

INTEC TMI-2 ISFSI PERIMETER PERFORMANCE TESTING		Identifier: MCP-1635
		Revision*: 5
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INTEC	Management Control Procedure	For Additional Info: http://EDMS
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Manual: INTEC NRC

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*The current revision can be verified on EDMS.

1. PURPOSE

This procedure provides guidelines for Protective Force personnel for performing return to service testing and for performing Semi-annual testing on the Independent Spent Fuel Storage Installation (ISFSI) intrusion detection system.

2. SCOPE AND APPLICABILITY

This procedure is applicable to the INL Protective Force personnel that conduct semi-annual and return to service testing efforts for the ISFSI. This activity shall be conducted in accordance with the INL Protective Force policy and procedures. This testing meets the requirements as stated in Nuclear Regulatory Commission (NRC) Regulatory Guide 5.44 "Perimeter Intrusion Alarm Systems," Section 3.

3. PREREQUISITES

- 3.1 Notify the Nuclear Regulatory Commission (NRC) Physical Security Officer of deficiencies when discovered. Communicate this notification as Safeguards Information.
- 3.2 Personnel performing testing must be familiar with area-specific Job Safety Analysis (JSA), and ensure that any applicable Personal Protective Equipment is used prior to performing function tests.
- 3.3 If environmental conditions present hazards, safety controls must be generated to mitigate the hazards and allow system function testing to proceed.

NOTE: *Security Police Officer (SPO) Level III trained personnel will be utilized for all Semi-Annual and Return to Service Testing.*

- 3.4 All INL Protective Force company wide safety requirements must be reviewed and complied with..
- 3.5 Ensure notifications are made to the INTEC Protective Force Supervisor, Warning Communications Center (WCC) and the Post 505 Central Alarm Station (CAS) that testing is to be conducted at the specific ISFSI before commencing.
- 3.6 Comply with all personal protective equipment (PPE) requirements, as described in the INL Protective Force policies and procedures.

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4. INSTRUCTIONS**4.1 Conducting Semi-Annual Testing (General)**

- 4.1.1 Semi-annual testing should concentrate on the most vulnerable areas of each perimeter segment and utilize a method of approach most likely to penetrate the segment, such as, walking, running, jumping crawling, rolling, or climbing.
- 4.1.2 The INTEC Protective Force Supervisor may analyze the previous 6-month operability and return to service testing data to determine the most vulnerable area of each alarm zone and the method of approach most likely to penetrate the alarm zone undetected. This will determine the focus of semi-annual testing effort.
- 4.1.3 If vulnerable areas are not identified from prior testing, INL Protective Force may evaluate the perimeter system to identify possible vulnerable areas to test.
- 4.1.4 If vulnerable areas are not identified, INL Protective Force will complete testing efforts in accordance with Step 4.2.3 of this procedure.
- 4.1.5 If vulnerable areas are identified, 30 tests will be conducted at that vulnerable area (5 walk tests, 5 run tests, 5 roll tests, 5 crawl tests, 5 platform jump or 5 run and jump tests, and 5 assisted jump tests).
 - 4.1.5.1 If all tests are satisfactory, no more testing is required for that specific segment.
 - 4.1.5.2 If the minimum number of successful detection is not achieved, the system shall be checked.
 - 4.1.5.3 If no problems with the system are discovered, 10 more tests shall be made along the entire segment. These 10 additional tests shall be the same as the failed test (i.e. 10 additional walk tests) to ensure system reliability. If all 10 additional tests are successful, note additional tests on the testing form.
 - 4.1.5.4 If no problems are discovered and less than 10 out of 10 additional intrusions are detected, the system must be upgraded to increase the detection probability to the required level. Once upgrades are completed the entire segment shall be re-tested.
 - 4.1.5.5 If problems with the system are discovered implement compensatory measures in accordance with PLN-428 until

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the system can be repaired and 30 new tests performed to meet the required detection.

4.2 Conducting Testing

4.2.1 Thirty tests will be conducted for each perimeter segment. Segments are identified as:

- A. South perimeter (Segment 1)
- B. East perimeter (Segment 2)
- C. North perimeter (Segment 3)
- D. West perimeter (Segment 4)
- E. All four corners (only required during semi-annual testing).

NOTE: *Segments may also be referred to as Zones or Sectors, all meaning the same thing.*

4.2.2 The following methods of approach will be utilized in each perimeter segment:

- 4.2.2.1 Walk—performed by starting from a position adjacent to the exterior barrier of the segment. The tester will place arms at side and move perpendicular to the detection pattern of the segment being tested with a normal stride approximately two, 30-inch steps per second.
- 4.2.2.2 Run—performed by starting from a position adjacent to the exterior barrier of the segment. The tester will run perpendicular to the detection pattern of the segment at an approximate velocity of 16 feet per second.
- 4.2.2.3 Crawl—performed by starting from a position adjacent to the exterior barrier of the segment. The tester will assume a prone position; face down, perpendicular to the detection pattern of the segment. The tester will low crawl across the segment keeping all body parts as low as possible at an approximate velocity of 1 inch per second.
- 4.2.2.4 Roll—performed by starting from a position adjacent to the exterior barrier of the segment. The tester will assume a prone position extending arms over head. The tester will roll body as a single unit through the segment at an approximate velocity of 1-inch per second.

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- 4.2.2.5 Assisted Jump—performed by starting as near to segment without setting off alarm sensors. From that point, tester will raise 3D torso overhead at arms length and throw 3D torso across alarm segment a distance of 10 feet.
- 4.2.2.6 Run and Jump—performed by starting from a position adjacent to the exterior barrier of the segment. The tester will run perpendicular to the detection pattern of the segment and time their jump through the detection zone.
- 4.2.3 Specific test areas for the South, North, West, and East perimeter segments will be conducted in the following manner (30 tests for each segment):
- 4.2.3.1 Near the alarm receiver—perform 1 run, 1 walk, 1 crawl, 1 roll, 1 platform jump or run and jump and 1 assisted jump.
- 4.2.3.2 One quarter of the distance from the alarm receiver—perform 1 run, 1 walk, 1 crawl, 1 roll, 1 platform jump or run and jump and 1 assisted jump.
- 4.2.3.3 In the middle of the alarm segment—perform 1 run, 1 walk, 1 crawl, 1 roll, 1 platform jump or run and jump and 1 assisted jump.
- 4.2.3.4 Three quarters of the distance from the alarm receiver—perform 1 run, 1 walk, 1 crawl, 1 roll, 1 platform jump or run and jump and 1 assisted jump.
- 4.2.3.5 Near the alarm transmitter—perform 1 run, 1 walk, 1 crawl, 1 roll, 1 platform jump or run and jump and 1 assisted jump.
- 4.2.4 During semi-annual testing only, specific test areas for the corner segments will be conducted in the following manner:
- 4.2.4.1 Six tests will be conducted for each corner segment—perform 1 run, 1 walk, 1 crawl, 1 roll, 1 platform jump or run and jump, and 1 assisted jump.
- 4.2.4.2 The results from the corner tests will not be considered in each segment for the 30 for 30 testing requirement; however, each test must be detected. If detection does not occur, then the system shall be checked and re-tested.

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- 4.2.4.3 Six tests will be conducted for each corner, corners are identified as:
 - A. South/West (Corner A)
 - B. South/East (Corner B)
 - C. North/East (Corner C)
 - D. North/West (Corner D).

- 4.2.5 All alarm segments should be walk tested randomly each week.
 - 4.2.5.1 An alarm segment should not always be tested at the same time of day or during the same type of environmental conditions.
 - 4.2.5.2 The tester should monitor future and past testing to ensure that segments are not tested at the same time of day and that testing should take place through various weather conditions.

- 4.2.6 Return to service testing will be conducted each time a segment or segments become inoperable or when a major component is replaced/repared. Return to service testing will be conducted in accordance with Step 4.2.3 of this procedure.

- 4.2.7 Confirm with WCC/P-505 that testing is complete and all alarms have reset.

4.3 Applying Pass/Fail Test Criteria

NOTE: *If during testing the alarm is not received at both P-505 and WCC, the test is considered a failure. Testing results are considered “passing” at 90% probability of detection at a 95% confidence level.*

4.3.1 The following table will be utilized to determine test results:

Total number of tests	Minimum number of detection	Maximum number of no detection
30	30	0
40	39	1
50	48	2

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- 4.3.2 In the event that any segment fails to meet the above criteria, the NRC Physical Security Officer will be immediately notified and compensatory measures implemented in accordance with PLN-428.

4.4 Recording Maintenance

- 4.4.1 Tester will complete the NRC Semi-Annual/Return to Service testing form (see Appendix A). The following information should be provided:
- A. Test date
 - B. Time of day
 - C. Segment tested
 - D. Relevant environmental conditions
 - E. Total number of tests to include pass/fail rate
 - F. Tester's name
 - G. A map will be attached showing the path and method of approach for each segment.

5. RECORDS

Semi-Annual/Return to Service Testing Form

NOTE: *The Records Schedule Matrix, located on the intranet at http://edms.inel.gov/docs/matrix/mtx_menu.html, and the applicable facility, organization, program, or project records management plan and record types list provide current information on uniform file codes, disposition authorities, and retention periods for these records.*

6. DEFINITIONS

None

7. REFERENCES

NRC Regulatory Guide 5.44, "Perimeter Intrusion Alarm Systems"

10 CFR Part 73.51, "Requirements for Physical Protection of Stored Spent Nuclear Fuel"

MCP-101, "ICP Integrated Work Control Process"

MCP-3595, "Protection and Control of Safeguards Information"

Protective Force Temporary Order—CPP-1774 (TMI-2ISFSI) Return to Service Testing

<p style="text-align: center;">INTEC TMI-2 ISFSI PERIMETER PERFORMANCE TESTING</p>	<p>Identifier: MCP-1635 Revision*: 5 Page: 7 of 10</p>
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8. APPENDIXES

Appendix A, Semi-Annual/Return to Service Testing

Appendix B, Facility Map

Appendix C, Procedure Basis

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Appendix A

Semi-Annual/Return to Service Testing

Date _____

Lead Testing Individual: _____

Time of day: _____

Environmental conditions: _____

Segment Tested: _____

<u>Method of approach</u>	<u>Number of attempts</u>	<u>Pass/Fail</u>
Walk	_____	_____
Run	_____	_____
Crawl	_____	_____
Roll	_____	_____
Assisted Jump	_____	_____
Run and Jump	_____	_____
Other _____	_____	_____

Totals: _____

Remarks:

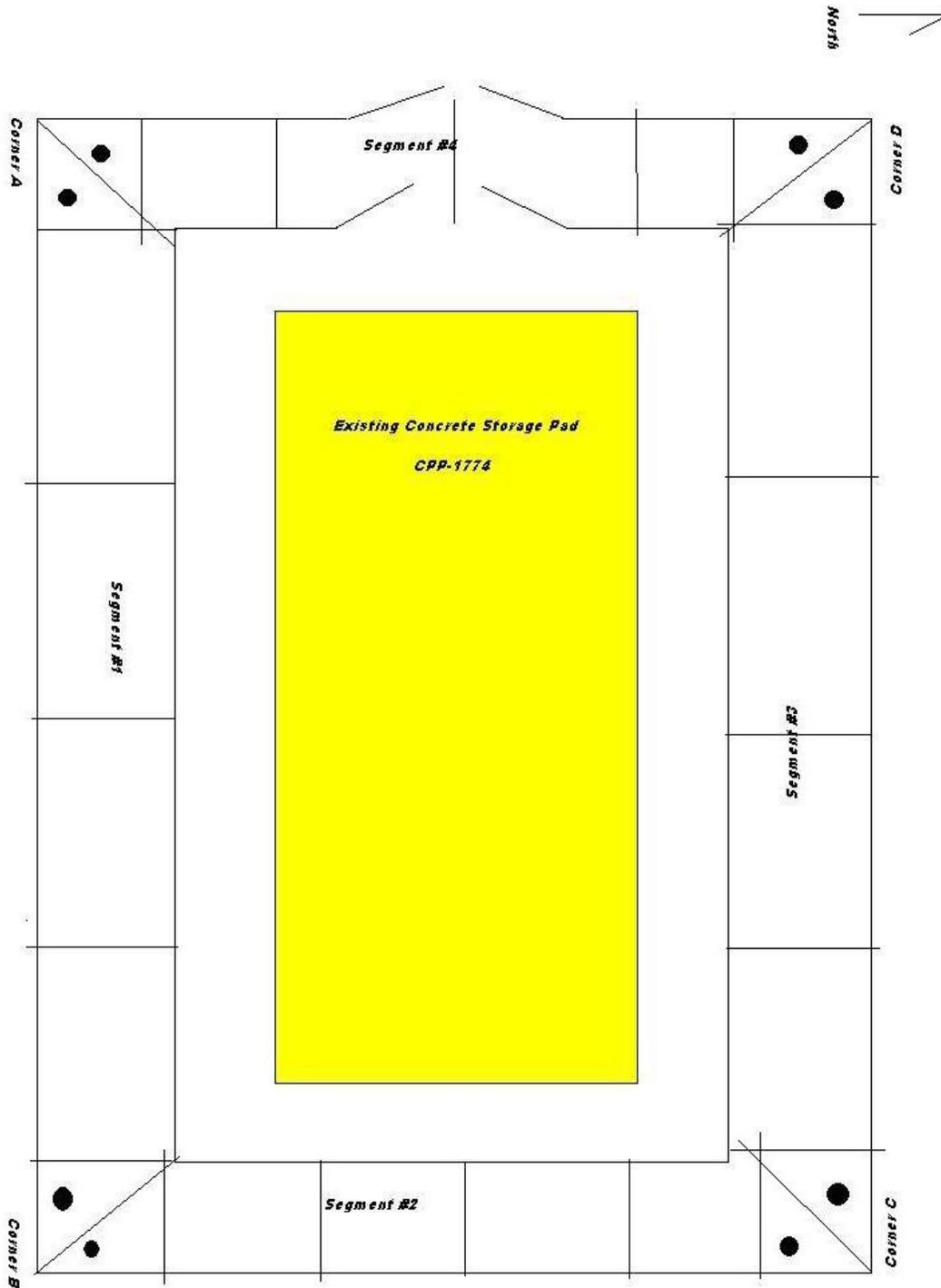
If completed forms indicate failures they must be controlled as SAFEGUARDS INFORMATION to include attached maps.

(Attach map demonstrating exact pathways for each segment)

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Appendix B

Facility Map



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Appendix C

Procedure Basis

Step	Basis	Source	Citation
Entire procedure	Written procedures shall be established, implemented, and maintained for the following: Administrative controls.	TMI TS	5.4.1.a
4.1 through 4.4.1	Performance testing.	NRC Regulatory Guide 5.44 10 CFR Part 73.51 MCP-101 MCP-3595 Protective Force Temporary Order	