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## SWGDE Guidelines for Low Light Crime Scene Photography

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## 1. Purpose

The purpose of this document is to provide a guideline for photographing crime scenes with limited or no lighting and scenes where lighting needs to be controlled. This includes available light, flash, laser trajectory, alternate light source (ALS), chemical enhancements, or painting with light.

This document provides a foundation for low light crime scene photography, the equipment needed and techniques. The techniques are not provided in any given order – it is up to the photographer to evaluate the lighting conditions of the scene and choose the appropriate technique. This is not an all-inclusive list; a combination of these techniques may be applied.

## 2. Limitations

- Equipment availability
- Scene Dependent (size, time of day, location)
- Available Personnel
- Scene Safety (personnel and equipment)
- Ambient Light (technique specific)
- Image Noise

## 3. Equipment

For general equipment recommendations please see the *SWGDE Photographic Equipment and Infrastructure Recommendations* prior to implementation of new equipment or procedures.

In addition to the above referenced equipment, additional equipment is dictated by the technique utilized and is listed below.

## 4. Techniques

### 4.1 Available Light Photography

- Considerations:
  - This technique may be used on a large scene when there is some existing light, and a single flash will not produce a properly exposed photograph of the entire scene.
- Photography Recommendations:
  - Camera should be on a stable tripod or other device due to long exposures and a remote shutter release device should be used (e.g., shutter release cable).
  - Use manual or aperture priority mode.
  - Use the camera's light meter in matrix/evaluative mode to determine the exposure of the scene.
  - After reviewing the image taken, make adjustments and reshoot if necessary.



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- Examples of available light/long exposure photography:



## 4.2 Flash

- Considerations:
  - Assess the size of the scene and any obstructions within the scene such as vehicles, structures, etc. and determine whether the photograph would require the use of a single flash or multiple flashes.
- Additional Equipment:
  - Multiple flashes with sync capability
  - Flash sync capabilities
- Photography Recommendations:
  - Use Through The Lens (TTL) mode on the flashes.
  - Link flashes to camera using a cable or wireless capabilities.
  - Be aware of flare/ be cautious that the flashes are not pointed toward the camera.
  - After reviewing the image taken, make adjustments and reshoot if necessary.
- Examples of flash photography:





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## 4.3 Painting with Light

- Considerations:
  - This is a technique which can illuminate an area that a single flash cannot reach. It utilizes a long exposure while moving a light source through the scene throughout the duration of the exposure.
  - This technique is more efficient with at least two people, one to operate the flash and another to operate the camera, however it can be accomplished working independently. A flash or a flood light is the recommended light source, but a flashlight could be used if a flash or flood light is not available.
    - Note: The use of flashlights can create narrow light paths and not evenly illuminate an area.
- Additional Equipment:
  - Opaque cloth or other material to cover the lens.
  - External light source (e.g., flash, floodlight, wide beam flashlight).
- Photography Recommendations:
  - Camera should be on a stable tripod or other device due to long exposures and a remote shutter release device should be used (e.g., shutter release cable).
  - The exposure mode should be set to manual and the auto focus feature on the camera should be turned off (recommended starting point bulb, f8.0, ISO 400).
  - Use flash manual mode at full power.
  - While the shutter is open, illuminate the scene using a flash. In between flashes keep the lens covered. and avoid bumping the camera.
  - When using a flashlight, begin the exposure and move through the scene illuminating it evenly, then stop the exposure.
  - After reviewing the image taken, make adjustments and reshoot if necessary.
- Examples of painting with light photography:



## 4.4 Alternate Light Source (ALS)/ luminescence

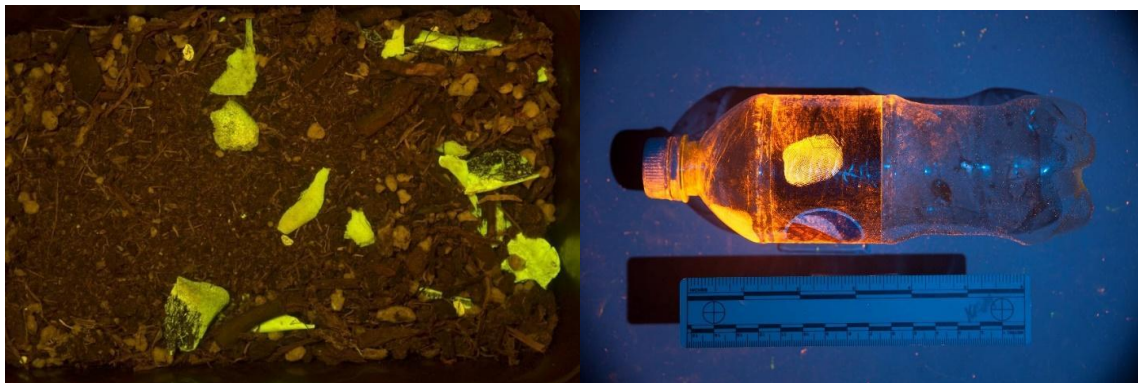
- Considerations:
  - This technique is used to document the luminescence of visible light at varying wavelengths when using an ALS or similar light source. This technique may be used to enhance or visualize items of evidence such as fluids, fingerprints,



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clothing and fibers. This type of light can cause biological stains to luminesce and may be used on treated and untreated objects.

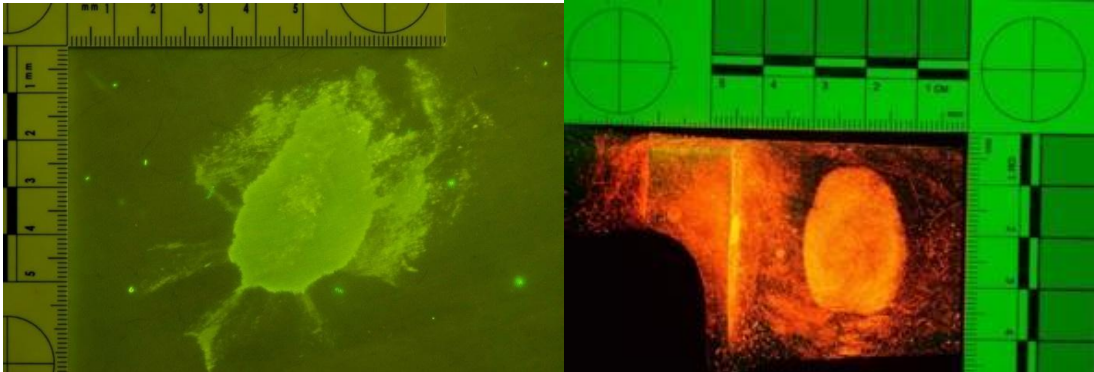
- Additional Equipment:
  - ALS.
  - Eye protection specific for the wavelength being used (Red, Orange or Yellow).
  - Photographic (barrier) filters for the specific wavelength used.
- Photography Recommendations:
  - Mount the camera on a tripod or other sturdy device.
  - Set the camera to manual or aperture priority mode.
  - Attach the photographic filter to the lens as needed.
  - Depending upon the strength of the light source, this reaction can be photographed using the camera's suggested exposure.
  - After reviewing the image taken, make adjustments and reshoot if necessary.
  - Document the wavelength used and filter combinations.
- Examples of Alternate Light Source/ Luminescence photography:





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- Additional examples of Alternate Light Source/ Luminescence photography:



## 4.5 Chemiluminescence

- Considerations:
  - Photographing and documenting the areas where the chemical reactions are observed needs to be performed in the absence of ambient light.
  - A single flash at the end of the exposure will allow for the background and adjacent areas to be visible/developed.
  - Be aware of the safety hazards of the chemicals used and its effects upon evidence.
- Additional Equipment:
  - Markers (glow in the dark).
  - Black out curtain.
  - Appropriate personal protective equipment.
- Photography Recommendations:
  - Mount the camera on a tripod or other sturdy device.
  - Manually focus on the area of interest.
  - Set the camera to manual mode (recommended starting point is 15 seconds at f8.0 and ISO 400).
  - In a darkened room or area, spray the reagent over the area of interest and wait for reaction.
  - The area may be resprayed during the exposure.
  - A flash may be used at reduced power output at the end of the exposure to illuminate the background.
  - After reviewing the image taken, make adjustments and reshoot if necessary.





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- Examples of chemiluminescent photography:



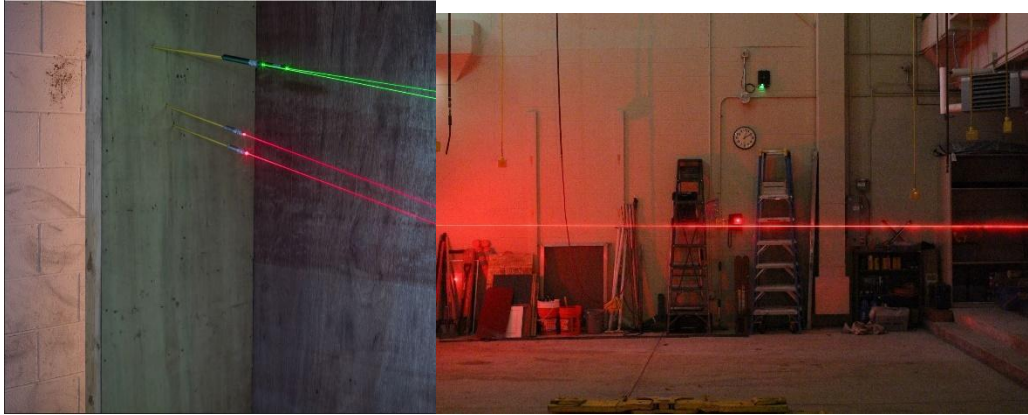
## 4.6 Laser Trajectory- Projectile Trajectory

- Considerations:
  - The reconstruction of a shooting scene can be accomplished by utilizing a laser to determine the path of a projectile. Since the laser is typically not visible unless it comes into contact with a refractive material or surface, the photographer will need to take measures to be able to visualize the laser.
- Additional Equipment:
  - Photographic Fog or water mist to refract the laser path so it can be documented.
  - White foam core or other sturdy board.
  - Neutral Density Filter.
  - Opaque cloth or other material to cover the lens.
  - Appropriate personal protective equipment.
- Photography Recommendations:
  - Mount the camera on a tripod or another sturdy device.
  - Place a board on the same plane as the laser trajectory, perpendicular to the camera and manually focus on the laser path.
  - Set the camera to manual mode (recommended starting point Bulb, at f8.0, and ISO 400).
  - Darken the room.
  - Open the camera shutter.
  - Trace the laser's path using either the white board or photographic fog. For additional laser trajectories cover the lens between tracings.
  - A flash may be used at reduced power output at the end of the exposure to illuminate the background.
  - Close the shutter.
  - After reviewing the image taken, make adjustments and reshoot if necessary.



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- Examples of laser trajectory photography:



## 5. References

Alternate Light Source Imaging Forensic Photography Techniques *Norman Marin, Jeffrey Buszka* 2013

Laser Visualization of Bullet Paths, *Evidence Technology Magazine*, July/August 2013, *Mark Vecellio*



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## SWGDE Guidelines for Low Light Crime Scene Photography

### History

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1.0 DRAFT	2021-06-17	Photography	Initial draft created and voted by SWGDE for release as a Draft for Public Comment.
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