



U.S. Department of Energy
Idaho Operations Office

INL Sitewide Operations and Maintenance Report for CERCLA Response Actions—FY 2006

October 2006

Idaho Cleanup Project

DOE/ID-11294
Revision 0
Project No. 23689

INL Sitewide Operations and Maintenance Report for CERCLA Response Actions—FY 2006

October 2006

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

ABSTRACT

This report documents how remedies mandated by the Comprehensive Environmental Response, Compensation, and Liability Act for the Idaho National Laboratory Site were operated and maintained during Fiscal Year 2006. The activities addressed in the *INEEL Sitewide Operations and Maintenance Plan* are reported in this document. Waste Area Groups 7 and 8 are not reported in this document. Waste Area Group 7 is an operating facility, and the status of its operations is reported directly to the regulatory agencies. Waste Area Group 8 is excluded from this report, because it falls outside the direct control of U.S. Department of Energy Idaho Operations Office.

The *INEEL Sitewide Institutional Controls Plan* discusses the inspection, maintenance, repair, and reporting activities involving institutional controls at the Idaho National Laboratory Site. Therefore, the maintenance of institutional controls is not discussed in this report.

The *Idaho National Engineering and Environmental Laboratory Comprehensive Facilities and Land Use Plan* provides a reference to support this report by providing current and projected facility and land uses and by listing the Comprehensive Environmental Response, Compensation, and Liability Act sites.

CONTENTS

ABSTRACT.....	iii
ACRONYMS.....	ix
1. INTRODUCTION/PURPOSE	1
2. WAG 1, TEST AREA NORTH	1
3. WAG 2, TEST REACTOR AREA.....	7
4. WAG 3, IDAHO NUCLEAR TECHNOLOGY AND ENGINEERING CENTER	10
5. WAG 4, CENTRAL FACILITIES AREA	10
6. WAG 5, AUXILIARY REACTOR AREA/POWER BURST FACILITY/STATIONARY LOW- POWER REACTOR NO. 1.....	15
7. WAG 6/10, BOILING WATER REACTOR EXPERIMENT/SITEWIDE CONCERNS	17
8. WAG 9, MATERIALS AND FUELS COMPLEX.....	20
9. REFERENCES	24

FIGURES

1. INL Site map showing WAG locations	2
2. O&M inspection log for WAG 1, 2006	3
3. TSF-06, Area B Soil Contamination Area, looking southeast, 2006	4
4. TSF-26, PM-2A Area, looking west, 2006	4
5. TSF-09 & 18, V-Tanks Site, looking west, 2006.....	4
6. WRRTF-01, Burn Pits II and IVa, looking southeast, 2006	4
7. TSF-07, disposal pond, looking west, 2006.....	4
8. TSF-06 GPRS radiological survey, 2006.....	5
9. TSF-07 GPRS radiological survey, 2006.....	5
10. TSF-26 GPRS radiological survey, 2006.....	6
11. O&M inspection log for WAG 2, 2006	8
12. TRA-03 Warm Waste Pond, 2006	8

13. TRA-06, Chemical Waste Pond, 2006.....	8
14. TRA-13 Sewage Leach Pond, 2006.....	9
15. TRA-03 GPRS radiological survey, 2006.....	9
16. TRA-13 GPRS radiological survey, 2006.....	10
17. O&M inspection log for WAG 4, 2006	12
18. CFA Landfill 1, 2006.....	12
19. CFA Landfill 2, 2006.....	12
20. CFA Landfill 3, at area of former subsidence, 2006.....	13
21. CFA Landfill 3, example of small hole, 2006.....	13
22. CFA-08, Sewage Plant Drainfield, 2006	13
23. O&M inspection log for WAG 5, 2006	15
24. ARA 23 area looking easterly, 2006.....	16
25. ARA 23 area looking southerly, 2006	16
26. ARA 23 area looking southerly, 2006	16
27. ARA 23 area looking westerly, 2006.....	16
28. ARA-23 Annual Perimeter Survey, Log 1472 LE 08/22/2006.....	17
29. O&M inspection log for WAG 6, 2006	18
30. Borax-1 Burial Ground, 2006	19
31. BORAX-01 Burial Ground Annual Perimeter Survey, Log 1472 LE, 08/16/2006	19
32. O&M inspection log for WAG 9, 2006	21
33. ANL-01, looking southeast, 2006.....	22
34. ANL-04, North Pond, looking north, 2006.....	22
35. ANL-04, South Dry Pond, looking south, 2006.....	22
36. ANL-04, South Pond, looking east, 2006	22
37. ANL-09, Mound and Canal, looking north, 2006.....	22
38. Radiological Survey for WAG 9, 2006.....	23

TABLES

1. TSF-07, Historical Results of in situ gamma scans	6
2. CFA-01 Landfill Topographical Survey results, 2006.....	13
3. CFA-08 FY 2006 radiological survey summary statistics	14

ACRONYMS

ARA	Auxiliary Reactor Area
BORAX	Boiling Water Reactor Experiment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Central Facilities Area
FY	fiscal year
GPRS	global positioning radiometric scanner
INL	Idaho National Laboratory
O&M	operations and maintenance
OU	operable unit
SCA	soil contamination area
SL-1	Stationary Low-Power Reactor No. 1
TRA	Test Reactor Area ^a
TSF	Technical Support Facility
WAG	waste area group
WRRTF	Water Reactor Research Test Facility

a. The former Test Reactor Area is now named the Reactor Technology Complex.

INL Sitewide Operations and Maintenance Report for CERCLA Response Actions—FY 2006

1. INTRODUCTION/PURPOSE

This report documents how remedies mandated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC 9601 et seq.) for the Idaho National Laboratory (INL) Site were operated and maintained during Fiscal Year (FY) 2006. Various records of decision have mandated specific activities intended to ensure that the remedies remain protective of human health and the environment after remedial activities are completed.

At the INL Site:

1. There are 10 WAGS covering roughly 890 square miles (see Figure 1). CERCLA sites within each WAG are listed in the *Idaho National Engineering and Environmental Laboratory Comprehensive Facilities and Land Use Plan* (DOE-ID 1996).
2. Each WAG is comprised of several operable units (OUs), each of which contains cercla sites that will require either no action, the use of institutional controls, or remediation, as outlined within various documents approved by regulatory agencies.
3. The institutional (or access) controls for each site are outlined within The *INEEL Sitewide Institutional Controls Plan* (DOE ID 2006a). Institutional control reporting is outside the scope of this report.
4. Operations and maintenance controls for each site, which generally include inspection for growth in revegetated areas, soil subsidence, soil erosion, animal intrusion, the extent of weed in-growth, and radiation surveys, are provided within the *INEEL Sitewide Operations and Maintenance Plan for CERCLA Response Actions* (DOE-ID 2006b) as reported herein.
5. The WAG 7 Radioactive Waste Management Complex is an operational facility; its O&M reports are sent directly to the appropriate regulatory agencies by the current WAG 7 site contractor, and are not included within this report.
6. The WAG 8 Naval Reactors Facility operates outside the purview of the U.S. Department of Energy; its O&M reporting is not included within this report.

The INL site 2006 Sitewide O&M inspections as outlined above were conducted on July 6 and August 24, 2006.

2. WAG 1, TEST AREA NORTH

WAG 1 sites were addressed under records of decision for OU 1-07B and OU 1-10. The operations and maintenance activities at OU 1-07B are ongoing, pertain to its day-to-day operations, and are (for the New Pump and Treat Facility, NPTF) submitted directly to the regulatory agencies in annual operations reports. In the early summer of 2005, operations ceased at the New Pump and Treat facility. OU 1-10 consists of five currently inspected sites in the TAN area, including TSF-06, TSF-07, TSF-26, TSF-09/18, and WRRTF-01. Figures 2 through 10 provide the WAG 1 inspection log, documenting photos, and radioactive survey results for FY 2006.

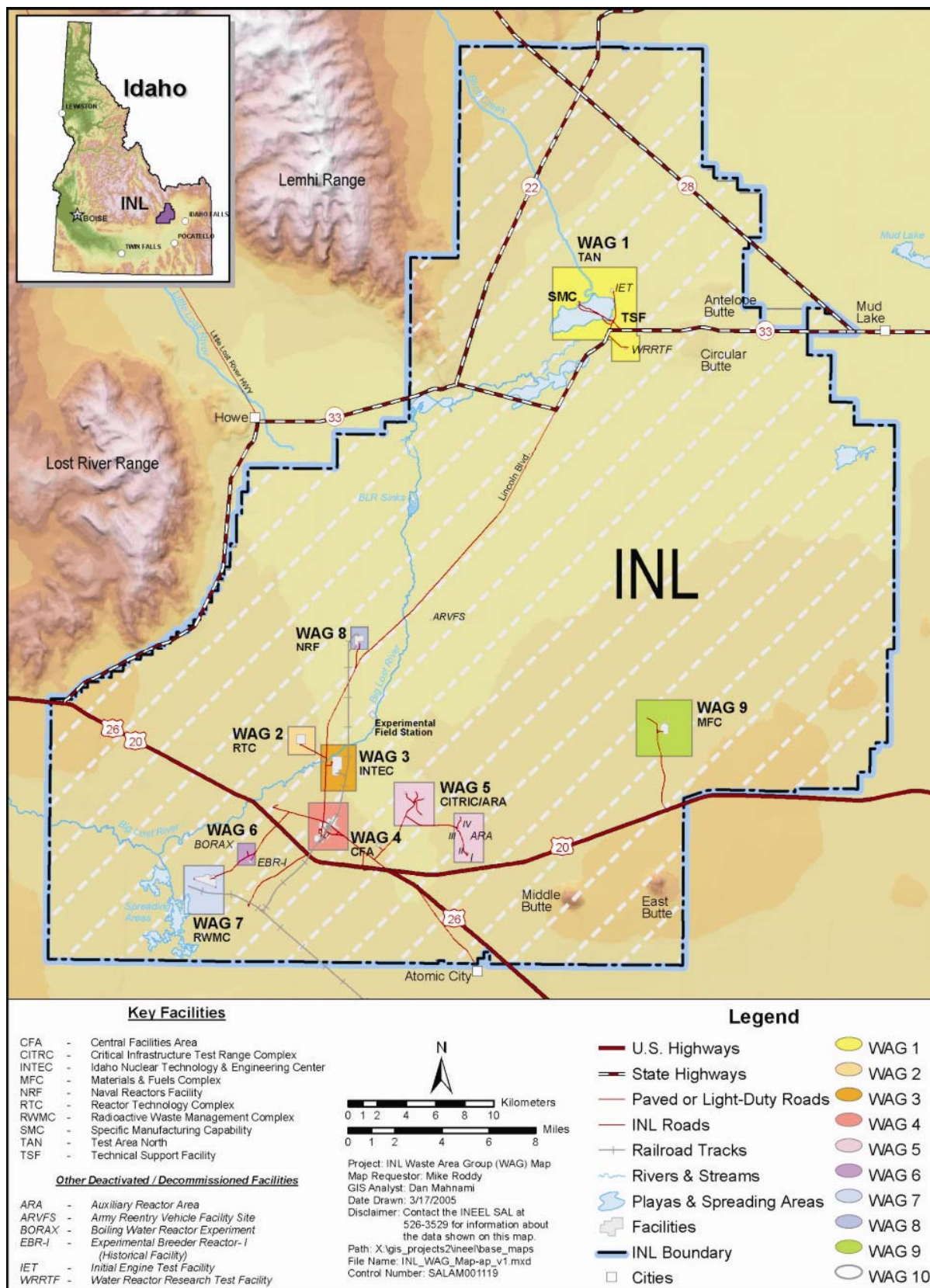


Figure 1. INL Site map showing WAG locations.

Waste Area Group 1 Operations and Maintenance Inspection Log and Map						
Inspection Activity at WAG 1	TSF-06 Area B	TSF-07	TSF-26	TSF-09/18	WRRTF-01 Pits II and IV	Comments/Recommended Repair
<u>Vegetative Cover</u>						
1. Inspect for non-growth/sparse growth/weeds.	X	N/A	X	*	X	Generally sparse growth except at WRRTF where growth is good
<u>Soil Cover</u>						
1. Inspect for erosion areas/animal intrusion.	X	N/A	X	*	X	No apparent erosion, minimal animal intrusion
2. Inspect for subsidence areas or slope movement.	X	N/A	X	*	X	No apparent subsidence or slope movement
<u>General Condition of Site</u>						
1. Inspect for erosion areas/animal intrusion.	X	N/A	X	*	X	No apparent erosion, minimal animal intrusion
2. Inspect for subsidence areas.	X	N/A	X	*	X	No apparent subsidence
<u>Perimeter Radiological Survey</u>						
1. Perform perimeter radiological survey.	N/A	X	N/A	*	N/A	Results included in document
Comments:						
TSF-03 is no longer a CERCLA site since remedial action was completed in 2004. The Idaho Cleanup Project revegetation coordinator will monitor revegetation annually. Contact 526-9296.						
TSF-06 and TSF-26 did not require revegetation under the completed remedial action.						
*TSF-09/18 is inaccessible due to ongoing D&D work within the area, and therefore it was not inspected.						
Environmental monitoring at WAG 1 for windblown contamination has been discontinued following the 5-year review.						
Inspected by: Blake Maxfield and Brett Olaveson			Date: 6 July 2006			

Figure 2. O&M inspection log for WAG 1, 2006.



Figure 3. TSF-06, Area B Soil Contamination Area, looking southeast, 2006.



Figure 4. TSF-26, PM-2A Area, looking west, 2006.



Figure 5. TSF-09 & 18, V-Tanks Site, looking west, 2006.



Figure 6. WRRTF-01, Burn Pits II and IVa, looking southeast, 2006.



Figure 7. TSF-07, disposal pond, looking west, 2006.

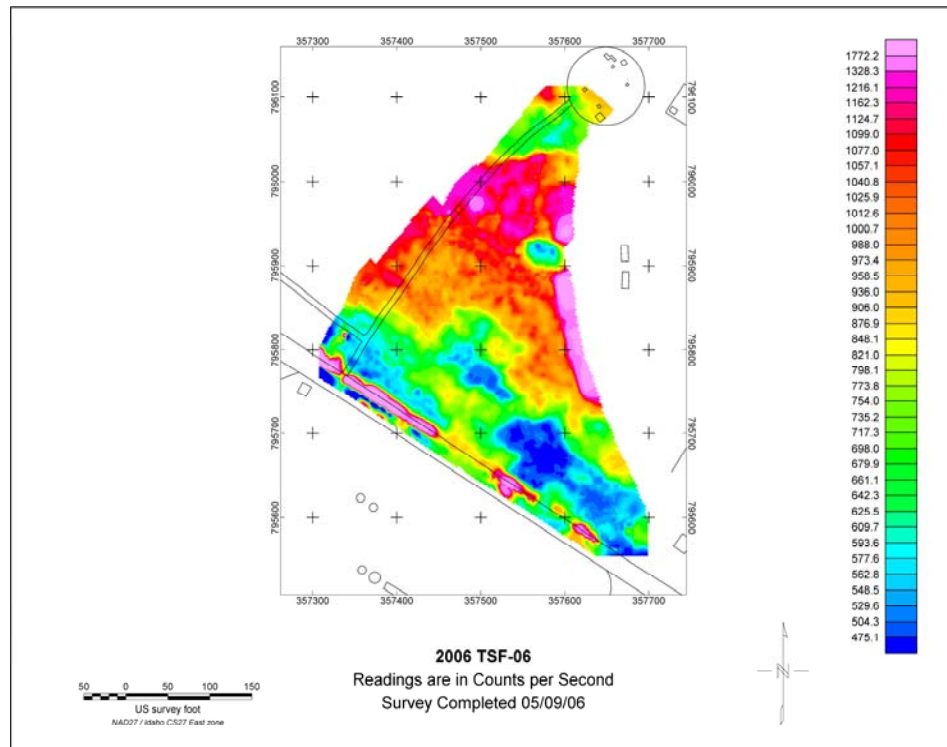


Figure 8. TSF-06 GPRS radiological survey, 2006.

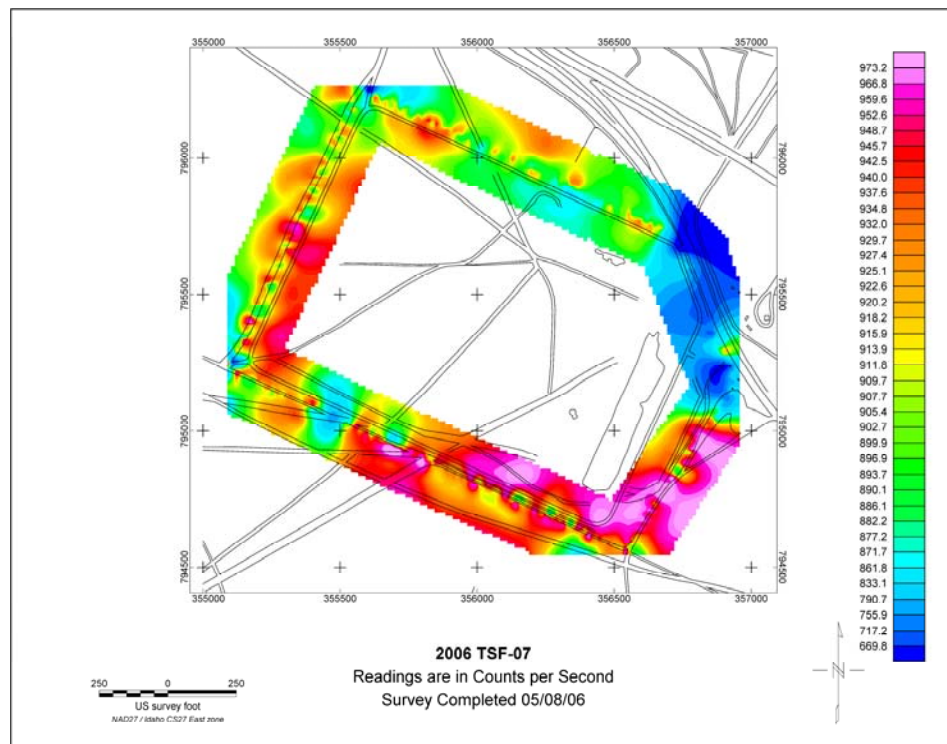


Figure 9. TSF-07 GPRS radiological survey, 2006.

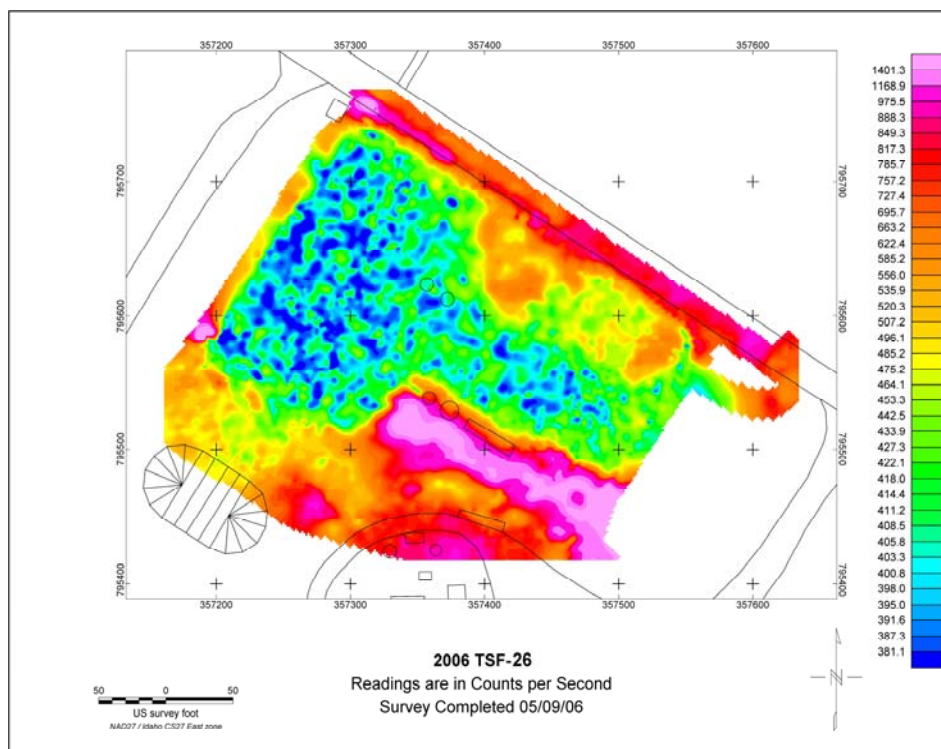


Figure 10. TSF-26 GPRS radiological survey, 2006.

For comparison purposes, results of the annual TSF-07 perimeter scans between 2001 and 2006 are given in Table 1. The data indicate relatively stable yet declining levels of radioactivity for the collective site perimeter.

Table 1. TSF-07, Historical Results of in situ gamma scans.

Year	Minimum Value (cps)	Maximum Value (cps)	Mean Value (cps)
2001	450	1250	1042
2002	433	1117	942
2003	367	1025	867
2004	481	1079	943
2005	392	1037	887
2006	447	1026	873

In summary, the WAG 1 sites requiring O&M can has been found to have sparse to good vegetative growth, with no apparent erosion, subsidence, or evidence of significant small animal intrusion. In addition, in situ radiological surveys showed relatively stable yet declining radioactivity levels and provide the location of relative hot spots within WAG 1 radiation contamination areas.

3. WAG 2, TEST REACTOR AREA

WAG 2 consists of four sites: TRA-03, associated with the warm waste pond; TRA-06, associated with the chemical waste pond; TRA-13, associated with the sewage leach pond; and TRA-13 SCA, associated with the sewage leach-pond soil contamination area. Figures 11 through 14 show the 2006 WAG 2 Inspection Log and photographs.

Waste Area Group 2 Operations and Maintenance Inspection Log and Map

O&M Inspection Activity at TRA	TRA-03	TRA-06	TRA-13	TRA-13 SCA	Comments/Recommended Repair
--------------------------------	--------	--------	--------	------------	-----------------------------

Revegetated Areas

1. Inspect for non-growth areas.	NA	X	X	X	Vegetation not growing particularly well
2. Inspect for non-sparse growth areas.	X	X	X	X	Vegetation sparse at all sites
3. Inspect for weed encroachment.	X	X	X	X	Minimal weed encroachment

Native Soil Cover

1. Inspect for erosion areas/animal intrusion.	N/A	X	X	X	Evidence of small animals
2. Inspect for subsidence areas or slope movement.	N/A	X	X	X	No apparent subsidence or movement
3. Conduct topographical survey.	N/A	N/A	N/A	N/A	Topographical survey not required

Perimeter of Radiological Survey

1. Perform perimeter radiological survey.	N/A	X	N/A	N/A	Perimeter survey at TRA-13 not required because surface survey covers the entire area
---	-----	---	-----	-----	---

Radiological Survey of Surface of Soil Cover

1. Perform surface radiological survey.	X	N/A	X	X	See document figures for results
---	---	-----	---	---	----------------------------------

Waste Area Group 2 Operations and Maintenance Inspection Log and Map

O&M Inspection Activity at TRA	TRA-03	TRA-06	TRA-13	TRA-13 SCA	Comments/Recommended Repair
--------------------------------	--------	--------	--------	------------	-----------------------------

Riprap Barrier

1. Inspect for erosion areas.	X	N/A	N/A	N/A	No apparent erosion
2. Inspect for subsidence areas.	X	N/A	N/A	N/A	No apparent subsidence
3. Inspect for biological intrusion.	X	N/A	N/A	N/A	Evidence of rabbits and mice within the area
4. Inspect for effectiveness of surface water run-off.	X	N/A	N/A	N/A	No apparent problem with run-off

Additional Comments or Notes:

TRA-03 is the warm waste pond. Perimeter is vegetated. Cover is riprap.	
TRA-06 is the chemical waste pond.	
TRA-13 is the sewage leach ponds.	
TRA-13 SCA is the soil contamination area surrounding the leach ponds.	
Inspected by: Blake Maxfield and Brett Olaveson	Date: 6 July 2006

Figure 11. O&M inspection log for WAG 2, 2006.



Figure 12. TRA-03 Warm Waste Pond, 2006.



Figure 13. TRA-06, Chemical Waste Pond, 2006.



Figure 14. TRA-13 Sewage Leach Pond, 2006.

Radiological surveys based on in situ gamma scanning techniques for TRA-03 and TRA-13 are shown in Figures 15 and 16.

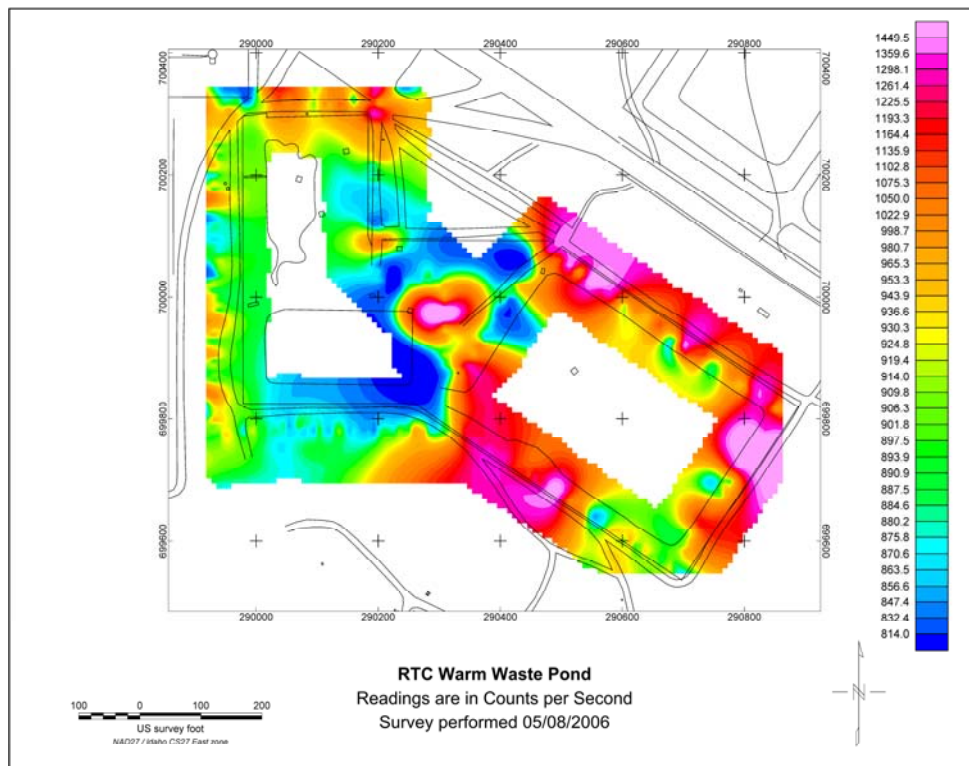


Figure 15. TRA-03 GPRS radiological survey, 2006.

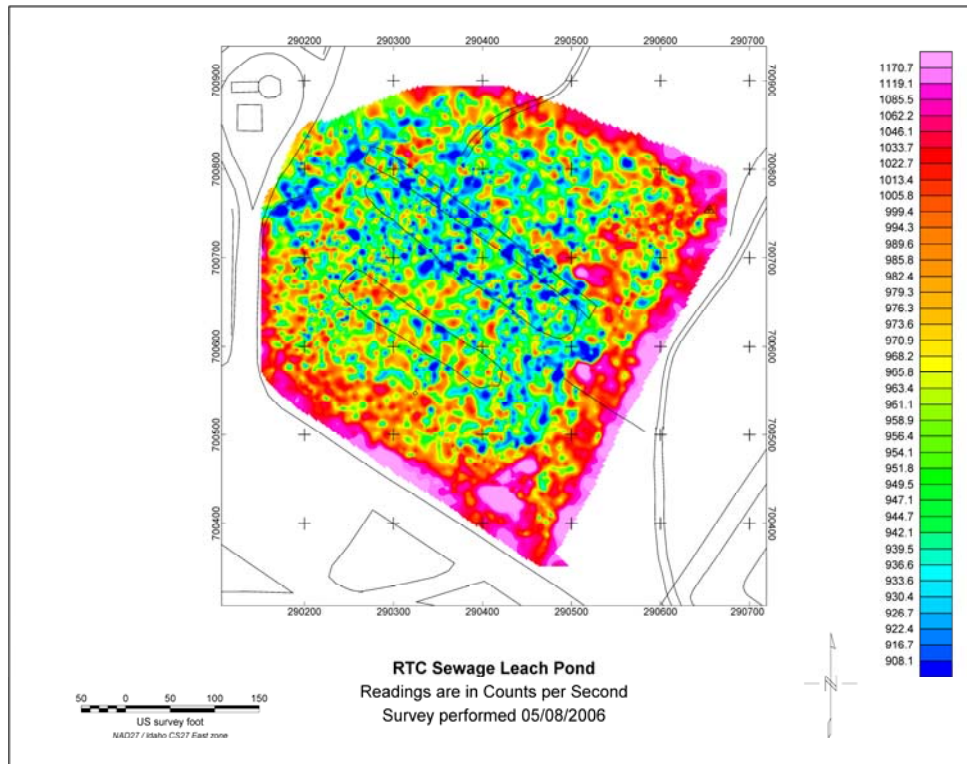


Figure 16. TRA-13 GPRS radiological survey, 2006.

In summary, the WAG 2 O&M inspections have revealed generally sparse vegetative growth, minimal weed encroachment, no apparent erosion or subsidence, but some evidence of small animal intrusion. And although the riprap barrier at TRA-03 showed signs of small animal encroachment, there was no apparent indication of surface-water runoff problems. In addition, the radiological surveys when compared with those of previous years indicate relatively stable yet declining levels of radioactivity as would be expected due to effects of radioactive decay.

4. WAG 3, IDAHO NUCLEAR TECHNOLOGY AND ENGINEERING CENTER

WAG 3 is subject to the *Final Record of Decision–Idaho Nuclear Technology and Engineering Center, Operable Unit 3-13* (DOE-ID 1999). Currently, no CERCLA O&M activities are defined at WAG 3. Tank farm inspections are required but are currently reported in a separate report. As remedial activities evolve at WAG 3, O&M requirements will be reevaluated.

5. WAG 4, CENTRAL FACILITIES AREA

WAG 4 consists of four sites: CFA-01 landfill, CFA-02 landfill, CFA-03 landfill, and the CFA-08 Sewage Plant Drainfield. Figures 17 through 22 show the 2006 WAG 4 Inspection Log and photographs.

The photograph in Figure 20 was taken in the CFA-03 landfill where subsidence had been reported and repaired in 2004. And although a few small holes were found within the surface of this landfill (see Figure 21), the site appears generally stable. But because subsidence had been reported and repaired in 2004, Table 2 provides a comparison of its measured elevations corresponding with a calculated maximum subsidence from average grade elevation of 2.25 inches.

Waste Area Group 4 Operations and Maintenance Inspection Log and Map

Inspection Activity at Landfills	CFA-01	CFA-02	CFA-03	Comments/Recommended Repair
----------------------------------	--------	--------	--------	-----------------------------

Vegetative Cover

1. Inspect for non-growth/sparse growth/weeds.	X	X	X	Vegetative cover looks good on all three landfills, although some thistle is present
--	---	---	---	--

Soil Cover

1. Inspect for erosion areas/animal intrusion.	X	X	X	A few visible signs of small animal burrows
2. Inspect for subsidence areas or slope movement.	X	X	X	No apparent subsidence or slope movement
3. Conduct topographical survey.	N/A	N/A	X	Only CFA-03 had been found to have subsidence, so it alone was required to have a topographical survey.

Time-Domain Reflectometer (TDR)

1. Inspect cabinet interior for unusual dirt or debris.	X	X	X	TDR cabinets appear to be in good condition
2. Inspect exterior and interior of cabinet for deterioration and presence of moisture or water.	X	X	X	TDR cabinets appear to be in good condition
3. Inspect solar collector barrel for condition/function.	X	X	X	TDR cabinets appear to be in good condition
4. Inspect and verify presence of guard post and/or impingement posts.	X	X	X	TDR cabinets appear to be in good condition

Soil Gas Wells and Neutron Probe Access Tubes (NPATs)

1. Inspect for integrity/cleanliness.	X	X	X	All appear to be in good condition
3. Inspect rust on cover and well casing damage.	X	X	X	All appear to be in good condition
4. Inspect guard posts around well cover.	X	X	X	All appear to be in good condition

Rock Armor

1. Inspect to verify no more than 12 in. of subsidence of rock armor.	N/A	X	N/A	No apparent subsidence
2. Conduct topographical survey.	During 5-year review		N/A	No apparent subsidence, so topographical survey wasn't required

Additional Comments or Notes:

NOTE: Topographical survey is required in 2006 at CFA-03 for the area of subsidence reported in 2004 only.

Waste Area Group 4 Operations and Maintenance Inspection Log and Map

O&M Inspection	CFA-08	Comments/Recommendations
1. Document no excavations or drilling.	X	No apparent excavations or drilling
2. Inspect vegetation for sparse growth.	X	Vegetation appears to be doing well
3. Inspect vegetation for weed encroachment.	X	Minimal weed encroachment
4. Inspect vegetation for non-growth.	X	No apparent areas of non-growth
5. Inspect for erosion.	X	No apparent erosion
6. Inspect for subsidence.	X	No apparent subsidence
7. Inspect for animal intrusion.	X	Evidence of small animal burrows
8. Inspect permanent markers.	X	Done, they appear to be in good condition
9. Conduct radiological survey.	N/A	5-year review only

Additional Comments or Notes:

Inspected by: Blake Maxfield and Brett Olaveson	Date: 6 July 2006
---	-------------------

Figure 17. O&M inspection log for WAG 4, 2006.



Figure 18. CFA Landfill 1, 2006.



Figure 19. CFA Landfill 2, 2006.



Figure 20. CFA Landfill 3, at area of former subsidence, 2006.



Figure 21. CFA Landfill 3, example of small hole, 2006.



Figure 22. CFA-08, Sewage Plant Drainfield, 2006.

Table 2. CFA-03 Landfill Subsidence check calculations, 2006.

Sampling Data-Reference	Elevation (ft)	
66	4,945.21	One of four at-grade elevations around area of subsidence
67	4,945.60	One of four at-grade elevations around area of subsidence
68	4,945.52	One of four at-grade elevations around area of subsidence
69	4,945.22	One of four at-grade elevations around area of subsidence
	4,945.39	Average of four at-grade elevations around area of subsidence
80	4,945.20	Lowest point in the area of subsidence
	0.19	Depth of area of subsidence from average grade elevation (ft)
	2.25	Depth of area of subsidence from average grade elevation (in.)

A radiological survey of the engineered cover at the CFA-08 Sewage Plant Drainfield site was conducted on July 5 and 6, 2006. This radiological survey was conducted in accordance with the *Operations and Maintenance Plan for the Final Selected Remedies and Institutional Controls at Central Facilities Area, Operable Unit 4-13* (DOE-ID 2004). The radiological survey was conducted to assess the effectiveness of the engineered cover in containing the radiological contamination, primarily Cs-137, in the drainfield. Results are given in units of pCi/g (see Table 3).

Table 3. CFA-08 radiological survey summary statistics, FY 2006.

Number of data points	2831
Minimum concentration	-0.9 \pm 2.3 pCi/g (Non-detect)
Maximum concentration	3.7 \pm 2.1 pCi/g (Non-detect)

The results of the survey indicate an absence of Cs-137 activity above background in the surface soils of the CFA-08 drainfield cover.

In summary, the WAG 4 O&M inspections have disclosed generally good vegetative growth with minimal weed encroachment, little apparent erosion or subsidence, and some evidence of small animal intrusion. In addition, the radiological survey at the CFA-08 sewage plant drainfield essentially indicated Cesium-137 concentrations at below detection limits.

6. WAG 5, AUXILIARY REACTOR AREA/POWER BURST FACILITY/STATIONARY LOW-POWER REACTOR NO. 1

WAG 5 consists of sites ARA-01, 02, 06, 12, 16, 23, and 25, located within the Auxiliary Reactor Area. ARA-06 is also known as the SL-1 burial ground. Figures 23 through 27 provide the 2006 inspection log and documenting photographs for these WAG 5 areas.

Waste Area Group 5 Operations and Maintenance Inspection Log and Map							
Inspection Activity at ARA and PBF	ARA-01	ARA-02	ARA-06	ARA-12	ARA-16	ARA-23	ARA-25
<u>Revegetated Areas</u>							
1. Inspect for intrusion.	X	X	X	X	X	X	X
2. Inspect vegetative cover.	X	X	X	X	X	X	X
<u>Environmental Monitoring</u>							
1. Radiological survey of site perimeter at 5-year review.	N/A	N/A	By Radcon	N/A	N/A	N/A	N/A
O&M Inspection Activity at SL-1		SL-1 Burial Ground		Comments/Recommended Repair			
<u>Biotic Barrier</u>							
1. Inspect for erosion and intrusion.	X		Biotic barrier is in good condition, no intrusions noted				
2. Inspect cover for settling and erosion.	X		No apparent settling or erosion				
<u>Riprap Barrier</u>							
1. Inspect for erosion and intrusion.	X		No apparent erosion or intrusion				
2. Inspect cover for settling and erosion.	X		No apparent settling or erosion				
<u>Perimeter of Radiological Survey</u>							
1. Perform perimeter radiological survey.	X		Survey performed by Rad-con				
Comment or Notes:							
Annual monitoring for heavy metals at ARA has been discontinued. Radiological monitoring at ARA-06 is to be performed during the 5-year review only.							
There are no O&M activities at PBF.							
Within revegetated areas, there were no apparent intrusions and the vegetative cover was growing well							
Inspected by: Blake Maxfield and Brett Olaveson				Date: 24 August 2006			

Figure 23. O&M inspection log for WAG 5, 2006.



Figure 24. ARA 23 area looking easterly, 2006.



Figure 25. ARA 23 area looking southerly, 2006.



Figure 26. ARA 23 area looking southerly, 2006.



Figure 27. ARA 23 area looking westerly, 2006.

[illegible]

In summary, the WAG 5 O&M inspections have disclosed generally good vegetative growth with no apparent erosion, subsidence, or small animal intrusion. In addition, the radiological readings at the boundary of the ARA-23 area which encompasses the SL-1 burial ground were in the range of from 7 to 10 microrem/hr.

7. WAG 6/10, BOILING WATER REACTOR EXPERIMENT/SITEWIDE CONCERNS

WAG 6 consists of one site, the Borax-1 Burial Ground. The 2006 O&M Inspection log, photograph, and radiological perimeter survey are provided in Figures 29 through 31.

Waste Area Group 6/10 Operations and Maintenance Inspection Log and Map		
O&M Inspection Activity at Boiling Water Reactor Experiment (BORAX)	BORAX Burial Ground	Comments/Recommended Repair
<u>Biotic Barrier</u>		
1. Inspect for erosion and intrusion.	X	Small animal burrows were seen
2. Inspect cover for settling and erosion.	X	No apparent settling or erosion
<u>Riprap Barrier</u>		
1. Inspect for erosion and intrusion.	X	No apparent barrier erosion or intrusion
2. Inspect cover for settling and erosion.	X	No apparent settling or erosion
<u>Perimeter of Radiological Survey</u>		
1. Perform perimeter radiological survey.	X	Done by Radcon
Comment or Notes: None		
Inspected by: Blake Maxfield and Brett Olaveson	Date: 6 July 2006	

Figure 29. O&M inspection log for WAG 6, 2006.



Figure 30. Borax-1 Burial Ground, 2006.

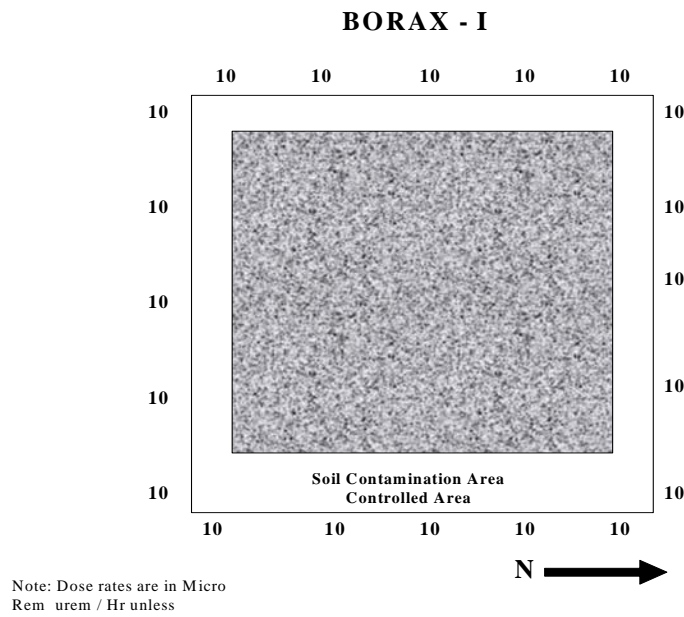


Figure 31. BORAX-01 Burial Ground Annual Perimeter Survey, Log 1472 LE, 08/16/2006, units are microrem per hour.

In summary, the WAG 6 O&M inspections have disclosed generally good vegetative growth with minimal weed encroachment, no apparent erosion or subsidence, and some evidence of small animal intrusion. In addition, the radiological readings at the boundary of the Borax-23 area were uniformly reading 10 microrem/hr.

8. WAG 9, MATERIALS AND FUELS COMPLEX

Two CERCLA sites at the Materials and Fuels Complex^b require O&M reporting. These areas are the industrial waste pond (ANL-01) and the interceptor canal (ANL-09). The ANL-09 site has been further subdivided into the interceptor canal-ditch and the interceptor canal-mound because of the distinct differences in the soil in the ditch and the dredged and stockpiled soil of the mound. These three areas have radiological contamination from Cs-137. The contamination levels are below the action level but greater than the background level. All three sites have institutional controls in place; specifically, warning signs are visible around the site perimeters. The interceptor canal-mound and the area above the high water mark in the industrial waste pond were seeded in the fall of 2004 and were inspected in October 2005 to determine the effectiveness. The first year's growth was evaluated and the study recommended further evaluation and assessment during August/September 2006. The interceptor canal-canal was not revegetated, because it continues to be used to convey rain and snowmelt from a 14-square-mile area south of the Materials and Fuels Complex to the industrial waste pond.

Additionally, the sanitary sewage lagoon (ANL-04) is a CERCLA site that presents an ecological risk due to mercury levels in the sludge. The remediation of this site has been transferred to OU 10-08. Final remediation will be conducted after the useful life of the sanitary sewage lagoons, which is anticipated to be in 2033. If the OU 10-08 baseline risk assessment shows that the human and ecological risks are acceptable, remediation might not be required. Currently, the risk from the mercury is mitigated by ensuring that the liquid level in the lagoon covers the sludge. This eliminates the exposure pathway to the small burrowing mammals. In 2006, the liquid level was inspected by environmental monitoring staff during monthly effluent sampling events. The liquid level at ANL-04 was found to be protective in 2006. Additionally, the lagoons are fenced and appropriate signage exists.

The 2006 O&M Inspection log, photographs, and radiological perimeter survey for WAG 9 are provided in Figures 32 through 38.

^b .The former Argonne National Laboratory-West is now named the Materials and Fuels Complex.

Waste Area Group 9 Operations and Maintenance Inspection Log				
Inspection Activity at WAG 9	ANL-01	ANL-04	ANL-09	Comments/Recommended Repair
<u>Revegetation</u>				
1. Inspect revegetative growth.	X	NA	X	Generally good growth with moderate weed infringement.
<u>Sanitary Sediment</u>				
1. Ensure sediments in North pond were covered with liquid.	NA	X	NA	Sufficient effluent level exists to prevent exposure of small burrowing animals to the sediments in the North pond.
<u>Site Radiological Survey</u>				
1. Perform radiological survey.	X	NA	X	No survey readings above 23 pCi/g Cs-137
Comments:				
Inspected by: Blake Maxfield and Brett Olaveson			Date: 25 July 2006	

Figure 32. O&M inspection log for WAG 9, 2006.



Figure 33. ANL-01, looking southeast, 2006.



Figure 34. ANL-04, North Pond, looking north, 2006.



Figure 35. ANL-04, South Dry Pond, looking south, 2006.



Figure 36. ANL-04, South Pond, looking east, 2006.



Figure 37. ANL-09, Mound and Canal, looking north, 2006.

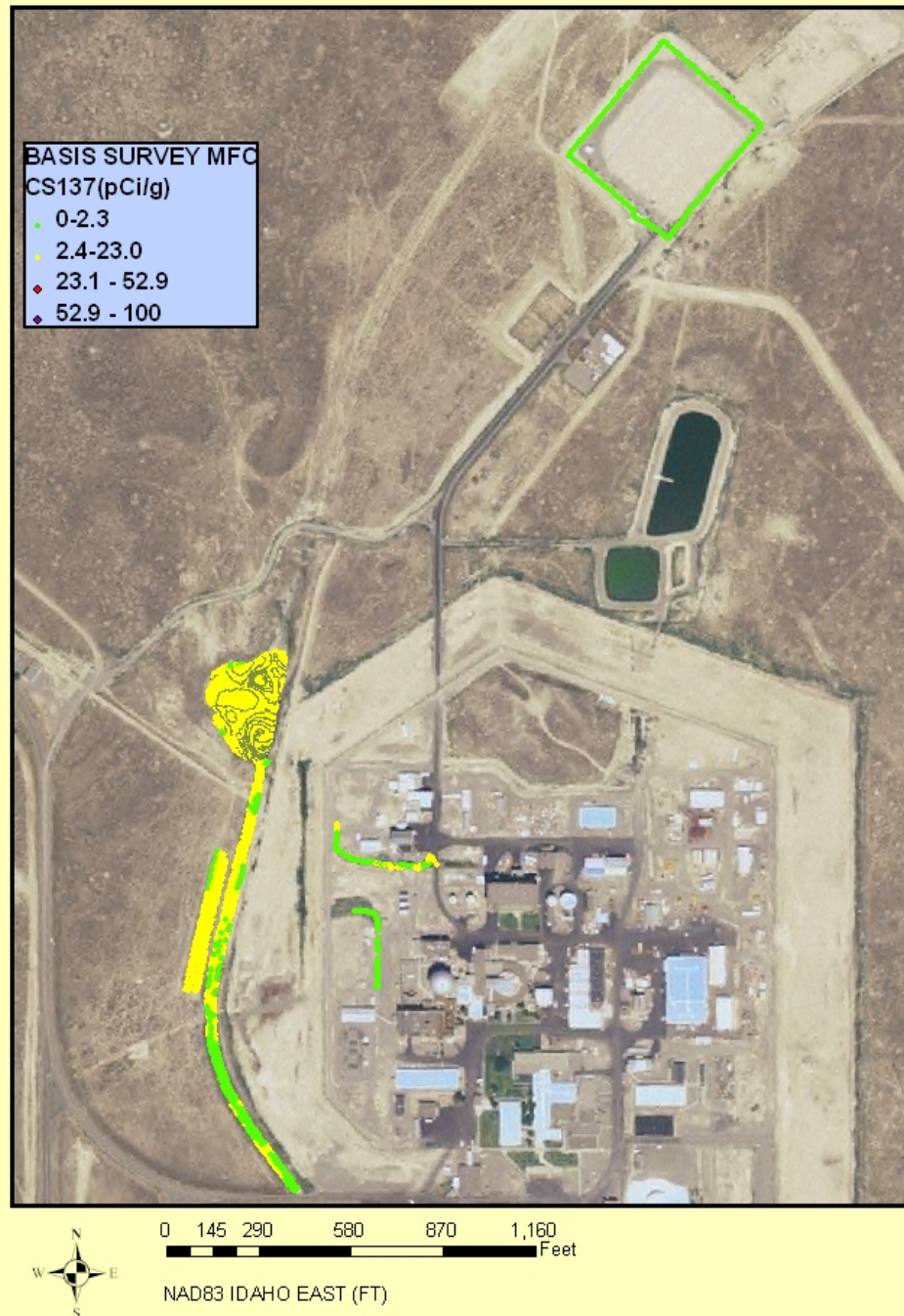


Figure 38. Radiological Survey for WAG 9, 2006.

In summary, the WAG 9 O&M inspections have disclosed generally good vegetative growth with minimal weed encroachment. Fences and signs appear to be in good condition, and contamination levels are below the action level (23 pCi/g) but greater than the background level.

9. Overall Summary

Sitewide O&M inspections applicable to most of the INL Site were conducted on July 6 and August 24, 2006. Applicable inspections for two WAGs, 7 and 8, representing the Radioactive Waste Management Complex and the Naval Reactors Facilities respectively, were conducted by the cognizant contractor and are not included within this report.

The general scope and purpose of the annual O&M inspections, which are prescribed within the *INEEL Sitewide Operations and Maintenance Plan for CERCLA Response Actions* (DOE-ID 2006b), is primarily to visually confirm each site for hardness of growth in revegetated areas, extent of weed in-growth, and evidence of soil subsidence, soil erosion, and animal intrusion. In addition, radiation surveys are performed at site boundary perimeters and over site covers.

Overall, the CERCLA sites covered by these inspection activities are in good condition. And—although these inspection activities showed a few areas of weak revegetation, small animal burrows, weeds, and very minor subsidence—site areas were generally found to be in good condition. In addition, direct-radiation readings and in situ gamma-scan concentrations of Cesium-137 were shown to be stable or diminishing.

10. REFERENCES

42 USC 9601 et seq., 1980, “Comprehensive Environmental Response, Compensation and Liability Act of 1980,” *United States Code*, December 11, 1980.

DOE-ID, 1996, *Idaho National Engineering and Environmental Laboratory Comprehensive Facility and Land Use Plan*, DOE/ID-10514, Rev. 0, U.S. Department of Energy Idaho Operations Office, March 1996. (NOTE: This version contains official use only information. It is available internally at <http://meris.inel.gov>. An unclassified version, DOE/ID-10514-97, is available at <http://cflup.inel.gov> for external access.)

DOE-ID, 1999, *Final Record of Decision—Idaho Nuclear Technology and Engineering Center, Operable Unit 3-13*, DOE/ID-10660, Rev. 0, U.S. Department of Energy Idaho Operations Office, October 1999.

DOE-ID, 2004, *Operations and Maintenance Plan for the Final Selected Remedies and Institutional Controls at Central Facilities Area, Operable Unit 4-13*, Rev. 1, U.S. Department of Energy Idaho Operations Office, April 26, 2004.

DOE-ID, 2006a, *INL Sitewide Institutional Controls Plan*, DOE/ID-11042, Rev. 3, U.S. Department of Energy Idaho Operations Office, July 2006.

DOE-ID, 2006b, *INL Sitewide Operations and Maintenance Plan for CERCLA Response Actions*, DOE/ID-11159, Rev. 1, U.S. Department of Energy Idaho Operations Office, May 2006.