MERIDIAN TOWNSHIP POLICE DEPARTMENT
GENERAL ORDER

Subject: **THERMAL IMAGER**	General Order : 940
Effective Date: February 1, 2006 Revision Date:	Distribution: All Sworn Employees

I. PURPOSE

The purpose of this directive is to outline the appropriate applications for and the restrictions of use for thermal imaging devices within the Meridian Township Police Department.

II. POLICY

It is the policy of the Meridian Township Police Department to only use thermal imaging devices as directed by Departmental policy and State and Federal law. Equipment will only be utilized by personnel trained in its use and acceptable applications by the Department.

III. PROCEDURES

A. Approved Law Enforcement Applications

1. Search and Rescue:
Due to the fact the human body gives off heat in the form of infrared energy, thermal imaging devices can be used to locate lost persons. The imager allows officers to cover large areas quickly and accurately with less staffing than with conventional searching methods.

2. Locating Fugitives:
Thermal imagers are excellent at finding people and animals hiding in foliage, regardless of the time of day. Use of thermal imaging allows officers to cover a large area and locate suspects without exposing officers to the suspect. Officers can then be deployed to the location to safely affect the arrest of the criminal.

3. Vehicle Pursuits:
Thermal imaging equipment may be used to track a vehicle which had attempted to flee, but abandoned the pursuit. Officers may be able to locate the now parked vehicle by detection of the heat emitted from the vehicle's engine, tires, and brakes.

4. Structure Profiling:
Thermal imagery may be used to detect underlying structural components of buildings which may be helpful in planning and executing warrant services or raids. Thermal imagery may also be used to detect the large amounts of heat produced by indoor cannabis cultivation operations because of the extensive use of high intensity grow lamps. The entire building could be surveyed from

a remote location for detection of inordinate heat levels or the unusual use of intake or vent fans used to cool the grow area by emitting excessive heat.

Note: While inordinate heat levels are consistent with indoor cannabis growing, the information alone is not grounds for a probable cause finding and the issuance of a warrant. As with any investigation, the officers involved must consider the totality of the situation before taking law enforcement action. **Further, thermal imaging should only be used in the final stages of the investigation. A properly conducted investigation will establish enough probable cause to obtain a search warrant to use the thermal images on a residence (Kyllo v. U.S., 99-8508).**

The use of thermal imaging will not be considered in the investigation of clandestine laboratories; however, they may be used to locate nearby chemical dumps or spills which may indicate the presence of these laboratories.

5. Disturbed Surface:
Thermal imaging technology can be used to conduct non destructive surveys of walls or floors of surfaces which are suspected of containing money, drugs or other contraband. Detection is made based on the variation in thermal absorption characteristics of building materials. This principal applies to the detection of secret compartments in houses or the detection of materials buried in disturbed soil.

6. Environmental Law Enforcement:
Thermal imaging has been found to detect heat differentials generated by toxic waste, oil spills and the residue of clandestine drug laboratories and other pollutants. Consequently, these pollutants cannot only be seen, they can be tracked back to their source. These materials can be detected from long distances, even at night.

7. Perimeter Surveillance:
The thermal imaging device can be utilized to establish a perimeter surveillance system at a much reduced staffing cost. The heat signature produced by humans will allow the device to detect penetration of established perimeters by ingress or egress.

8. Officer Safety:
The equipment may be used to locate threats such as hidden suspects, guard dogs or other dangerous obstacles. Not only can the officer see without being seen, they can see through visible obscurants such as dust and dense smoke. This allows the officer to scan through the smoke at a burning building or vehicle to look for victims or help determine the extent of the fire.

9. Hidden Compartments in Vehicles:
The equipment may be used to conduct non-destructive surveys of vehicles or containers attached to a vehicle, which may contain false or hidden compartments suspected of transporting people, narcotics, or illegal contraband.

10. Flight Safety:
Thermal imaging devices may be used by pilots of law enforcement aircraft to enhance vision during nighttime missions. This can enable these pilots to locate and avoid such normally "invisible" obstacles such as high tension wires, towers, and antennas, as well as the characteristics of unfamiliar terrain. Pilots can advise ground units on obstacles, their location and assist with safe movement.

11. Marine and Ground Surveillance:
The thermal imager has the ability to see in total darkness, which provides a tremendous advantage to officers, whether on routine patrol, or during a surveillance mission. The passive nature of thermal imaging allows investigators to conduct surveillance completely undetected. Likewise, on bodies of water, thermal imagers are used for nighttime navigation, to locate and track vessels, and for search and rescue operations.

12. Accident Investigation:
Thermal imaging devices may be used at accident scenes to detect skid marks and additional information undetectable to the naked eye. This will allow officers to establish vehicle speed more accurately. Cleaning effects from skid marks on the road that otherwise may not have shown any visible sign of a disturbance is a good example.

13. Other applications:

a. Crime scene investigation

Using a thermal imager during a crime scene investigation can assist officers in gathering evidence and may uncover a situation of evidence tampering, contraband hidden in walls or buried objects.

b. Tactical support

Prior to searches at night, scouts can use thermal imagers to better survey a scene to determine how to deploy officers and the best point of entry. Spotters can use it in concert with image intensifiers to reveal hidden suspects, multiple offenders and dangerous obstacles to forewarn other approaching officers.

c. Building searches

This technology will allow officers to safely search buildings and locate suspects without exposing the officer to danger. The device can be used to "look" in attics by putting the thermal imager into the attic entry and search dark rooms without the use of flashlights.

B. Image Analysis Considerations

1. Any time thermal imaging is used in structure profiling, the use of a video recording device is highly recommended. The recorded information will assist in further analysis and may prove useful in any subsequent courtroom testimony.

2. The use of a thermal imaging system in surveillance situations should only be undertaken with an awareness of the effects of:

a. Solar radiation (sunlight) will affect a building's thermal profile

- Do not attempt thermal surveillance of a building during daylight hours or in the early evening
- Once solar effects are no longer a factor, internal building heat will be detected based on the amount of the heat and degree of insulation in the target structure
- Nearby highly reflective materials, such as a car or trailer near the target building may affect surveillance efforts.

b. Terrain features

- Trees and plants can cause a nearby wall or roof of a structure to become warmer since the tree/plant absorbs the heat during the day and slowly radiates the heat at dusk and early evening
- Since cool air sinks to low lying areas, identical buildings at different elevations may exhibit different thermal images due to outdoor temperature inversion conditions.

c. Building orientation

- The thermal imaging of a suspect structure and other similar structures for reference purposes should be performed from the same direction (south and west walls absorb more solar heat)
- If the orientation of the thermal image cannot be held constant, the surveillance should be conducted very late at night or very early in the morning.

d. Building materials

- Different building materials will emit heat at varying rates
- Differing radiation rates occur due to wall and roof color. These color differences should be noted in the daylight, even though most thermal imagery surveys are conducted in the late night or early morning hours

e. Weather conditions

- Conditions such as fog, clouds, rain, or snow present the thermal imagers with numerous small surfaces (water droplets) between the imagers and the structure or object at which it is looking. The imager will measure the heat from these small surfaces rather than the target object.

  Note: Thermal imagers are extremely useful in a smoke filled environment for detection of the fire heat source or in locating persons.

f. Operator skill

C. Legal Considerations

1. Thermal imaging systems can be used to survey open fields, curtilage, and commercial structures without Fourth Amendment concerns as long as the point of observation is from a public vantage point where the operator has a right to be (such as public property, navigable air space or private property with the owner's permission).

2. Thermal imaging will not be used for surveillance of private dwellings without a search warrant (Kyllo v. U.S., 99-8508).

D. Thermal Imaging Training

1. Equipment will only be utilized by personnel trained in its use and in applications acceptable by the Department as outlined below.

2. Officers trained in "Basic Thermal Imaging" are authorized to use thermal imaging equipment in the following circumstances:

- Search and rescue
- Locating fugitives
- Vehicle pursuits
- Perimeter surveillance
- Officer safety
- Marine and ground surveillance

3. Officers who have received certification as a "Thermographer" are authorized to use thermal imaging equipment in the following circumstances:

- Structure profiles
- Disturbed surface profiles
- Environmental law enforcement
- Known or assumed instances requiring testimony related to the equipment's operation or capabilities
- Hidden compartments in vehicles
- Traffic accident investigation

4. In all instances, officers utilizing thermal imaging equipment will refer to section III C "Legal Considerations" of this directive.

E. Requests for Use of Thermal Imaging Equipment

1. A request for the use of the equipment may be made by any officer at the scene of an incident within or originating within the Township. Upon the approval of the on-duty supervisor, an equipment operator will be dispatched to the scene.

2. Requests for the use of the equipment which originate outside the Township must be approved by the on-duty supervisor prior to MTPD personnel being dispatched to the location. Approval will be based upon:

a. The nature of the incident

b. Availability of personnel

IV. CANCELLATIONS

This directive creates new procedure therefore no cancellations are in order.

Authorized by: CALEA:

David Hall
David Hall, Chief of Police

Index as:

Infrared
Thermal Imager

Application: This directive constitutes department policy, and is not intended to enlarge the employer's or employee's civil or criminal liability in any way. It shall not be construed as the creation of a higher legal standard of safety or care in an evidentiary sense with respect to third party claims insofar as the employer's or employee's legal duty as imposed by law.

"Appendix A"

DEFINITIONS

A. Commercial Structure – A structure existing for the purpose of trade or commerce.

B. Curtilage – The area immediately surrounding a residence that "harbors the intimate activity associated with the sanctity of a man's home and the privacies of life." In determining curtilage, officers should consider:

- The distance from the home to the place claimed to be curtilage (the nearer the area to the home, the more likely that it will be found to lie within the curtilage)
- Whether the area claimed to be curtilage is included with an enclosure surrounding the home (inclusion within a common enclosure will make it more likely that a particular area is part of the curtilage)
- The nature of use to which the area is put (if it is the site of domestic activities, it is more likely to be part of the curtilage), and
- The steps taken by the resident to protect the area from observation by people passing by (areas screened from view are more likely to be a portion of the curtilage).

C. Open Field – An area having no restricted access and is open to public view.

D. Infrared Equipment – Passive, not-intrusive system designed to detect heat variations among the objects in front of it, so as to produce an image indicating the presence of the heat producing source. Thermal imaging devices are most useful in late night or early morning situations because of the absence of solar loading or alternative light/heat sources.