Virtual Search Planning

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Introduction:

- Explorer with Pima County SO SAR 1973
- US Air Force SP, Spotter with 210th ARS
- Alaska State Trooper 1980-2001, State SAR
- NCMEC 2003-2007
- CoP, Nome , AK 2008-2009
- Nevada SAR Coordinator 2009-present
- Lots of stuff in the cracks! SAR Guy for 41 years

Objectives:

- Introduce and define the concept of virtual search planning (VSP)

- Examine the process for (VSP)

- Identify the software and equipment necessary for (VSP)

- Provide examples of VSP application in SAR

- Application of VSP to given situations and outcomes

- Facts before we begin...:

  - Initial SAR operations are based upon the *limited* planning/searching data available at the start of the search

  - Of the data available, a certain percentage of it will be wrong !

  - Planning effort is not a priority in most initial operations.

  - Chaos will be a component of initial operations.

- **Question: How relevant is the search planning process during the initial operations period of a search for your team?**
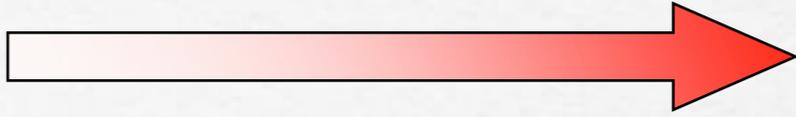
- **relevance: low** ⟶ **high**

Introduction:

- Virtual Search Planning :

- process of examining known and verified facts surrounding a missing person event

- applying subject and statistical behavior data

- weather data

- technical Data (cell, radar, A/V, etc)

- layer to virtual imaging and terrain analysis tools

- building a logical search plan. (IAP)

Virtual Search Planning

Case Study: Shane McNeil,

September 2010

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- Background In the McNeil SAR

  - Shane was a 16 year old WM, no physical issues, no mental issues

  - Moved to Henderson, NV Spring 2010. Prior residence was in PA

  - Practiced "extreme hiking", watched Man Vs Wild religiously, hiked 6-12 miles in summer conditions including 100+ degrees

  - Shane's goal was to hike across the desert, "swim" the Colorado River, hike up AZ Side, and meet mother at Hoover Dam

- Event
  - Shane leaves house 0600 hrs, 9-25-2010, <u>Saturday</u>
  - Stops in Boulder City to refill water bottles approximately 1200 hrs 9-25-2010, <u>Saturday</u>
  - Text message to mother 1900:
    - "I can see the river, tired, just have to scale this canyon, meet me at Hoover Dam at 10:00 pm
  - Mother waited at HD visitors center till 2300 hrs and then called 911.

Mission Timetable

- 9-25-10@ 2300 hrs: 911 call

- 9-25-10, 9-26-10, 2400 to 0300 hrs, air search of Colorado River.

- See Map

McNeil Area Overview

McNeil LKP by Phone
McNeil Text Point
KFC StopBoulder City
Henderson
Whitney
McNeil Residence
Clark
North Las Vegas
Las Vegas
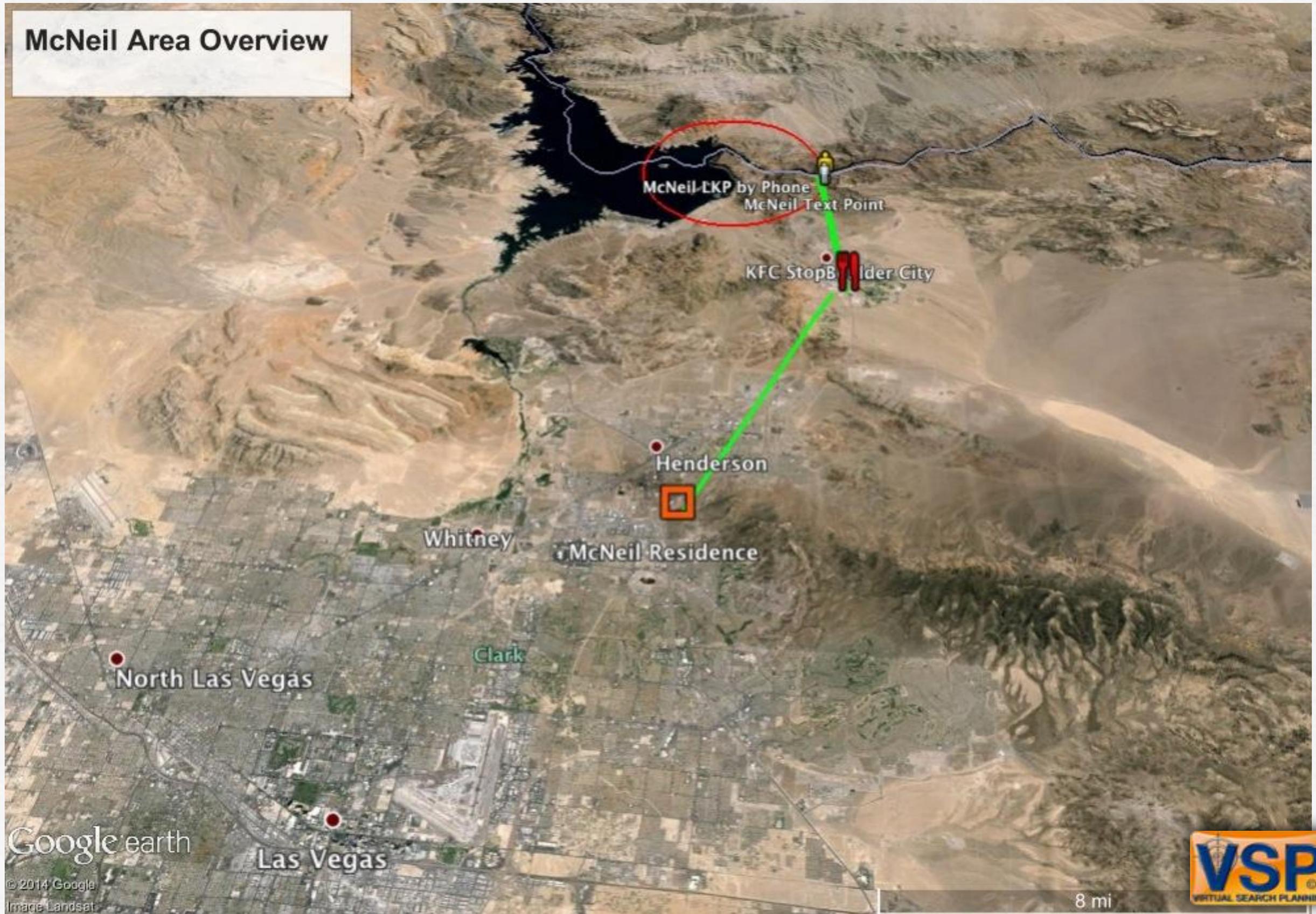
Google earth
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Image Landsat

8 mi

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McNeil-1st OP

Search concentrated in River and east side of river in Whites Canyon

Legend
- 1st OP search by Air
- 1st OP, Air, Ground

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Lone Rock

2 mi

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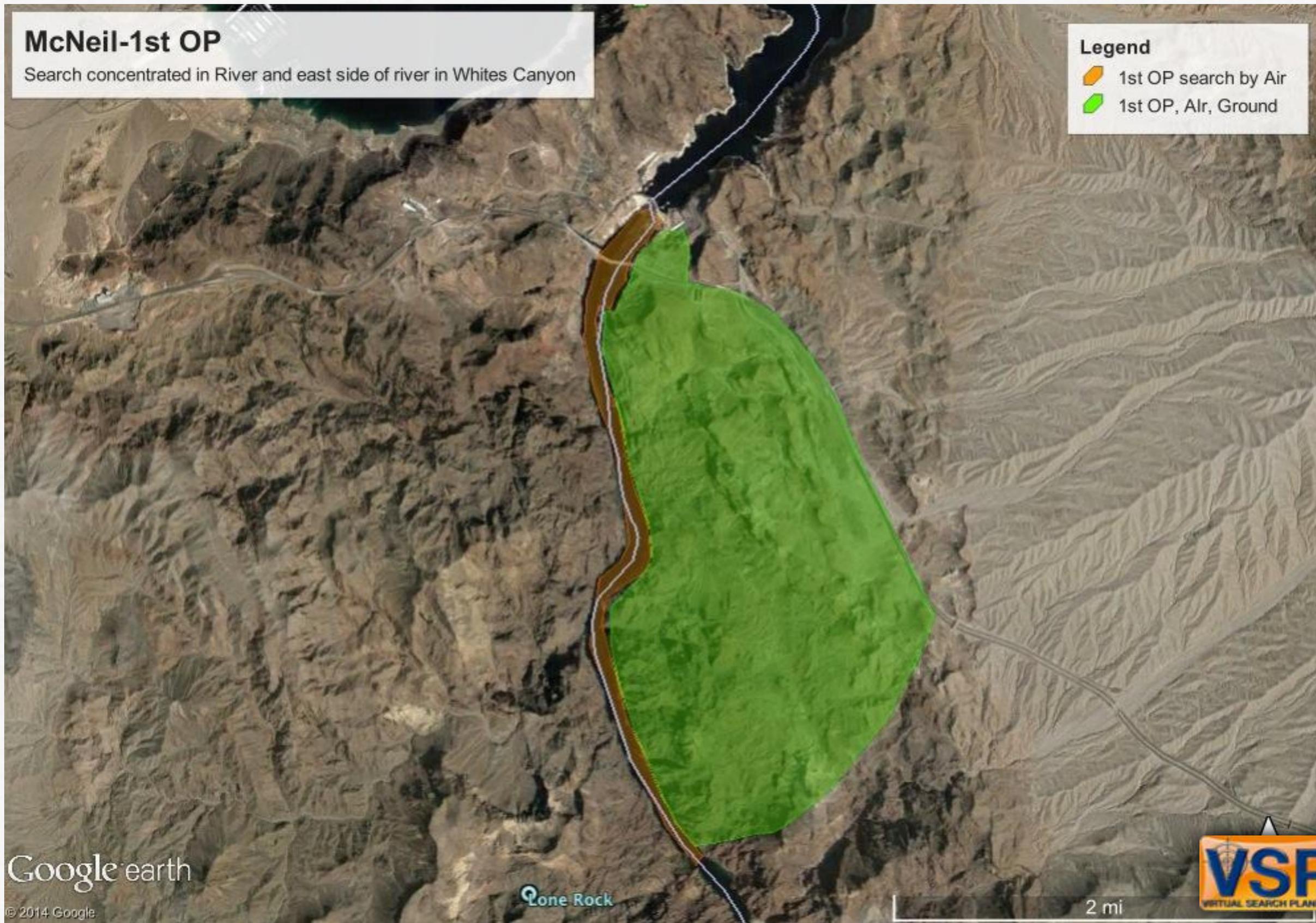
Mission Timetable

- 9-26-10, 0700-1800, air search of Colorado River and AZ side "Whites Canyon", cell forensics places text 3.7 miles from cell tower at HD.

  - Fact (Clue) not mapped or analyzed

  - Coverage not mapped

  - What assumptions are made of McNeil?

  - See Map

McNeil-2nd OP

Search concentrated again in Colorado River and east side of river in Whites Canyon

Legend
- 1st OP search by Air
- 1st OP, AIr, Ground

Google earth

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Lone Rock

2 mi

VSP

Mission Timetable

- 9-27-10, 0700-1800, air search of Colorado River further downstream and AZ side "Whites Canyon"

    - No Clues Developed

    - Coverage not mapped

    - What happened to text data analysis?

    - Same Map Coverage!

    - Daily Canyon temperature 105 degrees!

- 9-28-10: Same search effort until…

NV SAR Coordinator Involvement:

- 9-25-2010, No Notification

- 9-26-2010, No Notification

- 9-27-2010, No Notification

- 9-28-2010, saw news story of missing boy at SEOC at 1425 hrs, Carson City, 500 miles from search area

- Contacted LVMPD SAR at 1430 hrs and requested information and cell data.

- Initiated VSP

NV SAR Coordinator Involvement:

- Statistical analysis: Plotted Theoretical, Statistical, Subjective data for subject category (only Subjective relevant)

- Plotted Cell Data

- Formed Subject Profile

- Conducted "virtual flight" of potential route

- Located "path of least resistance"

- Noted intersections and correlation to "text"

- Produced VSP report for LVMPD with "priority" segments for search, sent at 1630 hrs.

Initial Track 9.7 miles

Henderson

Neil Residence

Boulder City

KFC Stop
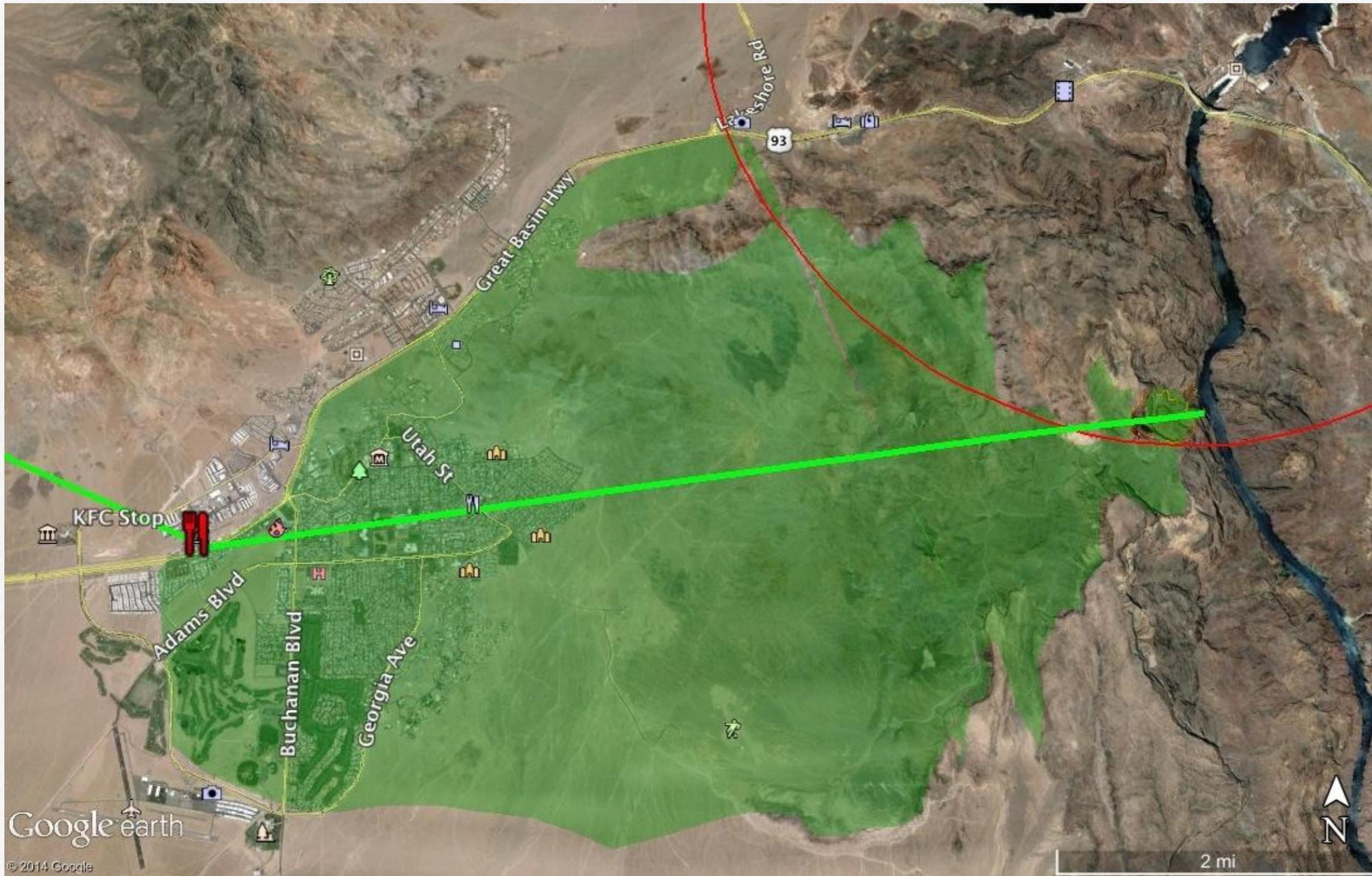
Distances:

Res-KFC:
9.83 sld

KFC-Hoover
23.8 road

KFC-CO River
15.6-19.0

Google earth

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4 mi

N

VSP
VIRTUAL SEARCH PLANNING

Distances:

Res-KFC:
9.83 sld

KFC-Hoover
23.8 road

KFC-CO River
15.6-19.0

Boy Scout Canyon

Red Line: Cell distance from Tower
Green Shade: Possible access to River
Bright Green Line: suspected Track of McNeil
Orange Shading: Boy Scout Canyon
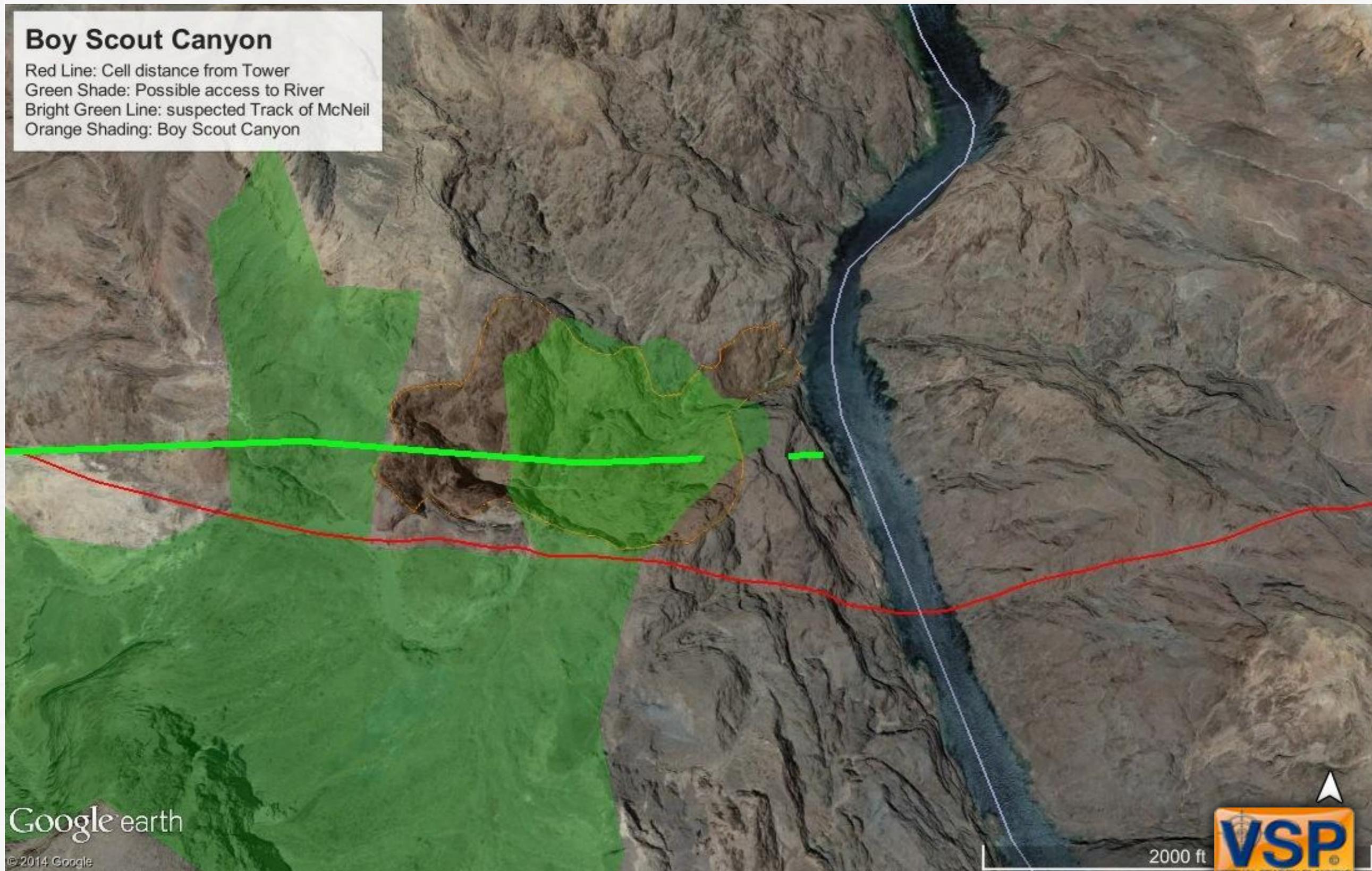
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McNeil LKP
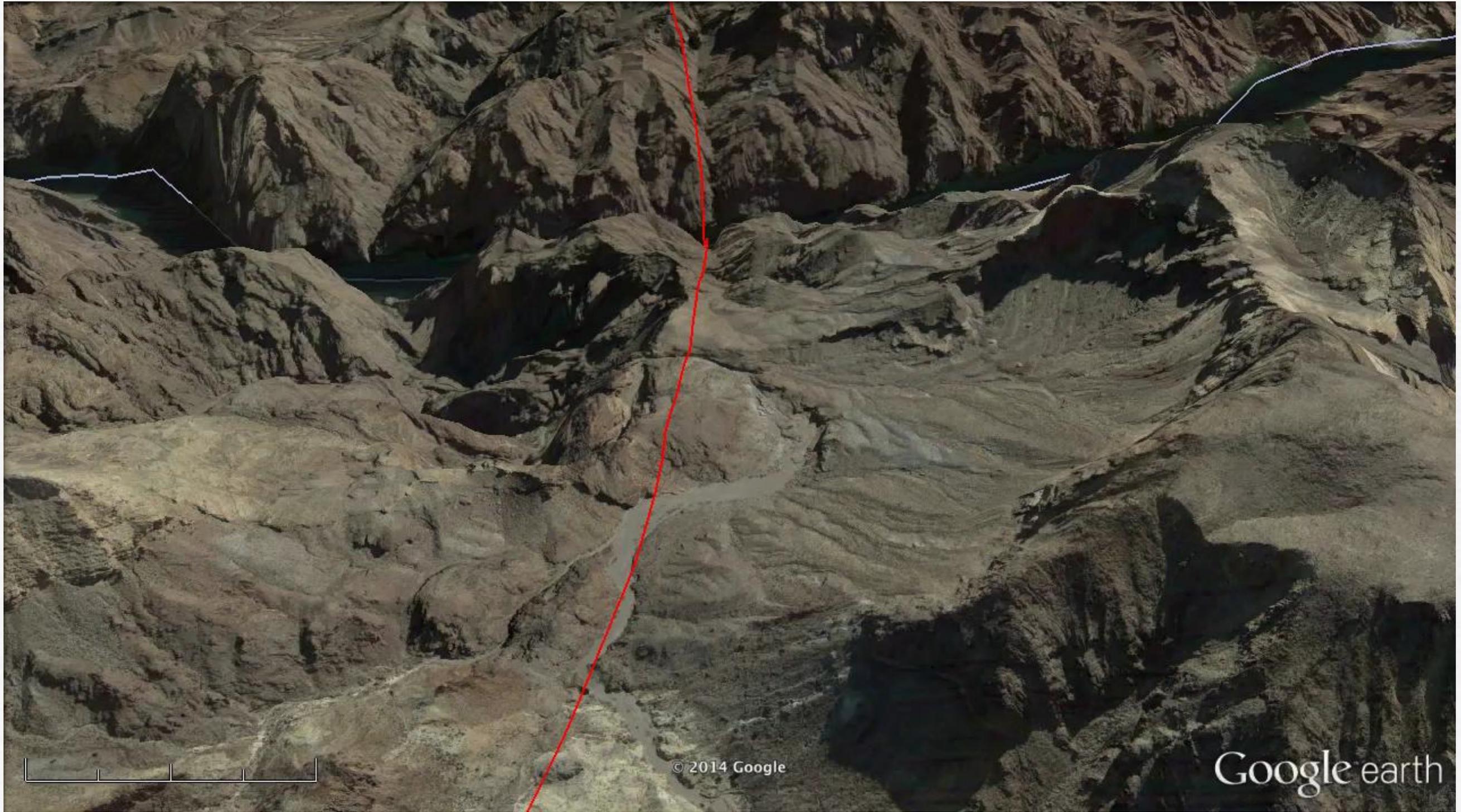
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Google earth

Condition of McNeil when located

- Deceased, coroner indicated it was most likely 9-26-2010

  - McNeil had NO fractures or head injury of note

  - Cause of death: Undetermined

  - Manner of Death: Undetermined

  - At bottom of canyon wall in bushes, backpack was "opened" (not ripped), water bottles were opened and empty!

Virtual Search Planning

Processing a Virtual Search

VSP

- Search Management Experience

- Search Planning Experience

  - Intelligence sources that are reliable

  - Lost Person Behavior Data sets

  - Planning Data and Searching data for incident

  - Access to LPQ, clue logs, historical data on searches within the same area

- Of the data available, a certain percentage of it will be wrong

- What is required For VSP (continued):

  - Understanding of the process used for VSP

  - Space for planning away from the ICP

  - Access to a computer with Google Earth /Google Earth Pro, Microsoft Office/PPT, whatever <u>YOU</u> need for analysis.

  - Google Earth Pro: Flight Video capability for terrain analysis, multi-angle view of search area, easy graphic interface.

- What is required For VSP:
  - Cell forensics data
  - Radar track data
  - Thorough understanding of the subject
  - Information sources:
    - Hard Data: Radar track, cell forensics
    - METAR Data from NWS
    - LPB studies (Koester's materials)
    - PDR, DSM, Web references

- Producing a VSP:
  - Verify all data!
  - Classify your subject's behavior
  - Plot all clue information
    - Pings, Spots, radar, cell calls are critical
  - Plot Median distances
  - Establish Probability Zones: T-S-S-R and plot
  - Determine probable locations for the subject
  - Mark all on map, Describe all notations

- Producing a VSP:
  - Transportation mode data
    - A/C or vehicle detail
  - Trends of subject… what was happening
  - Terrain analysis
  - Historical Weather (Metar Data set)
  - Gather all data… THEN conduct analysis!
  - Ask: "If…, then…"
  - Write ICS 202, 204, Produce Mapping

- Additional Product Information for client

  - Provide the Lost Person Behavior Data you have used in the analysis

  - If your solution is based upon special circumstances, include these in your analysis

  - Reference all materials to analysis: PDR, Technical / Medical references

  - Prepare the document in PDF format for use across all platforms for electronic delivery.

Disadvantages of VSP

- Requires solid communications / data link between ICP and Planning location

- Does not eliminate the need for a PSC due to other planning functions at the ICP

- Search Planners should practice this process and not experiment on real events... speed is essential!

- The deliverables must be simple to understand and provide foundation for decision points. Vague or non committal analysis helps no one.

- searches

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Virtual Search Planning

Other Searches with VSP

High Probability areas
Green lines with green shading

Legend
3mi radius from Oden

70805

70697
117301

70857 corrected

Scott

28

Montgomery

Garland

Hot Springs

59

Hot Spring

70

84

278

369
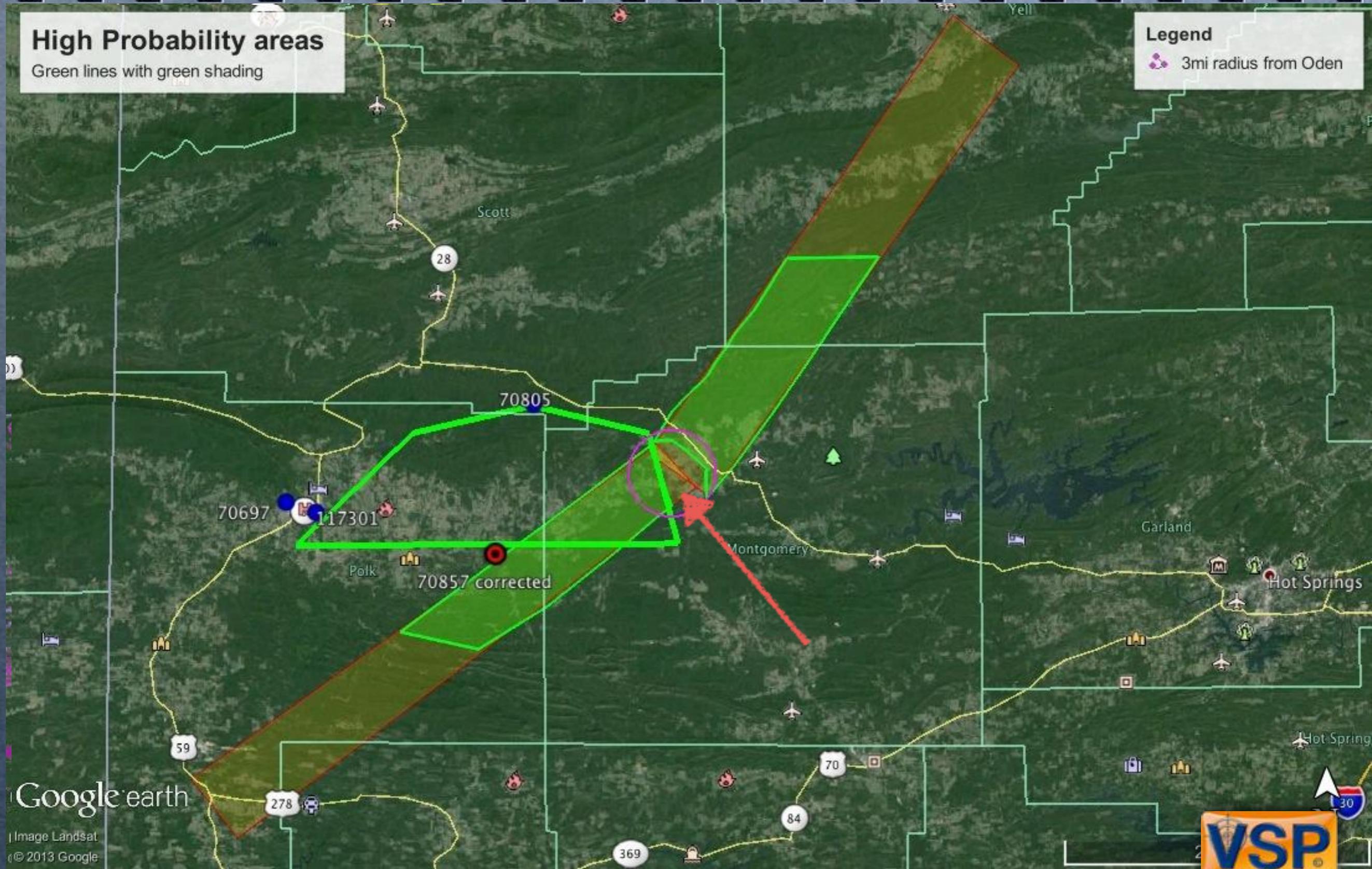
Google earth

Image Landsat
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- 2006: 92 year old Alzheimer PT, Lexington, KY; located in work shed among cement forms after analysis using LPBD and Google Earth, documents in PDF format sent to ICP

- 2010: 54 year old male found along roadway in Elko County after analysis of terrain using Google Earth and LPBD, Searchers did not follow ICS 204 assignments on initial search efforts

- 2005: 8 year old in Nashville, TN located after terrain analysis, LPBD, map faxed to ICP while responding to location from Reno, during a plane change in Dallas, TX, IC informed me the child was located within the area identified in the VSP, almost to the exact point identified.

- 2012: VSP used in the analysis of a search being litigated between two states and a private party. VSP used to analyze scenarios for the missing subject.

- Search for Missing Aircraft, AFRCC Mission 13-M-161A, aircraft found using virtual flight observation, radar and cell phone forensics, and search areas identified through VSP. the aircraft was located the morning of day three even without ELT data.

- Search for 2 year old in Mississippi, March 2014, VSP informed child was on property but LE put out extensive search for three weeks. Child was located under car deceased. Analysis suggested no foul play, child caught in terrain hazard.

Conclusion

- Understand the advantages / disadvantages of VSP.

- If you are a Planner or IC, know and practice your craft

- Don't wait to plan... start planning immediately

- Buy, acquire, or use any tool that assists you

- Determine how your agency/organization wants the product to look like.

- Commit to one or two solutions and back it up with data.

- searches

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Questions?

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