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June 19, 2020

Mr. Jason Musante
Federal On-Scene Coordinator
U. S. Environmental Protection Agency
Region 9, Emergency Response Section
2445 North Palm Drive, Suite 100
Signal Hill, CA 90755

**Subject: Iron King Mine-Humboldt Smelter Site
Interim Removal Action Report
Dewey-Humboldt, Yavapai County, Arizona
Task Order No.: 68HE0919F0133-00
Document Control No.: 0039-08-AABZ**

Dear Mr. Musante:

Under Task Order No. 68HE0919F0133, the U.S. Environmental Protection Agency (EPA) Region 9 Emergency Response Section (ERS) tasked the Weston Solutions, Inc. (WESTON[®]) Superfund Technical Assessment and Response Team (START) to assist Federal On-Scene Coordinator (FOSC) Jason Musante with an interim removal action at the Iron King Mine-Humboldt Smelter National Priorities List (NPL) Site (the Site) located in Dewey-Humboldt, Arizona (Figure 1). EPA requested that START provide oversight and documentation of the interim action activities. Documented activities included application of dust and erosion control agents, construction of new roads and fencing to limit access, and recording areas covered by dross (a by-product of the smelting process, which may contain lead and arsenic). The interim removal action was conducted from November 3 through November 15, 2019 and again from December 2 through December 9, 2019.

This report presents a summary of the interim removal action site activities, and includes two attachments. **Attachment A** provides figures for the interim removal action and **Attachment B** provides a photographic log of Site conditions during the interim removal action.

SITE DESCRIPTION

The Site is located in the Town of Dewey-Humboldt, Yavapai County, Arizona (Figure 1). The Site consists of the former Iron King Mine, the former Humboldt Smelter, and select properties located within the town of Dewey-Humboldt. The Town of Dewey-Humboldt is approximately 19 square miles and located at an elevation of approximately 4,600 feet above sea level. The geographical coordinates for the approximate center of the town of Dewey-Humboldt are 34° 30' 22" north latitude and 112° 14' 34" west longitude. This interim removal action focused entirely on the Former Humboldt Smelter area. The Former Humboldt Smelter is adjacent to several Site properties on Prescott Street.

The Site contains dross, slag, tailings, and a dilapidated smelter stack with nearby buildings. Dross, a fine-grained by-product of the smelting process may contain elevated levels of lead and arsenic,



covers approximately 11 acres of the Site. The Site is primarily unpaved and contains minor changes in topography with dispersed areas of vegetation.

BACKGROUND

The Iron King Mine-Humboldt Smelter Superfund site was listed on the NPL in 2008 and the Remedial Investigation was completed in 2016. The site was listed on the NPL in 2008 because of contamination caused by the historical operations at the former Iron King Mine and the former Humboldt Smelter. Mining and smelting operations at the Humboldt Smelter began in the late 1870s and encompassed approximately 180 acres. After small-scale operations were conducted in the late 1800s, the Humboldt Smelter purified copper from mine ores between 1906 and about 1934. Smaller mining facilities also operated in the area between 1906 and 1934. From approximately 1934 to 1970, Iron King Mine extracted, milled, and concentrated solid rock ores for lead, zinc, copper, gold, and silver. Most production took place during World War I. In the 1950s and 1960s, small processing operations attempted to recover metals from materials brought to the old smelter property (EPA, 2016).

Three previous interim removal actions occurred at the Site in 2006, 2011, and 2017, which focused predominantly on residential properties. During these previous removal actions, dust control agents were applied over portions of the dross in the Humboldt Smelter area in an attempt to stabilize fine-grained soils and particulates, and prevent them from mobilizing. These agents degraded over time and became ineffective, allowing the potential for contaminants to migrate off-site.

INTERIM REMOVAL ACTION ACTIVITIES

On November 3, 2019, the EPA and Emergency and Rapid Response Services contractor (ERRS) mobilized to the Site to begin preparation work for the application of the dust and erosion control agent (Posi-Shell[®]) and for the construction of fencing. ERRS refurbished and installed several roads throughout the Smelter area to provide better access for the Posi-Shell[®] application throughout the dross-covered areas of the site. Fencing was installed along the northeast portion of the site on top of the slag pile. The fencing was installed to limit access to the site, to prevent exposure to and migration of site contaminants. START mobilized on November 11, 2019 to document site conditions, the area of the Site covered by dross, the location of the road and fence installation, and to oversee Site activities. On November 13, 2019, Posi-Shell[®] application covering dross material began in the northeastern portion of the site. The Posi-Shell[®] material is a mixture of clay binders, reinforcing fibers, polymers, cement, and water, which is applied in a spray-like manner and forms a thin layer of stucco that adheres to the surface and prevents erosion. An approximate 10,000-square foot area of dross material was covered by the Posi-Shell[®] during this application. On November 15, 2019, after completion of fence installation and road refurbishing and construction in preparation for future Posi-Shell[®] application, EPA, START, and ERRS demobilized from the Site. A Site Layout of these initial actions are presented in Figure 2.

On December 2, 2019, EPA and ERRS remobilized to the site for the second application event of Posi-Shell[®]. Utilizing the newly constructed access roads, an approximate area of 13 acres was covered with Posi-Shell[®]. Posi-shell[®] was applied to the majority of the dross-covered areas of the Site. Some dross-covered areas were not addressed because the areas were smaller in size and/or difficult to access and appeared to have less potential impact on residents. On December 9, 2019, after completion and documentation of the Posi-Shell[®] application, EPA and ERRS demobilized



from the Site, having completed all activities for this interim removal action. The areas of the Site covered by dross material and the Posi-Shell[®] application areas are presented in Figure 3.

SUMMARY

EPA requested that START provide technical support for the an interim removal action at the Former Humboldt Smelter area of the Iron King Mine-Humboldt Smelter NPL Site located in Dewey-Humboldt, Arizona. Three previous interim removal actions occurred at the Site in 2006, 2011, and 2017, predominantly focusing on residential properties and application of dust control agents over portions of the dross material in the Humboldt Smelter area. Approximately 11 acres of the Site are covered by dross material. These fine-grained dross materials have the potential to migrate off-site. ERRS contractors applied the dust control agent, Posi-Shell[®], over approximately 13 acres of the dross-covered areas, leaving a few areas un-addressed due to limited accessibility. Fencing was also installed to limit Site access and to prevent exposure to and migration of site contaminants. The interim removal action was initiated on November 3, 2019 and concluded operations on December 9, 2019.

Respectfully,
WESTON SOLUTIONS, Inc.

A handwritten signature in blue ink that reads "Richard A. Mehl, Jr." in a cursive script.

Rick Mehl
START Project Manager

Attachments:

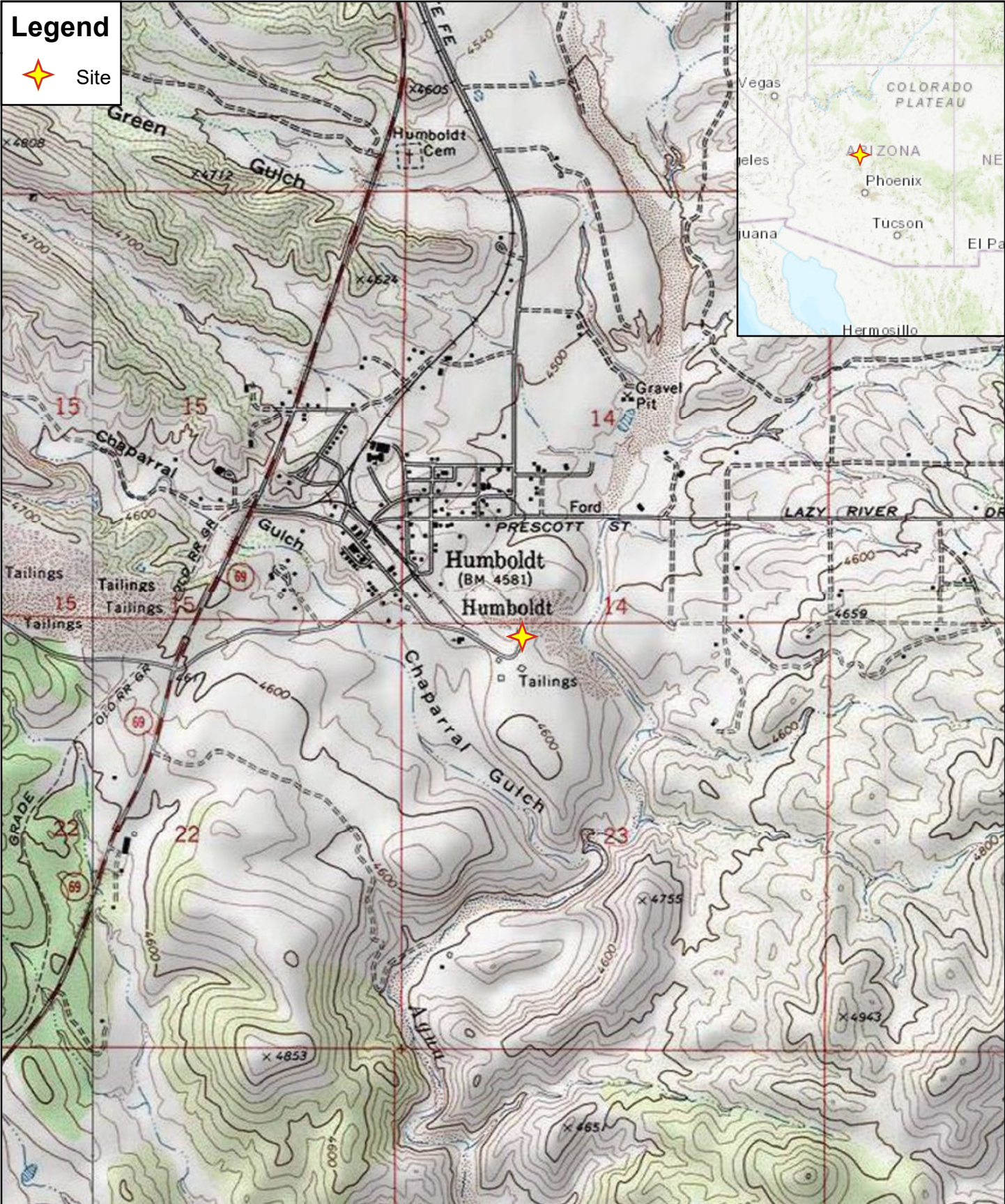
- A – Figures
- B – Photographic Documentation

cc: WESTON START DCN File

References:

EPA. 2016. Response.EPA.Gov. 2016. Iron King Mine / Humboldt Smelter.
Available online at: https://response.epa.gov/site/site_profile.aspx?site_id=11828

ATTACHMENT A
FIGURES



Legend



Site



0 Scale in Miles 0.5



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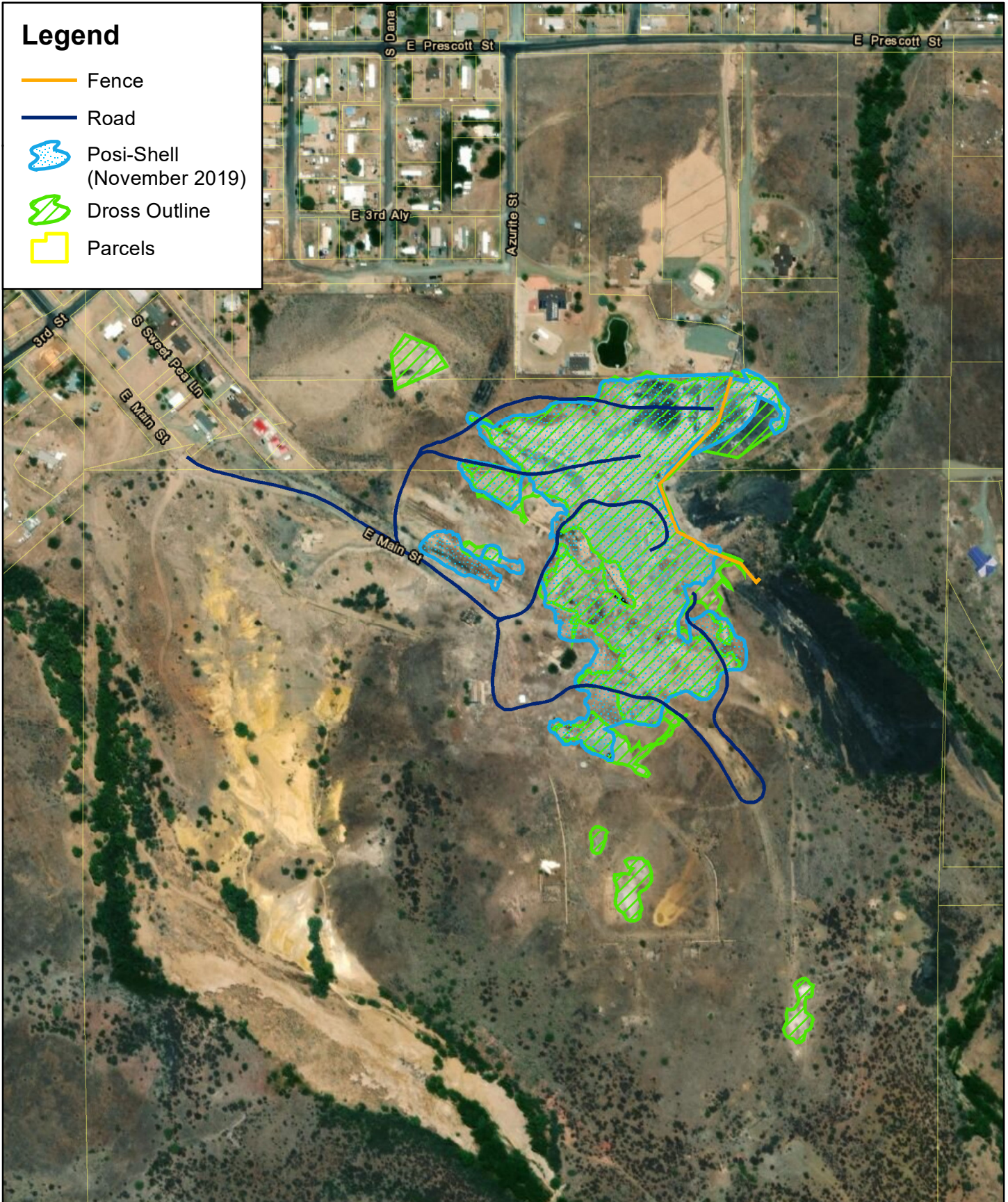
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FIGURE 1
SITE LOCATION MAP
Iron King Mine
Dewey-Humboldt,
Yavapai County, Arizona

Legend

-  Fence
-  Road
-  Posi-Shell
(November 2019)
-  Dross Outline
-  Parcels



0 Feet 600

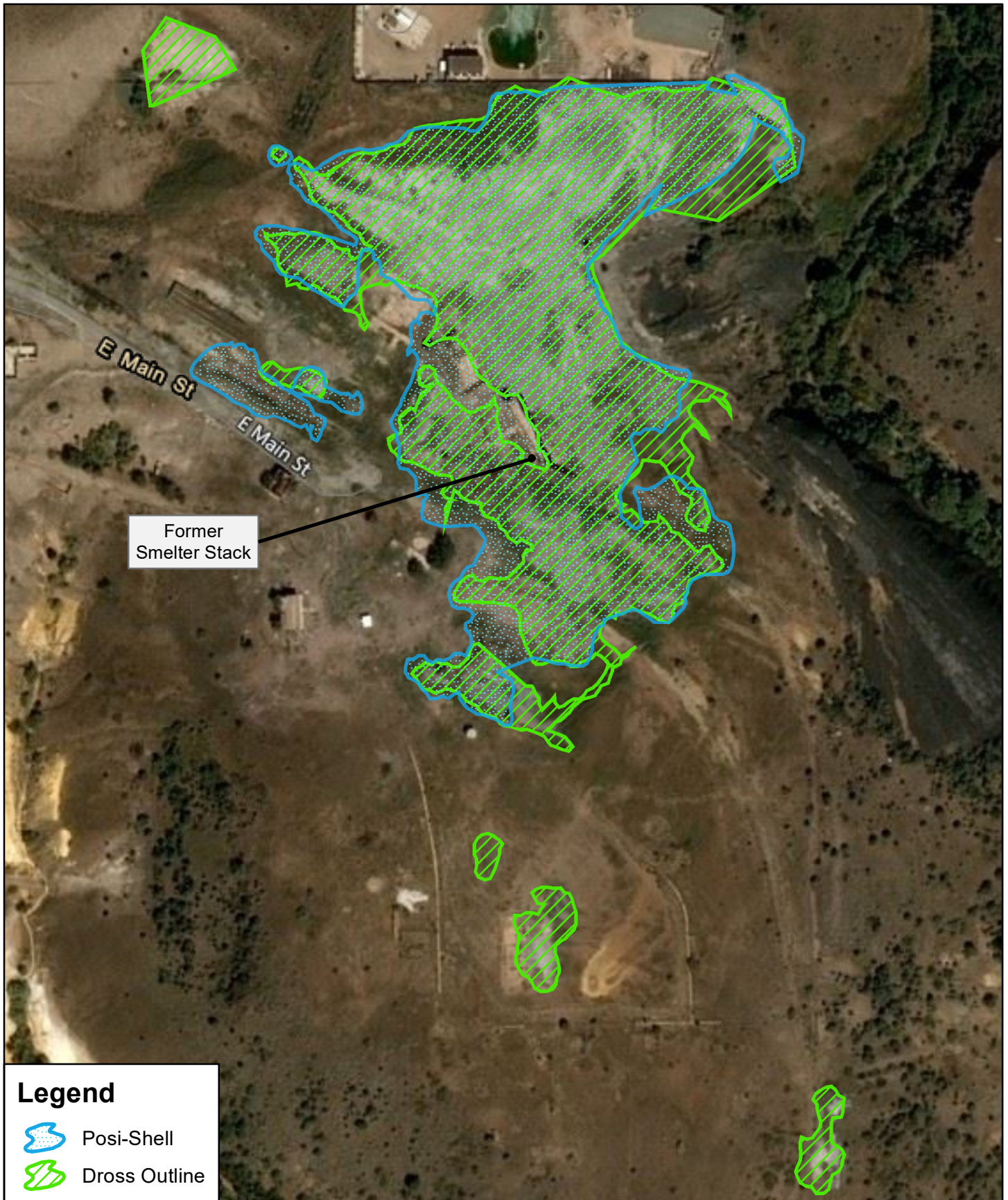


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FIGURE 2
SITE LAYOUT
Iron King Mine
Dewey-Humboldt,
Yavapai County, Arizona



Legend

-  Posi-Shell
-  Dross Outline



0 Feet 300



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FIGURE 3
SITE FEATURES
 Iron King Mine
 Dewey-Humboldt,
 Yavapai County, Arizona

ATTACHMENT B
PHOTOGRAPHIC DOCUMENTATION

| | | |
|--|--|---|
| Project Name: Iron King Mine | Site Location: Dewey-Humboldt, Yavapai County, Arizona | Task Order No.: 68HE0919F0133 |
|--|--|---|

| | | |
|---|-------------------------|--|
| Photo No.1 | Date: 12/6/19 | |
| Direction Photo Taken: North | | |
| Description: Overview of southeastern portion of the Site with Posi-Shell®-covered dross. | | |

| | | |
|---|--------------------------|--|
| Photo No. 2 | Date: 11/13/19 | |
| Direction Photo Taken: Northeast | | |
| Description: View of newly constructed roads and fencing. | | |

| | | |
|--|--|---|
| Project Name: Iron King Mine | Site Location: Dewey-Humboldt, Yavapai County, Arizona | Task Order No.: 68HE0919F0133 |
|--|--|---|

| | |
|---|----------------------------|
| Photo No. 3 | Date: 11/12/2019 |
| Direction Photo Taken: North | |

Description:
Overview of slag pile and dross prior to Posi-Shell® application in northeast portion of the Site.



| | |
|--|--------------------------|
| Photo No. 4 | Date: 11/13/19 |
| Direction Photo Taken: East | |

Description:
View of Posi-Shell® application in the northeast portion of the Site.



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|--|--|---|
| Project Name: Iron King Mine | Site Location: Dewey-Humboldt, Yavapai County, Arizona | Task Order No.: 68HE0919F0133 |
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| | |
|---|--------------------------|
| Photo No. 5 | Date: 11/14/19 |
| Direction Photo Taken: North | |

Description:
View of slag pile and dross areas the northeast portion of the Site after Posi-Shell® application.



| | |
|---|-------------------------|
| Photo No. 6 | Date: 12/7/19 |
| Direction Photo Taken: North | |

Description:
View of former smelter stack and Posi-Shell® application over dross-covered areas.



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|--|--|---|
| Project Name: Iron King Mine | Site Location: Dewey-Humboldt, Yavapai County, Arizona | Task Order No.: 68HE0919F0133 |
|--|--|---|

| | |
|--|-------------------------|
| Photo No. 7 | Date: 12/3/19 |
| Direction Photo Taken: East | |

Description:

Posi-Shell® application in the northeast portion of the Site, utilizing the newly constructed road.



| | |
|---|-------------------------|
| Photo No. 8 | Date: 12/6/19 |
| Direction Photo Taken: Northwest | |

Description:

View of dross covered with Posi-Shell® in the southeastern portion of the Site.



| | | |
|--|--|--------------------------------------|
| Project Name: Iron King Mine | Site Location: Dewey-Humboldt, Yavapai County, Arizona | Subtask No.: 68HE0919F0133 |
|--|--|--------------------------------------|

| | |
|--|-------------------------|
| Photo No. 9 | Date: 12/7/19 |
| Direction Photo Taken: Northeast | |
| Description: Posi-Shell® covering dross and associated vegetation. | |



| | |
|--|-------------------------|
| Photo No. 10 | Date: 12/7/19 |
| Direction Photo Taken: Northeast | |
| Description: View of Posi-Shell® covered area south of the former smelter stack. | |

