

**AMERICAN BURYING BEETLE SURVEY**

**Port of Catoosa Rail Spur Project  
Inola, Wagoner County, Oklahoma**

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**September 2020**

A handwritten signature in black ink that reads "Steven R. Votaw".

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**Steven R. Votaw  
President**

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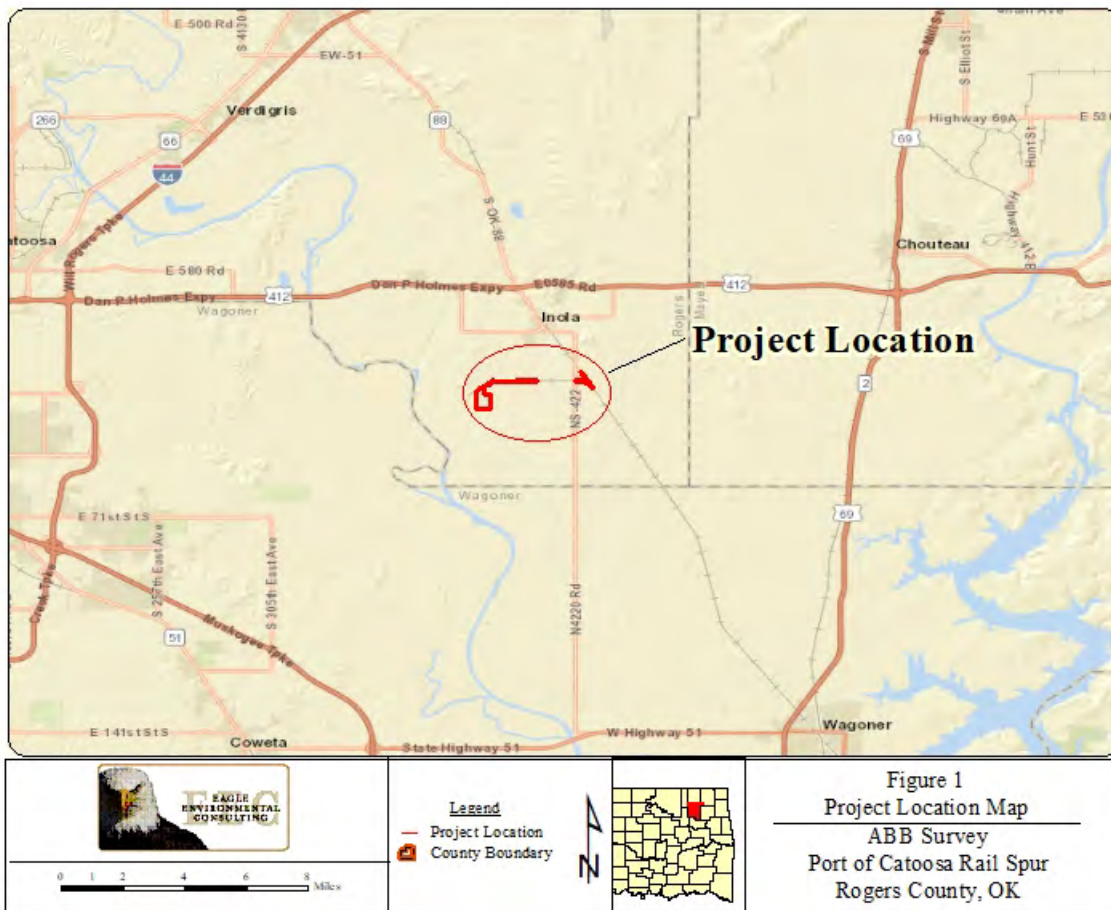
# AMERICAN BURYING BEETLE SURVEY

## Port of Catoosa Rail Spur Project Inola, Rogers County, Oklahoma

### I. Introduction

The subject survey effort was conducted to identify the presence or absence of American Burying Beetles (*Nicrophorus americanus*) (ABB) associated with a proposed Port of Catoosa Rail Spur project located south of Inola along the existing rail road. Inola, Wagoner County, Oklahoma. The proposed project location is shown on **Figure 1**. The project is located in Sections 15, 16, 17, 18 and 19, Township 20 North, Range 17 East.

The survey began the night of August 31, 2020 and continued until the morning of September 5, 2020, during which no ABBs were captured. Four trap transects were deployed and maintained for 5 nights and is shown on **Figure 2**. The ABB has been a federally listed endangered species since 1989 and is also recognized as endangered at the State level. Based on the potential for impact to individuals of ABB, these surveys were performed in compliance with the Endangered Species Act of 1973 (16 U.S.C. 1539, et seq.) and the U.S. Fish and Wildlife Service Regulations (50 C.F.R. 17.22) under Endangered Species permit number TE043399-0.



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## II. General Site Description

The survey area is located within the undulating landscape of the Osage Cuestas Ecoregion of Oklahoma (Woods, et.al, 2005). The majority of the lands within this ecoregion are associated with uplands on rolling hills with moderately steep slopes to medium and/or low gradient areas of topographic relief along drainages and waterways. The trap transect was placed within and among an early succession stage forested area near the center of the project corridor.

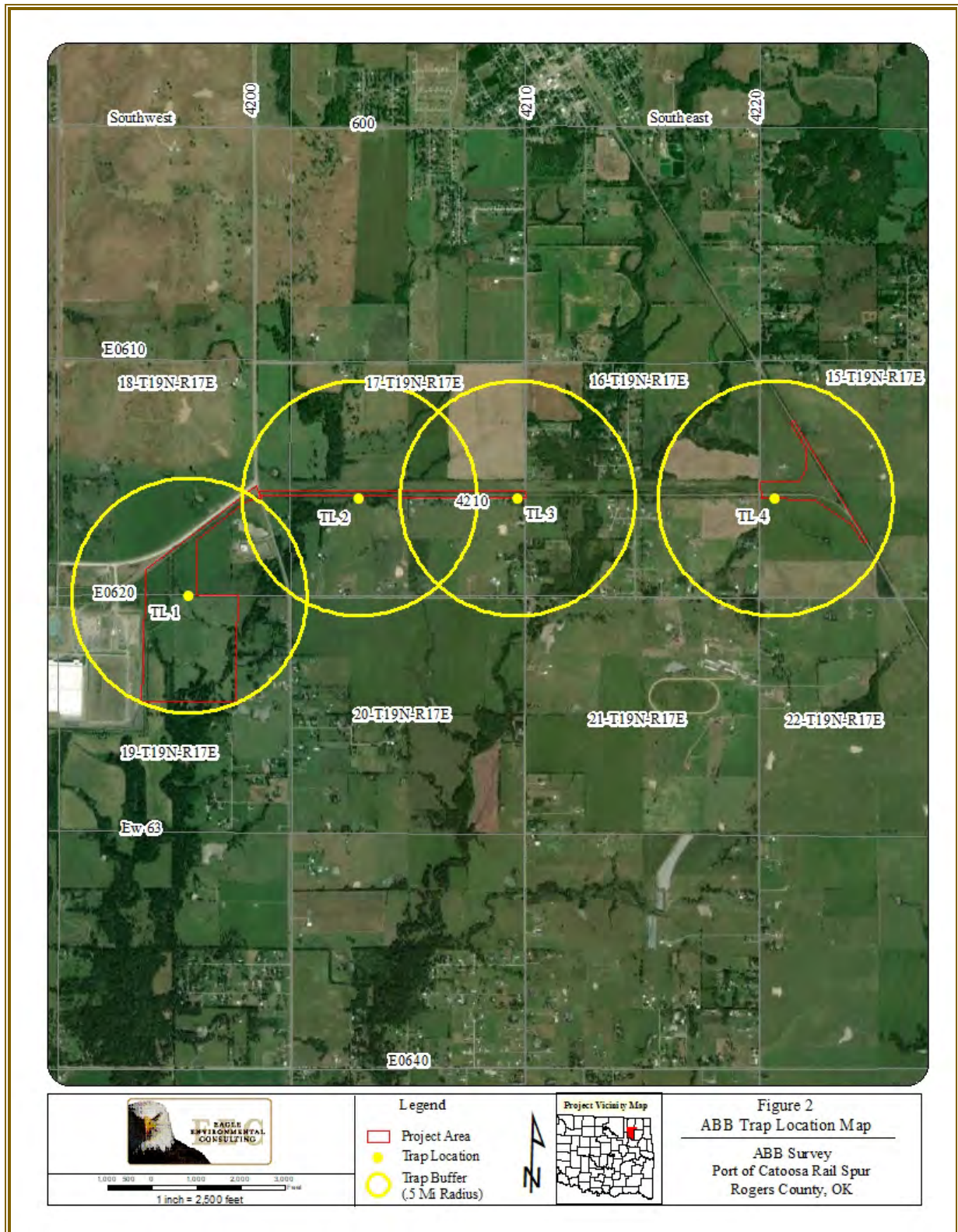
## III. Sampling Methodology

The ABB is large (1-1.5 inches) and has a shiny black appearance with four orange-red spots on the wing covers (elytra). A large red spot on the pronotum of the beetle is indicative of the species. The habitat requirements for this beetle are not fully known; however, the ABB is considered a habitat generalist and is known to occupy a diverse range of habitats. Habitats associated with the ABB include open grasslands, forests, as well as transitional areas. The beetle is a carrion feeder and utilizes small vertebrate carcasses for food and reproductive purposes. The ABB occurs in a variety of habitat types and will exploit virtually any possibilities where suitable forage and soil conditions may be found.

Four transects were selected to ensure appropriate survey coverage of the anticipated area of disturbance. The trapping method for the ABB survey was performed according to the Draft American Burying Beetle Range Wide Presence/Absence Live-trapping Survey Guidance, updated May 2018. Four five-gallon pitfall traps were used. Bait consisted of aged chicken quarters with no feathers and placed on 3 to 4 inches of soil.

According to the U.S. Fish and Wildlife Service, a minimum of 5 successive trap-nights are required to establish a sampling effort. Temperatures cannot fall below 60°F and wind speed cannot exceed 10 miles per hour for greater than 20% of the trap night between 9 pm and 4 am (1 hour 24 minutes). Failure to meet such specified trapping effort criteria would result in an additional trap night or trap nights. Meteorological data for this ABB survey effort was obtained from Weather Underground. Weather conditions were cooperative and within the required USFWS parameters.

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### IV. Survey Findings

No American Burying Beetles were captured during the survey effort. The species and numbers of beetles attracted to carrion in the family *Silphidae* and other species that were captured during this survey are provided in the table below:

| Trap No. | Disturbed (0/1) | <i>americanus</i> | <i>orbicollis</i> | <i>tomentosus</i> | <i>pustulatus</i> | <i>marginatus</i> | <i>carolinus</i> | <i>sayi</i> | <i>Necrophilia</i> | <i>Necrodes</i> |
|----------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|-------------|--------------------|-----------------|
| 1        | 0               | 0                 | 0                 | 0                 | 0                 | 2                 | 0                | 0           | 0                  | 0               |
| 2        | 0               | 0                 | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 1                  | 0               |
| 3        | 0               | 0                 | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0                  | 3               |
| 4        | 0               | 0                 | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 1                  | 0               |
| 0        | 0               | 0                 | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0                  | 0               |
| 0        | 0               | 0                 | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0                  | 0               |
| 0        | 0               | 0                 | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0                  | 0               |
| 0        | 0               | 0                 | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0                  | 0               |
| 0        | 0               | 0                 | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0                  | 0               |
| 0        | 0               | 0                 | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0                  | 0               |
| 0        | 0               | 0                 | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0                  | 0               |
| Totals   | 0               | 0                 | 0                 | 0                 | 0                 | 2                 | 0                | 0           | 2                  | 3               |

The field survey data forms and survey summary sheet are found in *Appendix A*. Atmospheric conditions during the ABB survey were considered favorable and within the required thresholds specified by the USFWS survey guidance. The following table provides a synopsis of the weather conditions during the subject survey:

| Trap Night | Daytime Temp Range |      | Survey Period Temp Range |      | Daily Humidity Range |      |
|------------|--------------------|------|--------------------------|------|----------------------|------|
|            | Min                | Max  | Min                      | Max  | Min                  | Max  |
| 1          | 71.2               | 89.6 | 72.9                     | 77.4 | 66                   | 97   |
| 2          | 70.9               | 78.4 | 70.5                     | 72.9 | 70.5                 | 72.9 |
| 3          | 70.3               | 84.6 | 0                        | 75.4 | 71                   | 98   |
| 4          | 71.1               | 92.1 | 72.7                     | 74.8 | 56                   | 98   |
| 5          | 71.1               | 90.3 | 72.6                     | 80.8 | 60                   | 98   |
| 6          | 0                  | 0    | 0                        | 0    | 0                    | 0    |
| 7          | 0                  | 0    | 0                        | 0    | 0                    | 0    |
| 8          | 0                  | 0    | 0                        | 0    | 0                    | 0    |

A representative photograph of the trap location and surrounding habitat is provided below:

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ABB Trap 1 and Habitat Surveyed



ABB Trap 2 and Habitat Surveyed

## AMERICAN BURYING BEETLE SURVEY

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ABB Trap 3 and Habitat Surveyed



ABB Trap 4 and Habitat Surveyed

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### V. Conclusion

The subject survey was performed in an effort to identify the presence of American Burying Beetles within or near the project corridor. One transect was deployed in suitable ABB habitat to ensure adequate coverage and maintained for 5 trap nights. The survey resulted in a *negative presence of American Burying Beetles*. Based on this negative collection, consultation with the Tulsa Ecological Field Services Office of the U.S. Fish and Wildlife Service may be required to secure concurrence with the determination of effect prior to project development.

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### VI. References

United States Department of Agriculture. Natural Resources Conservation Service, Soil Survey Staff.  
Web Soil Survey: <http://websoilsurvey.nrcs.usda.gov/>.

United States Fish and Wildlife Service. 2018. American Burying Beetle *Nicrophorus americanus*  
Oklahoma Presence/Absence Live-trapping Survey Guidance. 15 pages.

United States Geological Survey. 7.5-Minute Topographic Map

*Weather Underground*. The Weather Channel, LLC, 1993. Web. September 2020.

Woods, et al 2005. Oklahoma (color poster with map, Ecoregions of descriptive text, summary tables,  
and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,000,000).

## **Appendix A**

### **Survey Data Forms**

Appendix A: Data Collection Forms\*\*\* American Burying Beetle *Nicrophorus americanus* Presence/Absence Live-trapping Survey Guidance

ENTER DATA IN COLOR-SHADED CELLS ONLY IN CELLS THAT REQUIRE DATA ENTRY - DO NOT ENTER DATA IN WHITE CELLS OR HEADER ROWS

AMERICAN BURYING BEETLE SURVEY DATA COLLECTION FORM (April 2017)

|                          |                                      |                            |              |               |                   |
|--------------------------|--------------------------------------|----------------------------|--------------|---------------|-------------------|
| Project Name:            | Rail Spur                            | No. of Transects Deployed: | 4            | Survey Night: | 1                 |
| Project Description:     | Port of Catoosa Rail Spur Project    | Trap Type:                 | Above Ground | Date Checked: | September 1, 2020 |
| Action Agency/Proponent: | Port of Catoosa                      | Bait Type:                 | Aged Chicken | Month:        | Sep               |
| Permittee:               | Steve Votaw                          | Trap Cover Size:           | 24"          | Date:         | 5                 |
| TE Permit #:             | TE-043399                            | Set Date:                  | 8/31/2020    | Year:         | 2020              |
| Survey Company:          | Eagle Environmental Consulting, Inc. | Survey End Date:           |              |               |                   |

Trap Location Data

| Trap No. | Trap Coordinates |           | Legal Description |         |         | Gen Location | County | State | Vegetation Type | Primary Soil Name    | Soil Description | Area | Weather Station |
|----------|------------------|-----------|-------------------|---------|---------|--------------|--------|-------|-----------------|----------------------|------------------|------|-----------------|
|          | Latitude         | Longitude | Township          | Range   | Section |              |        |       |                 |                      |                  |      |                 |
| 1        | 36.1190          | -95.5372  | 19 North          | 17 East | 19      | Inola        | Rogers | OK    | Field           | Taloka Silt Loam     | Loam             | 509  | KOKINOLA3       |
| 2        | 36.1250          | -95.5242  | 19 North          | 17 East | 17      | Inola        | Rogers | OK    | Woodland/Field  | Dennis Silt Loam     | Loam             | 509  | KOKINOLA3       |
| 3        | 36.1253          | -95.5121  | 19 North          | 17 East | 17      | Inola        | Rogers | OK    | Woodland/Field  | Choteau Silt Loam    | Loam             | 509  | KOKINOLA3       |
| 4        | 36.1251          | -95.4926  | 19 North          | 17 East | 15      | Inola        | Rogers | OK    | Field           | Dennis Bates Complex | Loam             | 509  | KOKINOLA3       |

Weather Data

|               |          |        |                     |        |        |                |        |        |
|---------------|----------|--------|---------------------|--------|--------|----------------|--------|--------|
| Daytime Temps | 71.2     | 89.6   | Survey Period Temps | 72.9   | 77.4   | Humidity       | 66     | 97     |
|               | (min.)   | (max.) |                     | (min.) | (max.) |                | (min.) | (max.) |
| Wind-10mph?²  | No       |        | Heavy Rain?²        | No     |        | Soil Moisture¹ | 2.997  |        |
|               | (Yes/No) |        |                     |        |        |                |        |        |

Capture Data

| Trap No. | Disturbed (Y=1/N=0) | <i>Nicrophorus</i> species |                   |                   |                   |                   |                  |             |   | <i>Necrophila americana</i> | <i>Nicrodes surinamensis</i> | Trap Night Valid (No=0/Yes=1) | Time Checked¹: |
|----------|---------------------|----------------------------|-------------------|-------------------|-------------------|-------------------|------------------|-------------|---|-----------------------------|------------------------------|-------------------------------|----------------|
|          |                     | <i>americanus</i>          | <i>orbicollis</i> | <i>tomentosus</i> | <i>pustulatus</i> | <i>marginatus</i> | <i>carolinus</i> | <i>sayi</i> |   |                             |                              |                               |                |
| 1        | 0                   | 0                          | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0 | 0                           | 0                            | 1                             | 832            |
| 2        | 0                   | 0                          | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0 | 0                           | 0                            | 1                             | 841            |
| 3        | 0                   | 0                          | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0 | 0                           | 0                            | 1                             | 853            |
| 4        | 0                   | 0                          | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0 | 0                           | 0                            | 1                             | 906            |
| 0        | 0                   | 0                          | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0 | 0                           | 0                            | 0                             |                |
| 0        | 0                   | 0                          | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0 | 0                           | 0                            | 0                             |                |
| 0        | 0                   | 0                          | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0 | 0                           | 0                            | 0                             |                |
| 0        | 0                   | 0                          | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0 | 0                           | 0                            | 0                             |                |
| 0        | 0                   | 0                          | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0 | 0                           | 0                            | 0                             |                |
| 0        | 0                   | 0                          | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0 | 0                           | 0                            | 0                             |                |
| Totals   | 0                   | 0                          | 0                 | 0                 | 0                 | 0                 | 0                | 0           | 0 | 0                           | 0                            | 4                             |                |

No. of disturbed traps and/or bait (D): 0 Additional survey night required because of weather?¹ 0 # Valid Trap Nights: 4

List the individual ABB METRICS below and complete the appropriate columns. You will then COPY each row and PASTE into Individual ABB Capture Form BEGINNING at Cell A442 on Pg 6.

| ABB Number      | Caught in Trap No. | Male | Female | Unknown Sex | Male New³ | Male Old³ | Female New³ | Female Old³ | Male Unknown Age³ | Female Unknown Age³ | Dead | Pronotum Width (mm) | Picture (Yes=1/No=0) | Recapture¹⁰ | Newly Marked¹¹ |
|-----------------|--------------------|------|--------|-------------|-----------|-----------|-------------|-------------|-------------------|---------------------|------|---------------------|----------------------|-------------|----------------|
|                 |                    |      |        |             |           |           |             |             |                   |                     |      |                     |                      |             |                |
|                 |                    |      |        |             |           |           |             |             |                   |                     |      |                     |                      |             |                |
|                 |                    |      |        |             |           |           |             |             |                   |                     |      |                     |                      |             |                |
|                 |                    |      |        |             |           |           |             |             |                   |                     |      |                     |                      |             |                |
|                 |                    |      |        |             |           |           |             |             |                   |                     |      |                     |                      |             |                |
|                 |                    |      |        |             |           |           |             |             |                   |                     |      |                     |                      |             |                |
|                 |                    |      |        |             |           |           |             |             |                   |                     |      |                     |                      |             |                |
|                 |                    |      |        |             |           |           |             |             |                   |                     |      |                     |                      |             |                |
|                 |                    |      |        |             |           |           |             |             |                   |                     |      |                     |                      |             |                |
| Automated Total | 0                  | 0    | 0      | 0           | 0         | 0         | 0           | 0           | 0                 | 0                   | 0    | NA                  | 0                    |             |                |

Comments: Trap 1 closed and removed after positive collection









