained a drawing showing the principal culverts,
19 ditches, and storm systems, and a drawing showing the sanitary waste system at the INTEC. There are no
20 recreation areas present on or adjacent to the INTEC.

21 Bin Set 1 is contained in a rectangular reinforced concrete vault. Exhibit B-3 provides a cutaway view
22 of CSSF 1. The vault is located underground and founded on bedrock. The vault is approximately 26 ft by
23 26 ft with a height of 40 ft. The vertical walls of the vault chamber are 2 ft 6 in. thick. Overlying the base slab
24 is a 2-ft-thick concrete foundation that supports the bin radial support beams. The roof consists of three
25 panels, two of which span between the vault walls and pre-cast beams; the third panel spans between the pre-
26 cast beams.

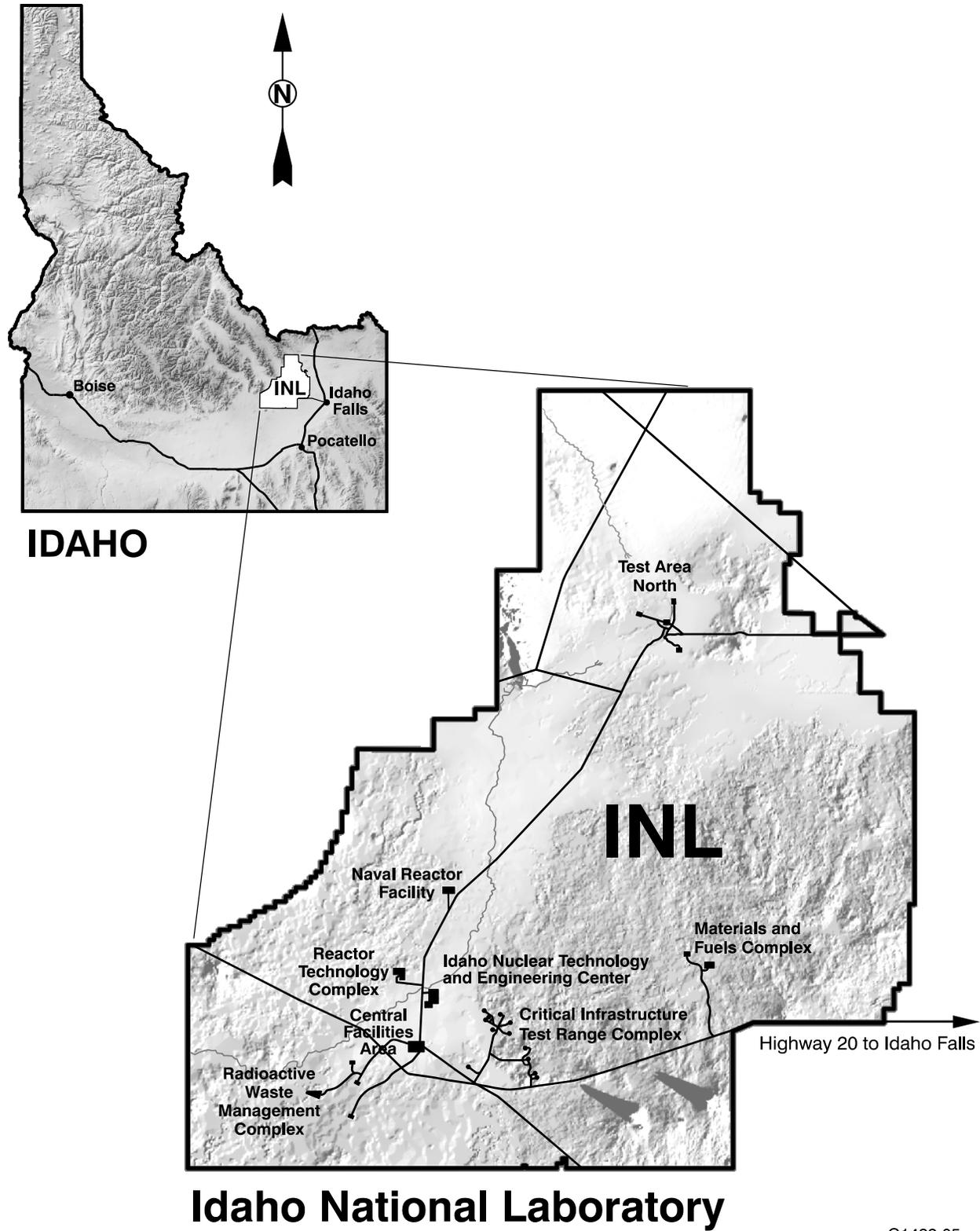


Exhibit B-1. Location of the INTEC on the INL.

G1422-05

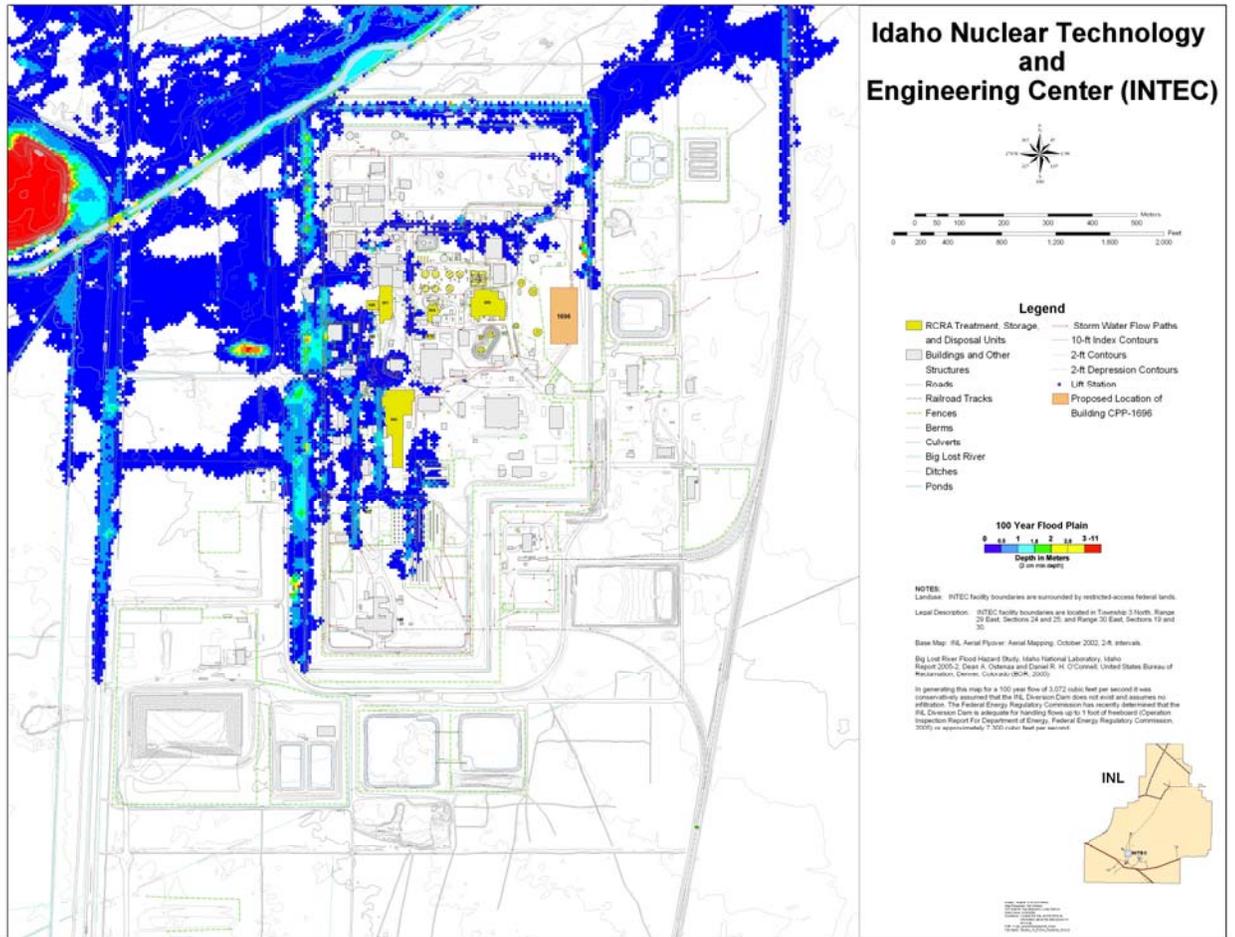
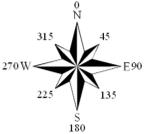


Exhibit B-2. Topographic Map of the INTEC

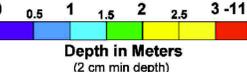
Idaho Nuclear Technology and Engineering Center (INTEC)



Legend

- RCRA Treatment, Storage, and Disposal Units
- Buildings and Other Structures
- Roads
- Railroad Tracks
- Fences
- Berms
- Culverts
- Big Lost River
- Ditches
- Ponds
- Storm Water Flow Paths
- 10-ft Index Contours
- 2-ft Contours
- 2-ft Depression Contours
- Lift Station
- Proposed Location of Building CPP-1696

100 Year Flood Plain



NOTES:
 Landuse: INTEC facility boundaries are surrounded by restricted-access federal lands.
 Legal Description: INTEC facility boundaries are located in Township 3 North, Range 29 East, Sections 24 and 25; and Range 30 East, Sections 19 and 30.
 Base Map: INL Aerial Flyover: Aerial Mapping, October 2002, 2-ft. intervals.
 Big Lost River Flood Hazard Study, Idaho National Laboratory, Idaho Report 2005-2, Dean A. Ostenaar and Daniel R. H. O'Connell, United States Bureau of Reclamation, Denver, Colorado (BOR, 2005).
 In generating this map for a 100 year flow of 3,072 cubic feet per second it was conservatively assumed that the INL Diversion Dam does not exist and assumes no infiltration. The Federal Energy Regulatory Commission has recently determined that the INL Diversion Dam is adequate for handling flows up to 1 foot of freeboard (Operation Inspection Report For Department of Energy, Federal Energy Regulatory Commission, 2005) or approximately 7,300 cubic feet per second.



Project: Volume 14 RCRA Permit
 Map Requestor: NRC
 GIS Analyst: Dan Mahan, Linda Tedrow
 Date Drawn: 6/25/2008
 Disclaimer: Contact the SAL at 526-3529 for information about the data shown on this map.
 Path: X:\gis\project\equipment_maps
 File Name: Volume_14_RCRA_Permit_v4.mxd

1 Bin Set 2 is a cylindrical, reinforced concrete vault that is founded on bedrock and encases the seven
2 bins. Exhibit B-3 provides a cutaway view of CSSF 2. The vault is located predominantly underground, with
3 earth banked up against the aboveground portion. The vault is 62 ft high with a 50-ft diameter. The vault
4 walls are constructed of reinforced concrete measuring 2 ft thick. The concrete floor slab varies in thickness
5 from 3 to 5 ft. The roof is composed of large pre-cast T-beams overlain with a field-poured concrete slab.

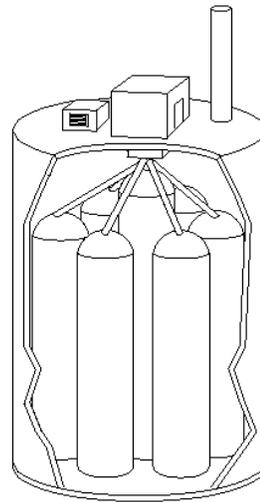
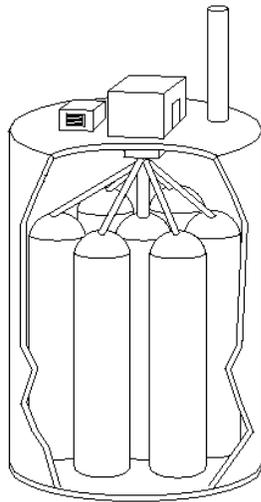
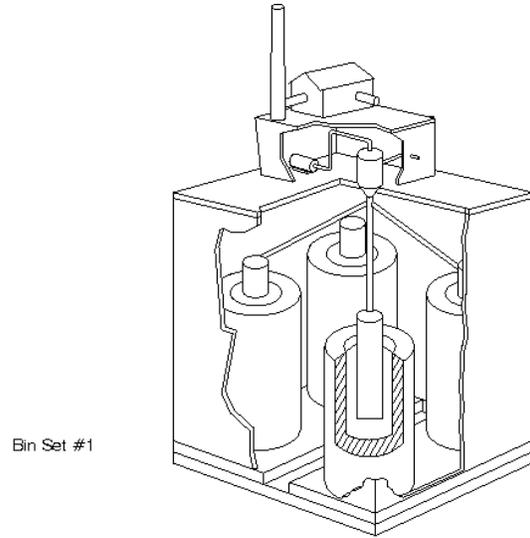
6 Bin Set 3 is contained in a vault that is 67 ft high with a 50-ft diameter and founded on bedrock.
7 Exhibit B-3 provides a cutaway view of CSSF 3. The vault is located predominantly underground with earth
8 banked up against the aboveground portion. The vault walls are constructed of reinforced concrete measuring
9 2 ft thick. The concrete floor slab varies in thickness from 3 ft to 5 ft. The roof is composed of large pre-cast
10 T beams overlain with a field-poured concrete slab.

11 Bin Set 4 is contained in a cylindrical, reinforced concrete vault that is located partially underground
12 and founded on bedrock. Exhibit B-4 provides a cutaway view of CSSF 4. The vault is approximately 70 ft
13 high and 36 ft in diameter. The vault floor is a concrete slab measuring 4 ft 6 in. thick. Vault walls are from 2
14 ft to 3 ft 6 in. thick. The roof is composed of pre-cast, reinforced concrete beams overlain with a field-poured
15 concrete slab.

16 Bin Set 5 is encased in a cylindrical, reinforced concrete vault that is founded on bedrock. Exhibit B-4
17 provides a cutaway view of CSSF 5. Approximately half of the vault is located below ground level. The vault
18 is approximately 82 ft high and 55 ft in diameter. The vault floor is a concrete slab measuring 5 ft thick. The
19 vault walls are 4 ft thick. The vault roof is overlain with a field-poured concrete slab supported by pre-cast,
20 reinforced concrete T-beams set on the vault walls.

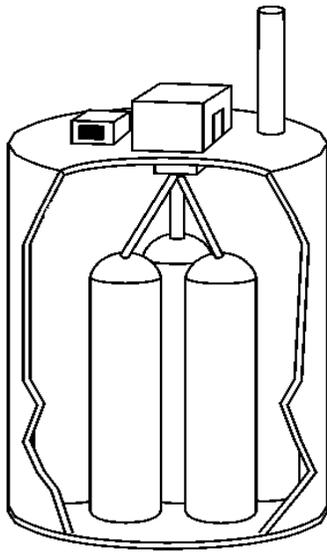
21 Bin Set 6 is contained in a cylindrical, reinforced concrete vault that is founded on bedrock.
22 Exhibit B-4 provides a cutaway view of CSSF 6. Approximately half of the vault is located below ground
23 level. The vault is approximately 93 ft high and 52 ft in diameter. The vault floor is a concrete slab measuring
24 6 ft 6 in. thick. The vault walls are 4 ft thick. Pre-cast, reinforced concrete panel forms support the vault roof
25 that is overlain with a field-poured concrete slab.

26 Bin Set 7 is contained in a cylindrical, reinforced concrete vault that is founded on bedrock.
27 Exhibit B-4 provides a cutaway view of CSSF 7. Approximately half of the vault is located below ground
28 level. The vault is approximately 94 ft high and 56 ft in diameter. The vault floor is a concrete slab measuring
29 6 ft 6 in. thick. The vault walls are 4 ft thick. Pre-cast, reinforced concrete panel forms support the vault roof
30 that is overlain with a field-poured concrete slab.

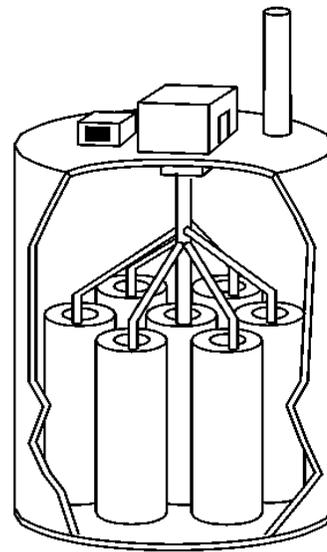


ICPPA-16027
(3-94)

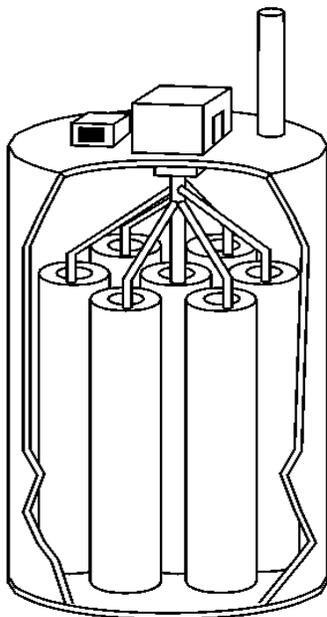
Exhibit B-3. Cut-away view of CSSFs 1, 2, and 3.



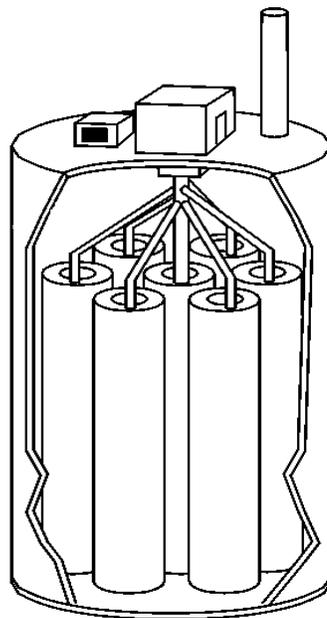
Bin Set #4



Bin Set #5



Bin Set #6



Bin Set #7

ICPP-A-16115
(3-94)

Exhibit B-4. Cut-away view of CSSFs 4, 5, 6, and 7.