APPENDIX I – APPLICANT PROJECT MITIGATION

RIPSEY WASH TAILINGS STORAGE FACILITY
ENVIRONMENTAL PROTECTION MEASURES AND MONITORING
(CORPS FILE NO. SPL-2011-1005-MWL)

Prepared for: US Army Corps of Engineers

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On Behalf of: ASARCO LLC

Date: June 19, 2015

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FIGURES

(*follow text*)

1. INTRODUCTION AND BACKGROUND

ASARCO LLC (Asarco) has identified the need for an additional tailings storage facility (TSF) to support ongoing mining operations at the Ray Mine in Pinal County, Arizona (***Figure 1***). The construction of a TSF and associated infrastructure (the Project) will require the discharge of fill material to surface drainage features that are considered waters of the United States by the US Army Corps of Engineers (Corps), thus requiring a Clean Water Act (CWA) Section 404 permit.

A variety of environmental protection measures have been incorporated into the Project design that are either voluntary or intended to meet the applicable standards of regulatory agencies such as the Arizona Department of Environmental Quality (ADEQ), the Arizona State Mine Inspector's Office, and the Corps.

The proposed TSF will impact Ripsey Wash and its tributaries as well as an unnamed drainage east of Ripsey Wash (***Figure 2***). The TSF is designed to support up to approximately 750 million tons of tailings through the remaining life of ongoing sulfide ore mining at the Ray Mine. Tailings will be applied to the TSF using a centerline construction method for the first approximately 18 years (depending on production volumes), after which an upstream construction method will be used for the remaining life of the facility. Two rock-fill starter dams will be constructed, one in Ripsey Wash and one in the unnamed drainage. Underdrains will be constructed beneath the two starter dams and seepage from the drains will be collected in two reclaim ponds, the Main and East Reclaim Ponds. An upstream diversion dam will be constructed across Ripsey Wash at the southern end of the ultimate impoundment footprint. Stormwater from the upstream watershed will be routed around the TSF via a stormwater diversion channel on the eastern side of the TSF and a series of detention ponds, pump stations, and pipes on the western side of the TSF (***Figure 2***).

In addition to its CWA Section 404 permit application, Asarco has submitted or will submit the following major permit applications for the Project:

- Aquifer Protection Permit (APP) (ADEQ)
- 401 Water Quality Certification of Section 404 Permit (ADEQ)
- Arizona Pollutant Discharge Elimination System Mining Multi-sector General Permit (AZPDES Mining MSGP) (ADEQ)
- Title V permit amendment (Pinal County)
- Mined Land Reclamation permit (Arizona State Mine Inspector)

The purpose of this memorandum is to provide a list of the proposed environmental protection and monitoring measures that would be implemented as part of the Project to support the Project analysis under the National Environmental Policy Act. The primary environmental control practices that have been incorporated into the project design as of the date of this memorandum are summarized in the sections below.

This memorandum addresses:

- air quality
- surface water protection measures
- groundwater protection measures
- fuel storage and hazardous materials transport measures
- waste management
- noxious weed prevention
- closure and reclamation
- emergency preparedness

2. AIR QUALITY

Construction activities at the TSF will require a dust control permit from Pinal County, and Asarco and its contractors will be subject to the fugitive dust control requirements contained in Chapter 4, Article 3 (§ 4-3-060 *et seq.*) of the Pinal County Air Quality Control District's code of regulations. Fugitive dust control measures will include watering and other measures developed pursuant to that permit.

The TSF will also be added as an area source to the existing Title V permit held by the Ray Mine and subject to controls that the County deems appropriate for such sources. During the operational phase, the emphasis will again be on the control of windblown dispersion. The supernatant pond maintained on the top of the tailings will help keep that area wet and prevent tailings from being blown away from the facility. In addition, Asarco plans to use a binding agent or tackifier on the outer slopes of the TSF as it is being operated.

During both construction and operation, if visual observation suggests that excessive dust is being generated, a Method 9 trained operator will determine whether opacity (no greater than 20 percent at the property boundary) and other permit standards are being met.

After the switch from centerline to upstream construction, Asarco plans to begin reclaiming the outer slopes of the TSF. Following the completion of a set of three 10-foot lifts, a 60-foot setback (bench) will be created before the next set of lifts is begun. At that point, Asarco will reclaim the recently completed series of lifts through the placement of rock material on the exterior of the TSF. This practice will help reduce the potential for windblown dispersion.

3. SURFACE WATER PROTECTION MEASURES

Stormwater flows in the upstream watershed will be diverted around the eastern and western sides of the TSF. A large detention basin will be constructed in Ripsey Wash upstream of the TSF to temporarily detain water before it is released to Zelleweger Wash. In addition, seven smaller detention facilities will be constructed in unnamed tributaries to the southwest of the facility (where rough topography precludes the installation of a diversion channel), which will temporarily detain water before it is released to Zelleweger Wash.

3.1. STORMWATER DIVERSIONS

The diversion of stormwater is intended to (1) convey upgradient stormwater around the proposed tailings facility and allow it to flow to the Gila River, as currently occurs; and (2) protect the tailings facility from potential adverse impacts associated with heavy upstream flows from larger storm events.

Upgradient Dam and Spillway

Stormwater from undisturbed watershed areas upstream of the TSF would be diverted around the TSF and allowed to continue to ultimately flow to the Gila River. A large detention dam (designed to handle flows from a 500-year, 24-hour storm event) would be constructed in the upper part of Ripsey Wash just upstream of the proposed TSF footprint (***Figure 2***). Detained water would be pumped to Zelleweger Wash through pipes. In the highly unlikely event of a greater storm event, this detention dam structure would be installed with an emergency spillway that would allow flow in excess of the design storm event to discharge into the tailings impoundment. Upon closure of the TSF, the detention dam would be raised about 10 feet to detain the stormwater volume from the probable maximum precipitation event and would remain a permanent feature.

East Diversion Channel

To intercept stormwater flow on the eastern side of the proposed Ripsey Wash TSF, an approximately 16,000-foot (about 3-mile-long) diversion channel would be constructed to handle flow from a 100-year, 24-hour storm event (***Figure 2***). Flow intercepted by this diversion channel would be routed to an unnamed wash to the east of the facility.

An energy dissipater at the outfall location within the unnamed drainage east of Ripsey Wash would be constructed to control discharge velocity to reduce the potential for down-drainage erosion.

West Diversion Pipeline and Detention Ponds

Water from the upper Ripsey Wash watershed is intercepted by a detention dam and routed around the Ripsey Wash TSF by pumping through a piping system for discharge into Zelleweger Wash, a drainage located west of Ripsey Wash (***Figure 2***). A series of seven smaller interceptor detention dams on the western side of the Ripsey Wash TSF would serve to intercept upstream stormwater flow and pump it to Zelleweger Wash. When stormwater collects behind these detention dams, it will be pumped to Zelleweger Wash (through the same outfall location as water from the main detention dam is released to Zelleweger Wash).

An energy dissipater at the outfall location within Zelleweger Wash would be constructed to control discharge velocity to reduce the potential for down-drainage erosion.

3.2. STORMWATER POLLUTION PREVENTION PLAN

In addition to the diversion of unimpacted stormwater around the proposed TSF, Asarco will also implement measures to contain and control stormwater that impacts the TSF. Pursuant to the AZPDES

Mining MSGP, a Stormwater Pollution Prevention Plan (SWPPP) will be developed for the construction and active operation of the TSF. Pursuant to the SWPPP, structural and non-structural control measures will be employed to contain or treat runoff from disturbed areas as well as the TSF (once constructed).

During construction, the primary pollutant of concern is sediment, and measures would be developed to address this pollutant. It is anticipated that some stormwater will be allowed to discharge during the construction phase after being treated to reduce sediment. The SWPPP for the Project is still under development, but will be designed to comply with the requirements of Part 8.G.4 of the Mining MSGP, which addresses control measures for the construction phase of mining operations. Control measures at the proposed Ripsey Wash TSF during the construction phase will focus on sediment control (using silt fences, wattles, sandbag barriers, sediment traps, and detention basins). Good housekeeping measures will also be implemented. In addition, the stormwater diversions discussed above will be constructed early in the project, thereby helping to control stormwater volume and velocity within the site. Pursuant to the Mining MSGP (Part 8.G.4.3), inspections will be conducted at least once every 30 days and within 24 hours of each storm event resulting in a discharge. A comprehensive annual inspection will also be conducted (pursuant to Part 4.3.1 of the Mining MSGP). Visual inspection of stormwater discharges will occur twice per wet season, as practicable, pursuant to Part 4.2 of the Mining MSGP (likely using representative outfalls given the size of the site).

During operations, pollutants in addition to sediment are also of concern. The primary control measure during the operational phase will be containment, with the goal being to prevent the discharge of stormwater that has contacted the TSF (primarily the northeastern, northern, and northwestern side slopes). Dikes at the top of the tailings impoundment will contain the water accumulated in the supernatant pond and prevent it from being discharged to surface waters. Four contact water channels designed to handle peak flows associated with the 100-year, 24-hour event will convey stormwater to two large retention basins (the Main and East Reclaim Ponds, described further below, which will also receive seepage and underflow from the impoundment). These two impoundments will be designed to contain flows from the 100-year, 24-hour storm event, in combination with expected underflow volumes, while still maintaining 2 feet of freeboard. Finally, four small ponds will be created along the western side of the TSF at topographical low points (***Figure 2***). These ponds will capture stormwater run-on from upgradient areas and prevent it from contacting the TSF. Pumps and pipes will convey accumulated run-on to Zelleweger Wash.

During the operational phase, quarterly inspections are required under the Mining MSGP, as is a comprehensive annual inspection. If any discharge occurs, visual monitoring is required, as is general analytical monitoring under Part 8.G.8.1 of the Mining MSGP.

3.3. SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PLAN

The proposed TSF will likely include oil-filled operational equipment associated with project infrastructure (e.g., pumps, transformers, electric distribution switchgear). In addition, it is possible that a maintenance shop will be constructed at the TSF; if this occurs, oil may be stored at that location. The Ray Operations' existing Spill Prevention, Control, and Countermeasures (SPCC) Plan will be amended

to encompass the oil stored at the TSF site. The SPCC Plan addresses how the Ray Operations complies with the requirements of 40 C.F.R. Part 112, including secondary containment, employee training, and emergency response requirements. In addition, Asarco will add any oil storage containers at the TSF to the routine visual inspections currently conducted under the SPCC program at the rest of the Ray Operations. Most oil storage containers are currently inspected on a quarterly basis, and inspections are expected to occur at the same frequency for any containers at the TSF site. Bulk storage containers must also be periodically inspected for integrity at frequencies consistent with recommendations of the Steel Tank Institute.

3.4. RECLAIM (SEEPAGE CONTROL) PONDS AND ENCASING OF TAILINGS PIPELINE WITH ASSOCIATED DRAIN-DOWN POND

In addition to serving as stormwater containment ponds, the Main and East Reclaim Ponds will also collect water from the alluvial cutoffs and seepage collection systems to be constructed in Ripsey Wash and the unnamed eastern drainage, as well as water from the planned underdrain channel. This will serve to prevent any TSF seepage from traveling toward the Gila River.

The portion of the tailings and reclaim water pipelines that crosses the Gila River will be encased. If the interior pipeline leaks, the leaked material will be captured by the outer casing and gravity-feed to the proposed Drain-down Pond located on the northern side of the Gila River. This design feature is intended to protect the Gila River.

4. GROUNDWATER PROTECTION MEASURES

Project components are subject to the requirements of the State of Arizona's APP Program (Arizona Administrative Code R18-9-101 through 113), and Asarco's application is currently being processed by ADEQ. The TSF will be constructed using Best Available Demonstrated Control Technology (BADCT) for tailings impoundments to protect groundwater. For the proposed TSF, Asarco used a combination of individual and prescriptive BADCT elements, as described in ADEQ's Mining BADCT Guidance Manual. These elements include:

- presence of bedrock at shallow levels through most of the proposed TSF footprint
- excavate to bedrock and slime sealing upstream of the embankment
- cut-off walls and seepage collection trenches in Ripsey Wash and the unnamed eastern drainage
- use of a geosynthetic liner and slime sealing in the portion of the TSF where the Hackberry Fault crosses beneath Ripsey Wash alluvium
- construction of an underdrain channel to convey water past the portion of the impoundment where the Hackberry Fault crosses beneath Ripsey Wash alluvium
- cycloned tailings embankment construction to obtain a non-liquefiable stability zone
- routing of stormwater from upstream areas around the impoundment

- control and collection of stormwater runoff from the slopes of the tailings embankment
- double-lined non-stormwater ponds with leak-detection systems (Main and East Reclaim Ponds, Drain-down Pond)

For some facilities, the proposed design includes elements going beyond prescriptive BADCT as outlined in the BADCT Guidance Manual. For example, the Main and East Reclaim Ponds, as well as the Drain-down Pond, incorporate a double liner with a leak-detection system design protections. Prescriptive BADCT for non-stormwater ponds (as set out in Section 2.2.2.4 of the BADCT Guidance Manual) calls for only a single liner with no leak-detection system.

The APP will impose inspection requirements for the TSF and associated impoundments. For example, the existing APP for the Ray Operations requires a combination of weekly, monthly, and annual inspections of the Eder Gulch TSF. Similarly, the existing APP requires a combination of weekly and monthly inspections of lined non-stormwater impoundments. A similar scope of facility inspection is likely in the APP for the lined impoundments associated with the new TSF.

Proposed groundwater protection measures are described more fully below.

4.1. INTERNAL CONTAINMENT DAM AND SEEPAGE COLLECTION

The western side of the proposed Ripsey Wash TSF is underlain by the Hackberry Fault, expressed as a zone of fractures and breccia that have a higher permeability than the surrounding bedrock. Prior to the construction of the starter dam in the area of the Hackberry Fault zone, Asarco would remove vegetation material for the length of the fault zone, both beneath the starter dam and up-drainage of the starter dam, along the trace of the fault zone (where the fault line intersects the surface) within the footprint of the proposed tailings impoundment. Asarco would also remove much of the alluvial material above the trace of the fault zone within the planned footprint of the TSF.[1] The exposed trace of the Hackberry Fault would then be compacted using a vibratory compactor or similar machine. Immediately down-gradient of the fault zone and within the footprint of the tailings impoundment area, a containment dam oriented approximately perpendicular to the starter dam would be constructed. The up-drainage side of the starter dam in the vicinity of the fault zone and the up-drainage side of the inside containment dam would be lined with an 80-mil HDPE (or equivalent) liner. Up-gradient of the internal containment dam, and immediately up-gradient of the trace of the fault zone, Asarco would begin the placement of tailings material such that the tailings fines would seal the fault zone and prevent seepage under the starter dam at the site where it intersects the Hackberry Fault zone. Underdrains will be constructed within the TSF basin to convey water past the portion of the impoundment where the Hackberry Fault crosses beneath the Ripsey Wash alluvium. A monitoring well down-gradient of the tailings embankment within the Hackberry Fault zone will be placed to serve as a point of compliance with the Project's ADEQ APP. The purpose of this well is to characterize and monitor groundwater conditions within the fault zone during operations and as part of post-closure activities (see ***Section 4.3***).

[1] This material will be integrated into the starter dam.

Down-gradient of the starter and containment dams, Asarco plans to install seepage trenches to intercept any water seepage that might migrate under the TSF through the alluvium material located above the bedrock. The trenches would be excavated into bedrock to depths ranging from a few feet on the outer reaches of the washes to approximately 100 feet in the middle of the Ripsey Wash drainage. Pumps and piping would be installed in the seepage trenches to route any collected water to two lined reclaim ponds (the Main and East Reclaim Ponds).

The Main and East Reclaim Ponds will be double-lined non-stormwater impoundments located in the main drainages (Ripsey Wash and the unnamed eastern drainage) down-gradient of the TSF. The ponds will collect seepage and underflow from the TSF in addition to containing stormwater runoff that has contacted the TSF. Both ponds will be designed to contain runoff associated with a 100-year, 24-hour storm event, as well as normal operating volumes of seepage and underflow, while still maintaining 2 feet of freeboard. Water collected in the ponds will be pumped back to the Ray Mine for reuse. Both reclaim ponds will be double-lined with a leak-collection and recovery system that exceeds the prescriptive BADCT requirement for a non-stormwater pond.

4.2. DRAIN-DOWN POND

The Drain-down Pond will be constructed near the lowest elevation of the Ripsey Wash TSF tailings and reclaim pipelines (***Figure 2***). When the pipeline is shut down for an extended period of time, the contents of the pipeline will be discharged into the Drain-down Pond. The ability to drain the pipelines is necessary for maintenance purposes.

The Drain-down Pond will be a double-lined impoundment with a leak-collection and recovery system. This exceeds the prescriptive BADCT criteria for non-stormwater ponds, which call for a single liner without a leak-collection and recovery system. The pond will be designed to contain precipitation associated with the 100-year, 24-hour storm event plus the volume of material associated with a drain-down of the pipelines while still maintaining 2 feet of freeboard.

4.3. GROUNDWATER MONITORING WELLS

Asarco has installed four monitoring wells downstream of the tailings embankment and proposes that these wells serve as the points of compliance in the APP for the TSF (***Figure 2***). The wells will be used to characterize groundwater quality before TSF operations commence and to monitor groundwater quality throughout facility operations and for some period of time after closure. Two wells are located in Ripsey Wash, one is in the unnamed drainage east of Ripsey Wash, and one is within the Hackberry Fault zone (***Figure 2***). Pursuant to the APP that will be issued, alert levels will be set for various constituents in each of these wells, the exceedance of which will trigger certain contingency obligations. The permit will also establish aquifer quality limits for the constituents in these wells, the exceedance of which will trigger different contingency obligations (and which may be considered a permit violation). The current APP for the Elder Gulch TSF requires quarterly monitoring in the point of compliance wells for 32 parameters and the biennial monitoring for 3 additional parameters. A similar intensity of monitoring is anticipated to be required under the APP for the Ripsey Wash TSF.

5. FUEL STORAGE AND HAZARDOUS MATERIALS TRANSPORT MEASURES

Any fuel or other petroleum products stored in bulk storage containers at the site of the TSF will be stored in above-ground tanks situated within impervious secondary containment systems having a containment capacity of at least 110 percent of the volume of the largest tank therein. If present, such tanks would be located at the dry shop and miscellaneous support facilities area (***Figure 2***) and would be covered by the Ray Operations SPCC plan discussed above. The SPCC plan also addresses fuel transfers and includes an appendix containing tank truck unloading procedures.

Asarco personnel handling hazardous materials receive appropriate training that meets the applicable requirements prescribed by ADEQ, the Environmental Protection Agency, and the US Department of Transportation. Additionally, employees receive safety training required by the Mine Safety and Health Administration and other training prescribed by Asarco. Asarco requires that contractors transporting hazardous materials to or from the Project certify that their drivers meet all the applicable training requirements prescribed by law and perform in accordance with Asarco environmental policies and safety standards. Truck deliveries would arrive at the Project from State Route 177, northeast of the Project, using the Florence-Kelvin Highway.

6. WASTE MANAGEMENT

Solid waste generated at the office, dry shop, and miscellaneous support facilities associated with the Project will be transported to the Ray Mine for disposal in the onsite landfill. If any waste generated at the Project site constitutes a hazardous waste, or is otherwise not appropriate or authorized for disposal in the onsite landfill at the mine, it will be sent off site for disposal in a manner consistent with governing ADEQ regulations. For example, any used petroleum products will be transported to a contracted recycling company in accordance with state and federal used oil regulations.

The landfill at the Ray Mine is currently covered in the facility's APP. Asarco will also obtain a solid waste general permit for the landfill pursuant to A.A.C. R18-13-802 *et seq*. The authorization to operate the landfill will be issued by ADEQ pursuant to that general permit and will address general landfill operating criteria, such as frequency of cover.

7. NOXIOUS WEED PREVENTION

There are currently no known infestations of noxious weeds at the Project. Noxious weeds could be carried to the site via light vehicles or mobile construction equipment coming to the site from locations where infestations of weeds are present. Noxious weeds of concern are identified and compiled by the Natural Resources Conservation Service.

Asarco would use land management practices to reduce the spread of noxious weeds, including:

- To the extent that seeding or revegetation of the Project occurs, only seed mixes with certified native weed-free species would be used.
- All straw wattles used on site to reduce soil erosion will be composed of non-invasive plant species.

8. CLOSURE AND RECLAMATION

Asarco will prepare and submit a reclamation plan to the Division of Mined Land Reclamation, Arizona State Mine Inspector in accordance with the requirements of the Arizona Mined Land Reclamation Act, A.R.S. § 27-901 *et seq.* and the Arizona Mined Land Reclamation Rules, A.A.C. R11-2-101 *et seq.* This plan will be developed to meet state reclamation requirements.

Closure of the TSF is also addressed in the closure and post-closure strategy submitted with the APP application.

8.1. CLOSURE AND RECLAMATION COMPONENTS

Asarco's closure and reclamation plan for the TSF would include permanent decommissioning and closure, removing support facilities and infrastructure, re-contouring the TSF to establish drainage off the site, and placing rock material over the surface of the TSF to reduce the potential for wind and water erosion. In Arizona, under the jurisdiction of the Arizona State Mine Inspector, closure and site reclamation must consider public safety, which would include stable landforms. APP closure requirements would also apply; these focus on reducing the potential for future discharges to groundwater.

Concurrent reclamation would be employed once the facility transforms to the upstream construction method in order to provide permanent low-maintenance achievement of reclamation goals. Asarco plans to place rock material on the down-drainage slope of the tailings embankment after the centerline construction work is finished. At this point, the face of the centerline tailings embankment would be ready for rock placement work as the embankment slope would remain a permanent feature.

Asarco also plans to conduct concurrent reclamation on the slopes of the upstream tailings embankment after the transition to upstream construction methods. As each set of three 10-foot lifts is completed, Asarco would begin to reclaim those lifts at the same time as it begins the construction of new lifts. Rock material excavated from onsite quarries or borrow sites would be placed on the final slope created after three individual lifts are made and the setback is completed on the third lift.

At the permanent cessation of milling operations, Asarco would dewater, close, and reclaim the TSF. As permanent closure approaches, Asarco would minimize the amount of excess water within the TSF decant pond. Upon closure, Asarco would allow the remaining water in the TSF to evaporate. This would cause the surficial layers of the tailings to dry and gain strength, which in turn would allow equipment to operate on the tailings surface for rock material placement. Spray evaporators could be used to enhance the evaporation of the existing decant pond(s). It is estimated that 7 to 10 years may be required to achieve final drying and settlement of the tailings material.

A permanent diversion channel would remain on the eastern side of the facility. In addition, Asarco would continue to maintain and operate the detention dams and stormwater pumping and piping system designed to route stormwater around the western side of the Ripsey Wash TSF.

The final surface to the dried tailings impoundment may require some shaping to eliminate the potential for ponding and to provide positive stormwater drainage off the impoundment and into the permanent

diversion channels. Construction equipment such as scrapers and bulldozers would be used to reshape the tailings. The tailings surface would be graded to achieve drainage to the east to the permanent diversion channel (constructed prior to the operation of the TSF) that would connect to the unnamed wash on the eastern side of the facility.

Rock material would be placed over the TSF once final grading is completed. This rock material would minimize wind and/or water erosion of the tailings material. The final cover rock material would be granitic conglomerate excavated from the borrow area within the tailings impoundment footprint. Prior to facility closure, Asarco would excavate and stockpile this rock along the perimeter and within the footprint of the TSF; this rock would then be available for final cover material.

8.2. POST-MINING LAND USES

In addition to providing safety and stability, reclamation measures should be designed to achieve productive post-mining land uses ([PMLUs] - A.R.S. § 27-973). As of the date of this memo, Asarco has not completed a reclamation plan for the Project; however, the currently anticipated PMLU envisioned for the TSF is solar power generation; a photovoltaic array would be placed atop the TSF pile after capping as outlined in the APP closure and mined land reclamation plans is completed. Asarco has already successfully partnered with a utility (Tucson Electric Power) and a private company (Clenera Renewable Energy) to develop a solar generating facility (the Pima Mine Road Solar Generating Facility, also known as the Avalon Solar Project) near one of its other mines (the Mission Complex in Sahuarita Arizona). Given that it is expected to be many decades before the new TSF is closed and reclaimed, it is possible that the identified PMLU will change. If this occurs, a revised PMLU will be identified and the reclamation plan will be revised as necessary. Regardless of the final PMLU, APP closure and mined land reclamation activities will be closely coordinated.

8.3. PUBLIC SAFETY

One of the primary objectives of the Arizona State Mined Land Reclamation Act is to ensure public safety. The following measures will be implemented as part of reclamation to reduce or eliminate potential hazards within disturbed areas after Project closure:

- construction of physical barriers such as fences and berms
- placement of warning signs
- stabilization of slopes
- demolition of unneeded buildings
- proper disposal of debris

8.4. ROADS

The post-reclamation configuration of roads will be designed to meet the access requirements for future uses, maintenance and security functions, and environmental monitoring. Roads that are retained as part of PMLU objectives will have public access controls (e.g., gates) for safety purposes and will be maintained in accordance with designated PMLUs.

Whether any access roads are to be reclaimed at closure (as opposed to being maintained for security and maintenance purposes or to facilitate the PMLU) has yet to be determined. For any that are reclaimed, the following reclamation measures will be employed:

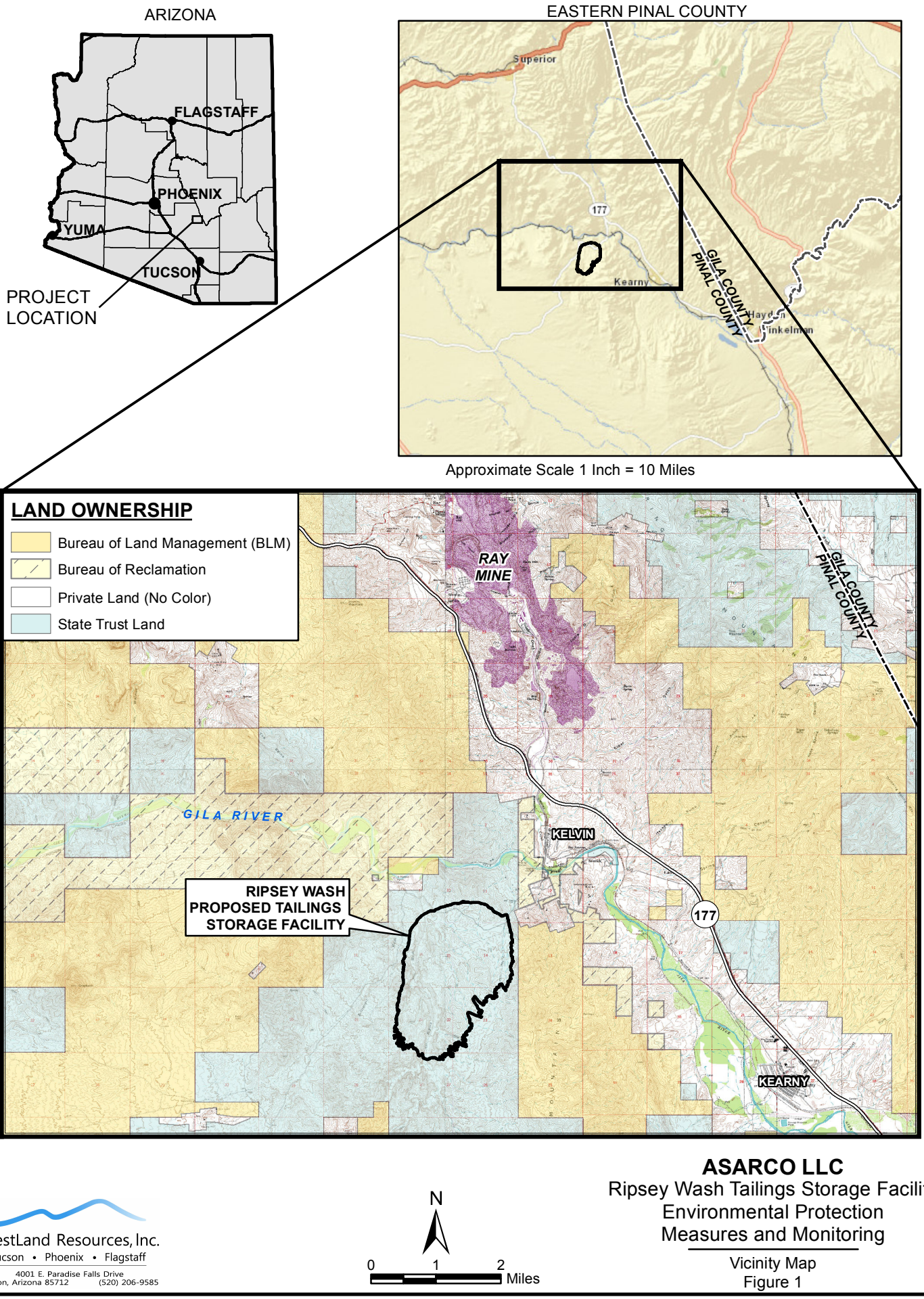
- Slopes on both sides of the roadway will be graded to blend in with the surrounding terrain. Where possible, drainages will be established to provide stable drainage conditions. Typical sediment barriers will be placed in accordance with reclamation standards.

- After contouring and grading are completed, road surfaces will be ripped and underlying materials will be scarified to a depth of 1 to 2 feet to reduce compaction and to prepare a seed bed. The prepared roadbeds will then be revegetated with a certified weed-free native seed mix.

9. EMERGENCY PREPAREDNESS

The new TSF will be addressed in the Integrated Contingency and Emergency Response Plan (ICP) developed by the Ray Mine. This plan serves as the official contingency plan under the current area-wide APP (see A.R.S. 49-243(K)(3) and A.A.C. R18-9-A204) and will be updated as needed to reflect the contingency requirements imposed by ADEQ as part of the permit for the new TSF. In addition, the ICP: (1) addresses how to respond to releases of CERCLA hazardous substances; (2) identifies how to respond to accidental releases of RCRA hazardous waste (even though the mine is not required to have an RCRA contingency plan because it is not a treatment, storage, or disposal facility); (3) summarizes the reporting and contingency requirements of the Mine's individual AZPDES permit; and (4) addresses general spill response procedures, including identifying contacts, responsibilities, and internal and external reporting procedures. As noted above, oil storage at the TSF will be addressed in the Mine's revised SPCC plan, which also contains spill response procedures. Collectively, these plans, along with the specific contingency provisions contained in the various permits (e.g., APP), provide a comprehensive approach to responding to unexpected spills and releases that could threaten health, safety, or the environment.

FIGURES



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ASARCO LLC
Ripsey Wash Tailings Storage Facility
Environmental Protection
Measures and Monitoring

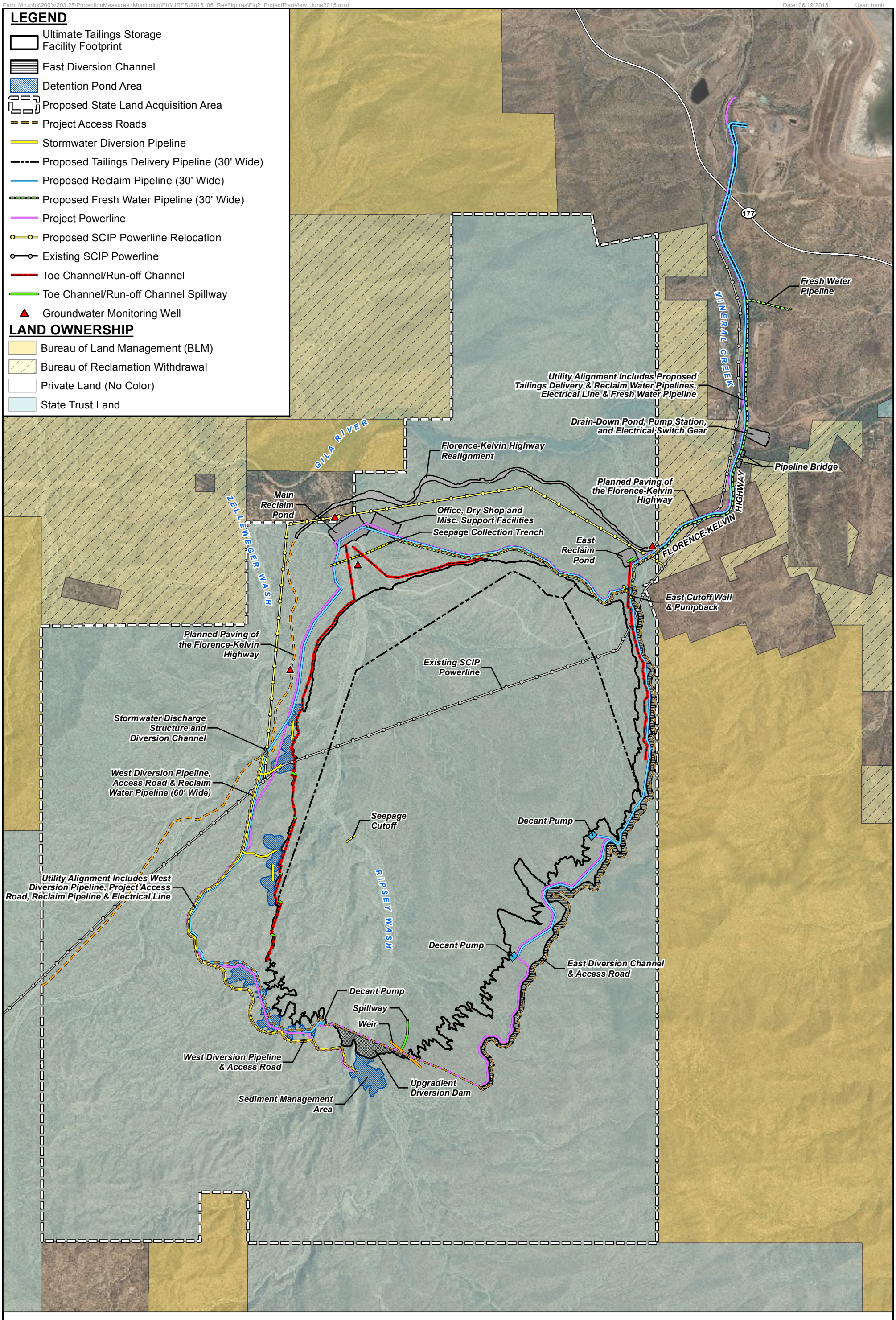
Vicinity Map
Figure 1

LEGEND

- Ultimate Tailings Storage Facility Footprint
- East Diversion Channel
- Detention Pond Area
- Proposed State Land Acquisition Area
- Project Access Roads
- Stormwater Diversion Pipeline
- Proposed Tailings Delivery Pipeline (30' Wide)
- Proposed Reclaim Pipeline (30' Wide)
- Proposed Fresh Water Pipeline (30' Wide)
- Project Powerline
- Proposed SCIP Powerline Relocation
- Existing SCIP Powerline
- Toe Channel/Run-off Channel
- Toe Channel/Run-off Channel Spillway
- Groundwater Monitoring Well

LAND OWNERSHIP

- Bureau of Land Management (BLM)
- Bureau of Reclamation Withdrawal
- Private Land (No Color)
- State Trust Land



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Project Information provided by AMEC
Photo Source: National Agriculture Imagery Program, 2010
Land Ownership provided by BLM

N

0 1,100 2,200 Feet

ASARCO LLC
Ripsey Wash Tailings Storage Facility
Environmental Protection Measures and Monitoring
PROJECT PLAN VIEW
Figure 2