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DEPARTMENT OF  
ENVIRONMENTAL QUALITY

# ASARCO – Mission Complex Tailings Management Plan (TMP) Dust Control

ASARCO LLC – (MISSION COMPLEX)  
4201 W. PIMA MINE ROAD  
SAHUARITA, ARIZONA 85629

PERMIT NUMBER 2026  
PERMIT CLASS I

September 2013  
(revised 091713)

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ASARCO – Mission Complex  
TAILINGS MANAGEMENT PLAN (TMP) - Dust Control<sup>1</sup>

## 1.0 Introduction

ASARCO LLC, Mission Complex is required to obtain an air quality permit due to emissions of regulated air pollutants, generated primarily from mining activities, exceeding the permitting and major source thresholds. The facility is subject to 40 CFR Part 70 permitting requirements, New Source Performance Standards (NSPS) for Metallic Mineral Processing Plants (Part 60 Subpart LL) and Title 17 of the Pima County Code. Under the 40 CFR Part 70 permitting requirements (Title V) the facility is required to develop and submit a Tailing Management Plan within 90 days of permit (Title V) renewal issuance.

## 1.1 Overview

The management of tailings activities for Asarco Mission Complex is supported under a complete integrated program, Asarco Mission's COMPREHENSIVE DUST CONTROL PLAN (CDCP), that incorporates: (1) the Berm Building Dust Control Plan (BBDCP), (2) Asarco's Visual Observation Plan (VOP), and (3) Asarco's Non-Point Source Monitoring Plan. The BBDCP provides controls and monitoring requirements for tailings impoundments during active (i.e., receiving tails), non-active (not receiving tails), and berm building periods. In conjunction with the BBDCP, Asarco's Visual Observation Plan (VOP) outlines the observation points, frequency and methodology for conducting visual observation monitoring of tailings activities to insure continued compliance with the Class I permit requirements for this aspect of the Mission operations. These two components of the Comprehensive Dust Control Plan make up Mission's Tailings Management Plan (TMP). Finally, the Non-Point Source Monitoring Plan provides facility controls and monitoring for non-point sources (i.e., sources that lack an identifiable plume or emission point) including haul roads, materials handling, storage piles and open areas.

The CDCP also incorporates additional improvements and contingency measures for tailings and other non-point source dust management areas. Asarco believes that incorporating these preventative actions and contingency measures into its current dust control plans will address and adequately respond to the root causes of the sporadic excess fugitive dust emissions from the Mission Complex and provide a sound basis for the Tailings Management Plan.

## 1.2 Permit Requirements and TMP Process

The ASARCO LLC – (MISSION COMPLEX) Air Quality Class I Permit (Permit #2026) requires that reasonable precautions be employed to prevent excessive amounts of particulate matter from becoming airborne. In the careful development of a tailing management plan, required of the permit,

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<sup>1</sup> NOTE: The Mission Class I Permit Condition number reference used in this version of the TMP are based on the current proposed changes to the Mission Class I permit under revision (08/2013), that affects the Section numbering. Under prior TMP, VOP, and BBDCP submittals, the permit reference to Mine Activities (including Mineral Tailings) were listed under Section 8; with the permit modification, the Section update will be listed under Section 9 (Part B).

and in following with Part B Section 9 – Mine Activities of the facility’s Class I permit, a Tailings Management Plan (TMP) is required to: (1) identify all active and inactive tailing dams (TDAM) and the activities/procedures implemented to control fugitive emissions from each TDAM, and (2) Develop an operational strategy and inspection procedures for each TDAM (both active and inactive) to prevent excessive amounts of particulate matter from becoming airborne.

The permit defines, that at a minimum, the following actions are in place to insure that the operations meet or exceed Missions Air Quality Permit requirements. These include but are not limited to:

- a. Support and operational strategy and inspection procedures for each TDAM (both active and inactive) to prevent excessive amounts of particulate matter from becoming airborne;
- b. Controlling excessive amounts of particulate matter from becoming airborne during berm construction. Visible emissions checks to demonstrate compliance with the emission limitations and standards shall be no less than twice daily during berm building.
- c. Controlling excessive amounts of particulate matter from becoming airborne during pipe lift operations.
- d. Controlling excessive amounts of particulate matter from becoming airborne during pipe breaks and ensuing repair operations.
- e. Controlling excessive amounts of particulate matter from becoming airborne during periods when insufficient material is delivered to tailing dam(s).
- f. Contain contingent control measures and practices that may be implemented to control and minimize fugitive emissions.. Asarco is not expected to initiate control measures if the ground is reasonably wet to prevent excessive emissions;
- g. Contain a TDAM closure procedure to control fugitive particulate matter emissions from becoming airborne;
- h. Contain monitoring and recordkeeping provisions to demonstrate compliance with the emission limitations and/or standards of Part B, Section 9 – Mine Activities as it relates to Tailings Management.

Airborne particulate from the tailings dam is also limited to no greater than 20% opacity measured in accordance with EPA Reference Method 9. In addition, Asarco shall not cause, suffer, allow or permit diffusion of visible emissions, including fugitive dust, beyond the property boundary line within which the emissions become airborne, without taking reasonably necessary and feasible precautions to control generation of airborne particulate matter. The actions constituting reasonably necessary and feasible precautions are included as conditions of the Title V Permit.

### **1.3 Background**

The ASARCO LLC (Mission Complex) is an open pit copper mine. Approximately 54,000 tons of copper ore is extracted each day. The ore is crushed, ground and concentrated using the conventional froth floatation method. The final product is a copper concentrate which is shipped off site for smelting.

The ASARCO LLC, Mission Complex, was first permitted in August 1969. The initial permit (containing a one year permit term) was renewed annually until the facility received their first 5-year permit effective June 16, 2003. The facility has a Class I operating permit due to emissions of regulated air pollutants, generated primarily from mining activities, exceeding the permitting and major source thresholds. The facility is subject to 40 CFR Part 70 permitting requirements, New Source Performance Standards (NSPS) for Metallic Mineral Processing Plants (Part 60 Subpart LL) and Title 17 of the Pima County Code.

The facility currently operates 24 hours per day, 365 hours per year except during periods of preventative maintenance, shutdown or repair of equipment. The emission sources at the facility include fugitive emissions from mining and mineral processing and regulated pollutants generated from fuel-fired equipment. The Tailings Management Plan specifically addresses activities related to the particulate emissions associated with tailings construction and operations. Specifically, Asarco's strategy is to ensure that fugitive dust emissions from the tailings impoundment surfaces and construction activities are controlled by using reasonable precautions at all times. The activities are developed under the requirements to insure continued control as defined as (1) Asarco to adhere to the provisions in the approved tailing management plan. Asarco is required to review the plan annually to ensure that the controls identified are effective to manage potential fugitive emissions, and (2) for Asarco to periodically conduct visible emission checks on each general non-point process. If Asarco discovered emissions above the allowable, then Asarco is required to apply dust control measures that are adequate to demonstrate compliance with the emission limitations.

Asarco's Berm Building Dust Control Plan provides preventative measures and precautions for the construction and operation of Asarco's tailings dams to minimize dust emissions. Additionally, Asarco has added the following improvements to its tailings management, operations and resources, and also includes backup contingency measures in the event that the preventative activities fail.

#### **1.4 Operations/Management/Static Improvements**

Asarco has commenced an alternative operating scenario by discontinuing its current practice of operating Tailings Dam #7 and Tailings Dam #8 simultaneously. Instead, Asarco is currently using Tailings Dam #7 as the main tailings facility for the South Mill. Asarco has placed Tailings Dam #8 in "Stand-By Mode" and has completed capping the surface with 6" of alluvial soil. Wind breaks are being constructed at differing angles on the surface to help break up the wind and will also be seeded to further prevent wind erosion. This should be completed by the end of December 2013. Tailings Dam #8 will continue to be considered a stand-by facility for emergency purposes.

Any future Tailings Dam placed in "Stand-by Mode" will be sealed with magnesium chloride and/or polymer to stabilize the surface as soon as it is practicable to do so. Maintenance applications will be made as necessary. The surface will be inspected and evaluated by Asarco personnel on a monthly basis and as soon as possible following a storm event Asarco deems severe enough to damage the crust. Surface areas found to be damaged by a storm event will be re-treated to minimize dust emissions. Asarco may end monthly surface inspections once a "stand-by" Tailings Dam is capped with alluvial material.

Should Asarco need to deposit tailings in a "Stand-by" tailings dam, Asarco will provide PDEQ with notice 2 weeks before the reopening of a Stand-by Mode dam. In the event of an emergency, Asarco will notify PDEQ as soon as possible, but no later than 2 business days after an "emergency event"

results in tailings being deposited in a "Stand-by Mode" dam. In the event that an "emergency event" requires Asarco to keep a Stand-by Mode tailings dam open for longer than the emergency event, Asarco will notify PDEQ as soon as practicable.

Further, Asarco shall give written notice of closure to PDEQ upon Asarco's decision to cease operation without resuming activity for which the tailings dam was designed or operated. Within 30 days of receiving approval of an Arizona Aquifer Protection Program (APP) Closure Plan from the Arizona Department of Environmental Quality, Asarco shall submit said APP Closure Plan to PDEQ. The Closure Plan will include procedures for closure as well as a timeline for completion. This would meet the minimum requirements called out in the Class I permit Section B., Part B, Section 9, I.A.1.d

Asarco has formed a Tailings Management Group that will focus and dedicate resources specifically to tailings management. The group will consist of one supervisor and a designated crew concentrating on all aspects of tailings management (environmental and operational). The crew will be resourced with equipment that is better designed for Asarco's tailings application and manpower dedicated to minimize environmental issues.

### **1.5 Equipment/Resourcing Improvements**

Asarco has procured an "ultra-low" ground pressure unit with extremely low surface area pressure to access impoundment areas currently inaccessible to water and polymer application trucks. Additional units may be purchased in the future if this unit proves successful.

Asarco will continue to experiment with novel crust-formation and soil binder projects and will continue to work with the University of Arizona on collaborative research related to new dust control technologies.

Asarco continues to evaluate the adequacy of its current fleet of water and polymer trucks. In any decision regarding purchasing replacement units, Asarco will focus on reliability and parts availability to minimize maintenance and repair downtime. Similar to Asarco's efforts to get critical spares on its dust collectors into the warehouse inventory, Asarco will implement a similar program with respect to its spare parts for its polymer trucks and water trucks.

**Additional Water Stands.** Asarco has added additional water stands at the facility, one at TDAM#6 and the other near the South Mill. These additional water stands will result in water trucks having shorter turn-around times for road watering and other watering needs. Asarco will locate additional water stands in the future, if necessary.

### **1.6 Contingency Planning**

Capping/Coating with magnesium chloride/polymer to "seal" the surface will be used when Asarco believes that a tailings dam is not going to receive tailings for an extended period of time (i.e., greater than 60-days), such as a work stoppage or a planned temporary closure under an alternative operating scenario.

Aerial Application of magnesium chloride/polymer. As a last resort contingency measure when a tailings dam cannot be effectively capped/coated from the ground, Asarco may rely on aerial application. Asarco will identify when ground application cannot be effectively and/or timely performed, and emergency conditions require the last resort need for aerial application. As a general

operating procedure, if no tailings have been deposited for a period of 60-days, and Asarco is otherwise unable to effectively cap or coat the surface of a tailings dam by some other means, Asarco may resort to aerial application. Weather dependency can delay application, especially high-wind days, and other mines have had varying degrees of effectiveness with application. Asarco has a contract in place with South Western Sealcoating for aerial application.

This contingency approach would meet the permit requirements Part B, Section 9, I.A.1.b.v that supports an appropriate operational strategy or inspection procedure section for non-routine periods when insufficient material (tails) delivery to TDAMs may be encountered. Alternate operating scenarios' in support of moving wet tails to areas for control and then control dust on the other portion(s) with polymer/magnesium chloride with low ground pressure vehicles or via aerial application would support the mitigation actions necessary for the prevention of excess dust generation.

Activities around pipe lifts are supported in Section 3.2 Dust Management of Periodic Pipeline Lift and Associated Service Road Construction, in the Berm Building Dust Control Plan (BBDCP). A pipe break is a potential non-routine event that could occur during pipeline lift. This would likely not be a long term issue, but one that requires immediate response and in most cases guided under the contingency plan procedures of the TMP. The break would be identified and either the line would be patched or the broken section removed and replaced with a new section of pipe. In the event the break was catastrophic, Asarco would implement the same procedures found in 1.6 (Contingency Planning) if necessary. These procedures follow meeting the minimum requirements defined under Part B, Section 9, I.A.1.b.iv. However, Asarco has the ability to quickly replace a damaged section of pipe and anticipates the loss of the ability to smear a tailings dam would be no greater than 48 hours, and would most likely be no more than 24 hours.

## **1.7 Monitoring and Reporting Procedures**

### **a. Inspections and Monitoring**

Asarco believes it is warranted to periodically conduct and document physical inspections of the TDAM for weakened areas of the surface crust and easily erodible areas, including the drying surfaces toward the interior of TDAM segments, and other construction areas.

As described in Part B Section 9 of Asarco's Class I permit, this Tailings Management Plan contains an operational strategy and inspection procedures to control fugitive emissions from each TDAM. Weekly inspections of active and inactive tailings dams where dust emissions are possible, shall be conducted to observe dam surface characteristics and current weather conditions. Among other components of this operational strategy, additional inspections of the active TDAMs may be conducted prior to and during weather events where wind speeds are forecasted to exceed 25 MPH, to allow sufficient time to take additional preventative measures to control dust emissions if necessary. In addition, inspections of the active TDAMs may be conducted after precipitation events, such as hail or heavy rainfall in a short period of time, where damage to the surface crust is a possibility, to ensure the integrity of the surface crusts. In accordance with the Tailings Dam Management System, the inspection shall identify signs of fatigue on the surface crusts and areas on the surface of the impoundments that are susceptible to high winds ("hot spots"). The results of these inspections shall be utilized to determine the need for additional dust control measures. Corrective

and/or preventative actions taken in response to these inspections shall be recorded. A copy of the Tailings Impoundment Surface Inspection Forms are provided in Attachment 4.

As defined in the Mineral Tailings Monitoring Requirement (Part B, Section 9.II.A.2), Asarco will review the Tailings Management Plan annually for its effectiveness in controlling fugitive emissions. The review shall be submitted to the Control Officer by January 31 of each year (covering the period January 1st through December 31st of the previous year). If the review indicates that the plan is ineffective in controlling emissions, then a revised Plan will be developed for approval by April 1 that shows improved methods/techniques of reducing emissions in order to minimize or prevent violations. It is noted that any revisions shall not become effective until Asarco submits a description of the changes and the revised plan shall become effective upon review and approval by the Control Officer.

For general Non-Point Fugitive sources, and to support compliance demonstration with the emission limitations and standards in Section 9 I.C.1.d and I.C.2 of this the Class I permit, Asarco will conduct biweekly visible emissions checks on each process/unit source of this Section. Regular visible emission checks shall be conducted no less than biweekly at all strategic lookouts:

- M-1 (Water Tank Hill (Mission Concentrator))
- S-1 (Water Tank Hill (South Mill)).

During the bi-weekly visual observations, if the observer sees visible emissions from the process/unit sources identified that, on an instantaneous basis, appears to exceed 20% opacity, then Asarco, if practicable, take six-minute Method 9 observation of the emission source. If the emissions are more than the referenced limitation and standards, then this occurrence shall be recorded and reported as an excess emission and permit deviation.

#### **b. Recordkeeping Requirements**

As defined in the Class I permit Part B, Section 9.III.1-3, Asarco will support all the routine recordkeeping requirements that are at a minimum:

1. Asarco shall record the results of the required monitoring as detailed in the approved Tailings Management Plan ([PCC 17.12.180.A.4]);
2. Asarco shall record the date and time of all visible emission checks, the name of the person conducting the check, the results of the check and the type of corrective action taken (if required). All records shall be maintained for five years ([PCC 17.12.180.A.4]);
3. A copy of watering schedules, if developed and implemented to control the generation of airborne particulate matter shall be maintained at the facility on a per shift basis. All records shall be maintained for five years.

#### **c. Reporting Requirements**

All reporting requirements under the Tailings Management Plan (TMP) and associated BERM BUILDING DUST CONTROL PLANs (BBDCP) and VISUAL OBSERVATION PLAN (VOP) are defined in the Class I permit Part B, Section 13 "General Facility-Wide Reporting Conditions," Asarco will support all the routine reporting requirements that are included within are at a minimum:

1. Excess Emissions & Permit Deviation Reporting [PCC 17.12.180.A.5.b & 17.12.180.E.3.d];
2. Semiannual Reports of Required Monitoring [40 CFR 70.8 and PCC 17.12.180.A.5.a];
3. Compliance Certification Reporting that supports A copy of watering schedules, if developed and implemented to control the generation of airborne particulate matter shall be maintained at the facility on a per shift basis. All records shall be maintained for five years.

TMP is supported by an integrated collaboration of the VOP Plan and the Berm Building Dust Control Plan. Collectively the VOP plan supports the controlled documentation and recordkeeping supported in associated checklist observation forms and activities associated with daily, weekly, bi-weekly site actions. As there are numerous references throughout the TMP and associated BBDCP, the monitoring and/or inspection procedure with associated recordkeeping provisions, in keeping with the specific permit conditions, are numerous. Table 1 summarizes the areas in the collective plan that support monitoring or inspection procedures and the corresponding recordkeeping provisions that will be integrated in the TMP process. This will support the compliance and verification procedures called out in Part B, Section 9, I.A.1.b.iii, Section 9, I.A.1.b.ii, Section 9, I.A.1.b.iv, Section 9, I.A.1.b.v., Section 9, I.A.1.d, and Section 9, I.A.1.e, and Section 9.I.A.3.

**Table 1 – TDAM Monitoring/Inspection Activities**  
(as required under Part B. Section 8.1.A.1.e)

**Each TDAM (Active and Inactive)**

Weekly inspections of TDAMs  
Biweekly VEO checks from lookouts

**Berm Building**

Start Notice & Initial Inspection  
Daily inspection during berm construction of disturbed areas  
Twice daily VEO after berm building start notice including segment interior areas  
Weekly physical inspections of interior surface areas  
Supplemental Controls; conditional when becoming dry and high winds are forecast; extra inspection of berm, road and interior surface

**Pipe Lift**

Daily inspection during construction of disturbed areas  
Daily inspection after berm building start notice including segment interior areas  
Twice daily VEO after notice of start of perimeter berm construction from lookouts  
Weekly physical inspections of interior surface areas  
Supplemental Controls; conditional when becoming dry and high winds are forecast; extra inspection of berm, road and interior surface

**Service Road Inspections**

**Stand By Mode (where applicable)**

Monthly physical inspection of surface  
Emergency event notice for tailings re-deposited to “stand-by” TDAM

The TMP supports the VOP Plan Checklist observation forms, and Berm Building Activities observation forms for routine documentation as required by the permit. In addition, monitoring and/or inspection records/logs for source activity outside of the normal biweekly activities are provided as separate logs, as needed to address any additional monitoring or inspection procedures to further support recordkeeping provisions for non-typical TMP activities (Attachment 4).

## **ASARCO LLC—MISSION COMPLEX BERM BUILDING DUST CONTROL PLAN**

### **INTRODUCTION**

ASARCO LLC—Mission Complex (“Asarco”) is committed to complying with existing environmental, safety and health laws and regulations. The Clean Air Act, regulations and its Title V permits require Asarco to employ reasonable precautions in the construction and operation of its tailings dams to minimize dust emissions, prevent excessive amounts of particulate matter from becoming airborne off of its tailings dams, minimize diffusion of fugitive visible emissions, including fugitive dust across the property line, and meeting the 20% opacity standard. This Berm Building Dust Control Plan is adopted by Asarco to comply with these requirements. This Plan may be revised from time to time to enhance controls, based upon lessons learned from the implementation of this Plan and changes in technologies and control strategies available to Asarco.

The Mission Complex operates two active tailings dams: Tailings Dams #4 and #7. Tailings Dam #8 has been placed into “Stand-by Mode” as discussed herein. Each active tailings dam has three operational phases or modes: active (receiving tails); inactive (not receiving tails and/or preparation for berm building); and berm building. The berm building mode entails two different types of activities: (1) perimeter berm construction and (2) periodic pipeline lift and associated service road construction.

This Plan describes the Mission Complex tailings dam berm construction procedures and outlines the dust control measures that will be utilized in order to minimize fugitive dust generation. The construction procedure is (1) a dam undergoing berm building will be partially divided into segments by construction of dikes (also referred to as wing walls) that extend from the perimeter berm to the general vicinity of the ponded water near the decant tower(s) and (2) the use of wet construction techniques.

### **PLAN DETAILS**

As a component of the “Tailings Management Plan (TMP)” and the corresponding permit, the plan is required to identify all active and inactive tailing dams (TDAM) and the activities/procedures implemented to control fugitive emissions from each TDAM. (Part B, Section 9.I.A.1.a). A brief description of each TDAM is provided in Table 1 and this plan provides detailed activities undertaken for each of the individual Asarco Mission TDAMs.

Table 2 – TDAM Status & Controls

TDAM	Status - Mode: Active/Inactive Dams ( <i>Part B. Section 8.1.Q.1.a</i> )
TDAM #4	Active
TDAM #7	Active
TDAM #5	Bio-Solids (Emergency Only) Controls include dust suppressants (acrylic co-polymer, magnesium chloride); Natural vegetation with the use of biosolids as a soil amendment
TDAM #6	Vegetative Cover (Emergency Only) Controls include Dust suppressants (acrylic co-polymer, magnesium chloride); Natural vegetation (approximately 75% of Tailings #6 is vegetated, and capped with alluvial material
TDAM #8	Stand-by  Current Control is a 6" cap of alluvial material, with wind berms built of alluvial material placed randomly upon the surface to break up the strength of winds. Revegetation of this facility will also take place upon final reclamation.

### 1.0 Transition to Berm Building Dust Control Plan

Tailings dams are partially divided into segments by construction of dikes or wing walls that extend from the perimeter berm to the general vicinity of the ponded water near the decant tower(s). This allows one or more segments of each tailings dam to remain active receiving wet tailings, while berm construction or drying in preparation for berm building is going on in other segments, thereby reducing the potential for fugitive dust generation from berm construction activities. Once the initial subdivision into segments is completed for a tailings dam, the *Operational Controls* specified in paragraph 3.1.2 and 3.2.2 of this Plan will apply commencing at the beginning of the next berm building period.

### 2.0 Preparation for Berm Building

The segment(s) of the tailings dam planned for berm building are filled to capacity by depositing tailings slurry in preparation for raising the perimeter berm. The reclaim water flows to the decant tower where it is decanted off and reused in the milling processes. After the segment(s) are filled, evaporating time is required to dry the deposited tailings and enable heavy equipment to work in the area. This evaporating period is also required to allow moisture content reduction needed for adequate compaction of the erected perimeter berm. The length of time that is required to achieve the proper moisture content is a variable controlled by weather conditions. During the preparation period, smearing of tailings is not possible.

### 3.0 Berm Building Mode Controls

As noted above, there are two types of activities in the berm building mode: perimeter berm construction, governed by section 3.1 of this plan, and periodic pipeline lift and associated service road construction, governed by section 3.2 of this plan. Which section applies is determined by Asarco's submission of a "Notice of Start of Perimeter Berm Building" under paragraph 3.1.1, in which case section 3.1 of this plan applies, or submission of a "Notice of Start of Pipeline Lift and Associated Service Road Construction" under paragraph 3.2.1, in which case section 3.2 of this plan applies.

#### 3.1 *Perimeter Berm Construction*

In perimeter berm construction, a Low Ground Pressure (LGP) bulldozer compacts the tailings in the area of the perimeter berm to facilitate drying. An excavator then stacks tailings material to the lift height or slightly higher. The bulldozer then shapes and compacts the lift. The spigot pipes are cleaned and then extended to compensate for the new height of the berm. After berm construction is complete and quality assured, tailings deposition or smearing resumes.

**3.1.1 *Notice of Start of Perimeter Berm Building.*** Asarco will give notice to PDEQ, of the start of perimeter berm building, along with the initial inspection results, as required by the current Visual Observation Plan, prior to commencing construction activities. Notification will only be provided at the commencement of the first perimeter berm building (i.e., when Asarco starts stacking tails to the lift height in the first segment), and not with each subsequent segment berm in each section of the dam.

**3.1.2 *Operational Control.*** Except during the periodic pipeline lift addressed in section 3.2, Asarco will keep approximately 50% or less by area (depending upon the number and size of segments and absent any extraordinary circumstances) of each tailing dam in berm building mode to reduce potential fugitive dust generation.

**3.1.3 *Wet Construction.*** Attempts to start as early as possible shall be made by using a LGP bulldozer to compact the surface and accelerate moisture reduction of the material that will be used as borrow material for the berm and to stabilize the area for the excavator to begin berm construction. The active berm building segment(s) shall be worked as wet as possible while maintaining a moisture content that will not jeopardize berm compaction and the overall stability of the dam. A combination of a low ground pressure bulldozer and a large hydraulic excavator will be used to place and shape the berm in a single lift. Lifts are typically, but not always, 10-12 feet. At normal, full production rates, the perimeter berms at the Mission Complex tailings dams are raised approximately ten to twelve feet each year.

**3.1.4 *Controls Employed During Perimeter Berm Construction.*** During the berm building mode, Asarco will implement additional dust control measures including those applicable measures contained in the Comprehensive Dust Management Plan. These measures include:

**3.1.4.1 *Construction Period—Daily Controls.*** Water will be applied during the operating day to areas of the berm, disturbed areas, or access roads as necessary to minimize dust. Co-polymer binder or other type of dust suppressant will be applied at the end of construction each day to all new areas disturbed by construction activity including any new berm constructed during the day. If observation of the segment identifies interior areas within the segment that require additional dust control or if monitoring conducted under the Visual Observation Plan identifies interior areas within the segment

that require additional dust control, co-polymer binder or other dust suppressant will be applied to those areas if safe and practicable.

Asarco will conduct twice daily visual observations at the relative observation point(s) that provide the best vantage for the associated berm building activity in following with the permit requirements of Part B, Section 9 (Mine Activities), I.A.1.b.ii (see VOP further in the combined plan for pertinent observation points). During the visual survey, if the Method 9 observer notices an emission from the source that on an instantaneous basis appears to exceed 20% opacity, the observer will, if feasible, take a six-minute Method 9 observation of the emissions using the *Visible Emission Observation Form* (see Attachment 2). If the six-minute opacity reading exceeds 20%, then the observer will report the exceedance to the proper personnel. *Daily Controls* are required each day that berm building operations occur beginning with the start of berm building identified in the "Notice of Start of Perimeter Berm Building" required under paragraph 3.1.1 until the date identified in the "Notice of Smearing" required under paragraph 3.1.6.

**3.1.4.2 *Construction Period—Weekly Controls.*** Co-polymer binder or other dust suppressant will be applied systematically to the surface of the segment as it becomes sufficiently dry to permit safe spray application as set forth in this paragraph. Each week, the segment will be inspected by Asarco to identify areas exhibiting loss of encrustation and to determine if co-polymer/dust suppressant application can be safely extended towards the decant tower. If the inspection reveals that the encrustation is compromised and that the segment can support the spray application vehicle, Asarco will systematically apply co-polymer or other dust suppressant as needed in areas judged safe for application. *Weekly Controls* are required once per calendar week, with the inspections at least four days apart, beginning the calendar week after the date identified in the "Notice of Start of Perimeter Berm Building" required under paragraph 3.1.1 until Notice of Completion. Observations will be conducted from the applicable observations point(s) associated with active berm building as provided in the Visual Observation Plan. This provision does not prevent more frequent inspection, and in practice, the Tailings Management Group performs non-formal inspections during each day of berm building operations.

**3.1.4.3 *Construction Period—Supplementary Controls.*** If Asarco's monitoring detects that tailings dams in the berm building mode are becoming dry and the morning weather forecast at <http://www.nws.noaa.gov/> for Sahuarita, Arizona predicts sustained wind speeds for the day in excess of 20 mph, then Asarco will implement the following supplementary controls, as appropriate, to ensure reasonable precautions are taken to prevent fugitive dust:

- Asarco will not schedule berm construction work for days with sustained winds predicted in excess of 20 mph. A day where Asarco cannot continue berm building due to sustained high winds is defined as a "High Wind Day."
- Asarco will inspect the surface of the new berm, any service road or dam surface area disturbed by berm building and will apply co-polymer, other dust suppressant or water as appropriate.
- Asarco will inspect the dam surface for signs of potential fugitive dust emissions and will apply co-polymer or other dust suppressant where safe and practicable.
- Asarco will deploy overtime labor, if needed, to ensure fugitive dust emissions remain within permit limits.

*Supplementary Controls* are potentially applicable from the start of berm building identified in the “Notice of Start of Perimeter Berm Building” required under paragraph 3.1.1 until the date identified in the “Notice of Smearing” required under paragraph 3.1.6.

**3.1.5 *Construction Completion and Smearing.*** Once the berm construction is complete and the tailings spigots reinstalled and extended, tailings deposition will commence on the segment of the dam where the berm was raised in order to rewet the tailings surface. Tailings deposition will be stepped through the available spigots on a systematic basis. Asarco typically operates four to six spigots at a time, but this may vary based upon tailings production. Asarco will commence smearing with fresh tails within any active berm building segment within sixty days, not including any High Wind Days, after berm construction is complete. Asarco will implement all applicable dust control measures outlined in Section 3.1.4 between the time that berm construction is complete and fresh tails smearing commences.

### **3.2 *Dust Management of Periodic Pipeline Lift and Associated Service Road Construction.***

Approximately every three to four years, the tailing supply pipeline around the perimeter of each tailing dam is raised to a higher working elevation to maintain a safe and practical operating pressure for the spigots. Since tailings deposition occurs at a rate of approximately ten feet per year, the pipeline is typically raised approximately 30 feet to the new working elevation.

In periodic pipeline lift and associated service road construction, the process starts with surveying and constructing the service road, followed by perimeter berm construction as described in Section 3.1. Once the berm is in place, the tailing supply line will be dismantled, cleaned, repaired, and then re-fused or reconnected (depending on the material) in the proper orientation at the next level. Spigots will be installed and the lines properly sized. This process may commence earlier, during road construction or berm construction, if the pipeline is not needed to deliver tailings to another segment of the dam. After road and berm construction is complete, the pipeline lifted, and all work quality assured, tailings deposition or smearing resumes. This pipe lift construction period takes several additional weeks due to the added labor of constructing the road and dismantling, repairing, and lifting the pipeline.

**3.2.1 *Notice of Start of Periodic Pipeline Lift and Associated Service Road Construction.*** Asarco will give notice to PDEQ of the commencement of periodic pipeline lift and associated service road construction prior to starting. The notice will also state the anticipated time that the tailings supply line will be inactive due to pipeline lift and road construction activities.

**3.2.2 *Operational Control.*** Because of the need to disassemble the tailings supply line as part of the lifting activity, it is not always possible to smear either the segment being built or the other segments of the tailings dam undergoing the periodic pipeline lift and associated service road construction. Asarco will minimize the time the tailing supply line is out of service.

**3.2.3 *Wet Construction.*** Attempts to start as early as possible shall be made by using a LGP bulldozer to compact the surface and accelerate moisture reduction of the material that will be used as borrow material for the berm and to stabilize the area for the excavator to begin berm construction. The active berm building segment(s) shall be worked as wet as possible while maintaining a moisture content that will not jeopardize berm compaction and the overall stability of the dam. A combination

of a LGP bulldozer and a large hydraulic excavator will be used to place and shape the berm in a single lift. Lifts are typically, but not always, 10 to 12 feet.

3.2.4 Controls Employed During Pipeline Lift, Berm, and Service Road Construction. During the periodic pipeline lift and associated service road construction period, Asarco will implement additional dust control measures including those applicable measures contained in the Comprehensive Dust Management Plan. In support of confirming controls and compliance with the permit requirements of Part B, Section 9, I.A.1.b.iii, Asarco will support twice daily observations during the attendant perimeter berm construction phase undergoing a periodic pipe lift. The control measures that will be implemented to support minimizing dust generation include but are not limited to:

3.2.4.1 Construction Period—Daily Controls. Water will be applied during the operating day to areas of the berm, disturbed areas, or access roads as necessary to minimize dust. Co-polymer binder or other dust suppressant will be applied as necessary at the end of construction each day to all new areas disturbed by construction activity including any new berm or service road constructed during the day. If observation of the dam identifies interior areas that require additional dust control or if monitoring conducted under the Visual Observation Plan identifies interior areas within the segment that require additional dust control, co-polymer binder or other dust suppressant will be applied to those areas if safe and practicable. *Daily controls* are required each day that berm building operations occur beginning with the start of berm building identified in the “Notice of Start of Periodic Pipeline Lift and Associated Service Road Construction” required under paragraph 3.2.1 until Notice of Completion.

3.2.4.2 Construction Period—Weekly Controls. Co-polymer binder or other dust suppressant will be applied systematically, as necessary, to the surface of the dam as it becomes sufficiently dry to permit safe spray application as set forth in this paragraph. Each week, the dam will be inspected to identify areas exhibiting loss of encrustation and to determine if co-polymer application can be safely extended towards the decant tower. If the inspection reveals that the encrustation is compromised and that the dam can support the spray application vehicle, Asarco will systematically apply co-polymer or other dust suppressant as needed in areas judged safe for application. *Weekly Controls* are required once per calendar week, with the inspections at least four days apart, beginning the calendar week after the date identified in the “Notice of Start of Periodic Pipeline Lift and Associated Service Road Construction” required under paragraph 3.2.1 until the date identified in the “Notice of Smearing” required under paragraph 3.2.7. This provision does not prevent more frequent inspection.

3.2.4.3 Construction Period—Supplementary Controls. If Asarco’s monitoring detects that the tailings dam in the pipeline lift and associated service road construction period are becoming dry and the morning weather forecast at <http://www.nws.noaa.gov/> for Sahuarita, Arizona predicts sustained wind speeds for the day in excess of 20 mph, then Asarco will implement the following supplementary controls, as appropriate, to ensure reasonable precautions are taken to prevent fugitive dust:

- Asarco will not schedule berm construction work for days with sustained winds predicted in excess of 20 mph. A day where Asarco cannot continue berm building due to sustained high winds is defined as a “High Wind Day.”
- Asarco will inspect the surface of the new berm, any service road or dam surface area disturbed by berm building and will apply co-polymer or water as appropriate.

- Asarco will inspect the dam surface for signs of potential fugitive dust emissions and will apply co-polymer or other dust suppressant where safe and practicable.
- Asarco will deploy overtime labor, if needed, to ensure fugitive dust emissions remain within permit limits.

*Supplementary Controls* are potentially applicable from the start of berm building identified in the “Notice of Start of Perimeter Berm Building” required under paragraph 3.1.1 until the date identified in the “Notice of Smearing” required under paragraph 3.2.7.

3.2.4.4 *Construction Period—Service Road Controls.* Service road construction areas will be inspected and areas that may be susceptible to wind erosion shall be identified and addressed in accordance with the *Daily, Weekly and Supplementary Controls*. In addition, Asarco will also implement the following additional measures:

- The service road will be capped with native soil as soon as practicable after completion.
- Water trucks will be used as required to control fugitive dust during road construction and capping and on service roads utilized during service level construction.

*Service Road Controls* are applicable from the start of berm building identified in the “Notice of Start of Periodic Pipeline Lift and Associated Service Road Construction” required under paragraph 3.1.1 until the date identified in the “Notice of Smearing” required under paragraph 3.2.7.

3.2.5 *Completion of Pipeline Lift and Commencement of Smearing.* Once berm construction is complete, the pipeline lift is completed and the tailings spigots reinstalled and extended, tailings deposition will commence on the segment of the dam where the berm was raised in order to rewet the tailings surface. Tailings deposition will be stepped through the available spigots on a systematic basis. Asarco typically operates four to six spigots at a time, but this may vary based upon tailings production. Asarco will commence smearing with fresh tails within any active berm building segment within sixty days, not including any High Wind Days, after the date Asarco reactivates the tailings supply line following Periodic Pipeline Lift and Associated Service Road Construction, as stated in Asarco’s Notice of Reactivation of Tailings Supply Line.

#### **4.0 Notification of Delay and Resumption of Construction**

Completion of berm building may be delayed by force majeure conditions, including but not limited to strikes, severe weather, or weather conditions that render the segment too wet or unsafe to work. In the event this occurs, Asarco will notify PDEQ within two business days of becoming aware of the delay and will implement *daily* and *supplementary controls* to the extent feasible. *Weekly controls* are not feasible if the surface of the dam or berm is too wet or unsafe to work. *Daily* and *supplementary controls* will be implemented to the extent possible from the service road and extended back to the new berm construction area and/or dam surface as soon as safe and practicable. Asarco will notify PDEQ as soon as it is possible to resume regular construction.

During any force majeure situation, Asarco will continue to implement *daily, weekly, supplementary* and *service road controls*, as applicable, to the extent reasonably possible given the force majeure situation. Asarco may also implement other controls appropriate to the situation.

## **5.0 Plan Revision**

The Control Officer may request that Asarco make changes to the Tailings Management Plan should the Control Officer find that the plan fails to provide adequate air pollution control or that the air pollution control techniques are no longer effective in controlling fugitive emissions as identified in I.C of Part B, Section 9.

Should Asarco determine that revisions to the approved Tailings Management Plan are necessary; such revisions shall not become effective until ASARCO submits a description of the changes and a revised plan to the Control Officer for approval. The revised plan shall become effective upon review and approval by the Control Officer.

**ASARCO LLC—MISSION COMPLEX  
VISUAL OBSERVATION PLAN**

The last component of the Comprehensive Dust Management Plan is the Visual Observation Plan (VOP). The VOP is used by Asarco as a quality assurance/quality control check for dust management activities and processes to ensure that the controls are achieving applicable opacity standards. The Visual Observation Plan is not itself a preventative dust management tool; it is used in conjunction with the Berm Building Dust Control plan and Non-Point Source Monitoring plan to measure the effectiveness of these controls. The VOP follows:

Non-point sources will be monitored bi-weekly (once every 2 weeks) using a visual survey by a certified Method 9 observer from strategic lookouts located throughout the Mission Complex Property. The lookout locations are identified (M-1, S-1, T-1, T-2, T-3, T-4 and T-5) and listed in Table 1 and further supported on the accompanying Map (Figure 1-A, Attachment 3). The visual survey will occur once in each two week time period, as close to a full two weeks between observations as possible. Each bi-weekly visual survey of emissions from non-point sources will be conducted, when the source is in operation, in accordance with this observation plan. The *Non-Point Source Visual Observation Checklist* (see Attachment 1) will be used to record the name of the observer, the date of the observation, the result of the observation for each source and actions taken.

During the visual survey, if the Method 9 observer notices an emission from the source that on an instantaneous basis appears to exceed 20% opacity, the observer will, if feasible, take a six-minute Method 9 observation of the emissions using the *Visible Emission Observation Form* (see Attachment 2). If the six-minute opacity reading exceeds 20%, then the observer will report the exceedance to the proper personnel. Responsible staff members will ensure that emission controls or equipment are adjusted or repaired accordingly to reduce the opacity to below 20%. Accordingly, responsible personnel will report the excess emission under Section XI.A of PART A: "GENERAL PROVISIONS" of the permit. If the six-minute opacity reading of the emission is less than 20%, the observer will record the date, time of the reading, location, and result of the observation on the *Non-Point Source Visual Observation Checklist*. (see Attachment 3 for map).

**Table 1 - Non-point Sources - Monitored bi-weekly**

Observation Point	Sources Monitored
Water Tank Hill M-1 (Mission Concentrator)	<ol style="list-style-type: none"> <li>1) Concentrate Storage area</li> <li>2) Filter Plant and unpaved roadways</li> <li>3) Moly Plant area, unpaved roadways &amp; Process fugitives</li> <li>4) N. Crusher area, unpaved roadways &amp; Process fugitives</li> <li>5) Secondary Crusher area- unpaved roadways</li> <li>6) Secondary Crusher area -Process/Conveyor fugitives</li> <li>7) Unpaved roads &amp; process fugitives near Mission Mill</li> <li>8) Warehouse yard. Maintenance shops &amp; unpaved roadways</li> <li>9) North slope of East and Pima rock dumps.</li> <li>10) East slopes of Pima, Mineral Hill &amp; Ike waste rock dumps</li> </ol>

**Table 1 - Non-point Sources - Monitored bi-weekly  
(continued)**

Observation Point	Sources Monitored
Water Tank Hill S-1	11) S. Mill & Process fugitive areas 12) Unpaved roadways- Mission perimeter. 13) Mission Mill coarse ore stockpile 14) Mission Primary Crusher.
Water Tank Hill S-1	1) S. Mill & Process fugitives areas. 2) Unpaved roadways- Mission pit perimeter. 3) Mission Mill Coarse ore stockpile. 4) Mission Primary Crusher. 5) Top of Tailing Dam #4 6) Top of Tailing Dam #5
Northeast corner of #7 Dam T-1	1) Top of Tailing Dam #4 2) East slope of Tailing Dam #4. 3) East slope of Tailing Dam #7.
Southeast corner of #7 Dam T-2	1) East slope of Tailing Dam #7 2) East slope of Tailing Dam #8.
Northwest corner of #4 Dam T-3	1) North slope of Tailing Dam #4. 2) Top of Tailing Dam #4.
Northeast corner of #6 Dam T-4	1) Top of Tailing Dam #6. 2) N. slope of Tailing Dam #7. 3) Top of Tailing Dam #4
Southeast corner of #6 Dam T-5	1) Top of Tailing Dam #8. 2) Top of Tailing Dam #7. 3) N. Slope of Tailing Dam #8

The following conditions have been added to the Visual Observation Plan as agreed in ASARCO's response to the PDEQ Compliance Status Letter (CSL# PC 0310-185) dated January 9, 2004 and as a result of subsequent consultation with PDEQ. The following conditions only apply to any tailings dam in the berm building mode:

- Prior to the initiation of berm building, Asarco personnel will conduct an initial inspection of the tailings dam on which berm building will occur. The initial inspection will determine and document whether any portions of the tailings dam are drier than necessary for berm building and may reasonably result in dust emissions. If such areas are identified, Asarco personnel will identify and document an appropriate control strategy and will apply dust suppressant or water, as appropriate, to minimize the possibility of dust emissions. Asarco will notify PDEQ of the initial berm building inspection results, including any corrective measures that are to be taken.

- Each day that construction occurs after the construction has ceased for the day Asarco personnel will conduct an inspection of the disturbed areas of each tailings dam in the berm building mode to determine whether any disturbed portions of the tailings dam are dry and may reasonably result in dust emissions. If such areas are identified, Asarco personnel will apply dust suppressant or water, as appropriate, to minimize the possibility of dust emissions.

**Table 2  
PERTINENT OBSERVATION POINTS FOR BERM BUILDING OBSERVATIONS**

<b>Tailings Dam</b>	<b>Area Monitored</b>	<b>Observation Point</b>
4	Top of T-4 Top T-4, East slope of T-4 North slope of T-4, Top of T-4 Top of T-4	Water Tank Hill S-1 Northeast corner of #7 Dam T-1 Northwest corner of #4 Dam T-3 Northeast corner of #6 Dam T-4
7	East slope of T-7 East slope of T-7 North slope of T-7 Top of T-7	Northeast corner of #7 Dam T-1 Southeast corner of #7 Dam T-2 Northeast corner of #6 Dam T-4 Southeast corner of #6 Dam T-5
8	East slope of T-8 Top of T-8 North slope of T-8	Southeast corner of #7 Dam T-2 Southeast corner of #6 Dam T-5 Southeast corner of #6 Dam T-5

Visual surveys will be conducted bi-weekly, during normal operation of the plant. Visual surveys will be conducted as close as possible to a full two weeks apart but may not be conducted on the same day in each monitoring period. Records of the visual surveys will be kept in the Environmental Department.

**ATTACHMENT 1**  
**Visual Emission Observation Form**



**ASARCO MISSION COMPLEX**  
**Title V Permit #2026**  
**Visible Observation Plan Checklist**

Visual Observation Point		Date	Time	General Observations: (Conditions of Tailings/Actions Taken When Dust Present etc.)
M-1 Water Tank Hill (Mission Concentrator)	Concentrate Storage area			
	Filter Plant and unpaved roadways			
	Moly Plant area, unpaved roads & process fugitives			
	North Crusher Area, unpaved roads & process fugitives			
	Secondary Crusher area- unpaved roadways			
	Secondary Crusher Process/Conveyor fugitives			
	Unpaved roads & process fugitives near Mission Mill			
	Warehouse yard, Maint. shops & Unpaved roadways			
	North slope of East & Pima rock dumps			
	E. slopes of Pima, Mineral Hill & Ike waste rock dumps			
	South Mill & process fugitives areas			
	Unpaved roadways-Mission Pit perimeter			
	Mission Mill coarse ore stockpile.			
	Mission Primary Crusher			
S-1 Water Tank Hill (South Mill)	South Mill & process fugitives areas			
	Unpaved roadways-Mission Pit perimeter			
	Mission Mill coarse ore stockpile.			
	Mission Primary Crusher			
	Top of Tailing Dam #4			
T-1 (NE Dam #7)	Top of Tailing Dam #4			
	East slope of Tailing Dam #4			
	East slope of Tailing Dam #7			
T-2 (SE Dam #7)	East Slope of Tailing Dam # 7			
	East Slope of Tailing Dam # 8			
T-3 (NW Dam #4)	North Slope of Tailing Dam # 4			
	Top of Tailing Dam #4			
T-4 (NE Dam #6)	Top of Tailing Dam #6			
	North Slope of Tailing Dam # 7			
	North Slope of Tailing Dam # 6			
T-5 (SE Dam #6)	South Slope East Dump			
	Top of Tailing Dam #8			
	Top of Tailing Dam #7			
	North Slope of Tailing Dam # 8			

Observer Name & Signature \_\_\_\_\_

Date \_\_\_\_\_

Last Inspection Date \_\_\_\_\_

Method 9 Certification Date \_\_\_\_\_

**Note:**

[1] Visible emissions checks are required twice daily during berm building with construction equipment in actual normal operating mode on the berm.

[2] If VE>20%, conduct a visible emissions observation in accordance with EPA, Method 9. Use the Method 9 observation form. Provide the complete Method 9 form to the Environmental Manager.

## VISIBLE EMISSION OBSERVATION FORM



**ASARCO LLC**  
**(MISSION COMPLEX)**  
**4201 W. PIMA MINE ROAD**  
**SAHUARITA, ARIZONA 85629**  
**PERMIT NUMBER 2026**  
**PERMIT CLASS I**

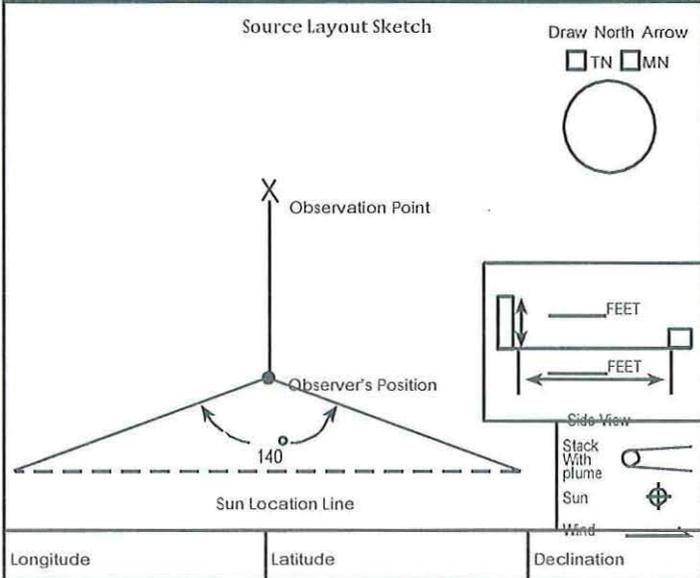
Process Equipment	Unit#	Operating Mode
Control Equipment		Operating Mode

Describe Emission Point:

Height Above Ground Level		Height Relative to Observer	
Start	End	Start	End
Distance From Observer		Direction From Observer	
Start	End	Start	End

Describe Emission

Start	End	
Emissions Color	Water Droplet Plume	
Start	End	
Attached <input type="checkbox"/> Detached <input type="checkbox"/> None <input type="checkbox"/>		
Point In the Plume At Which Opacity Was Determined		
Start	End	
Describe Plume Backgrounds		
Start	End	
Background Color	Sky Conditions	
Start	End	
Wind Speed	Wind Direction	
Start	End	
Ambient Temp.	Wet Bulb Temp	RH Percent
Start	End	



Observation Date	Time Zone	Start Time	End Time
------------------	-----------	------------	----------

Min.	Seconds				Min.	Seconds			
	00	15	30	45		00	15	30	45
1					31				
2					32				
3					33				
4					34				
5					35				
6					36				
7					37				
8					38				
9					39				
10					40				
11					41				
12					42				
13					43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

Observer's Name (print)	
Observer's Signature	Date
Organization	
Certified By	Date

Form Number	Page	of
Continued on VEO Form Number		

Additional Information: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**ATTACHMENT 2**  
**Non-Point Source Visual Observation Checklist**

ASARCO MISSION COMPLEX  
TITLE V PERMIT #2026  
SUPPLEMENTAL VEO CHECKLIST - BERM BUILDING ACTIVITIES - TAILINGS 4

Visual Observation Point	Dust Source (N/A if none present)	Berm Building in Progress (Yes/No) [1]	Wind Speed & Wind Direction [2]		Visual Survey for Visible Emission Observation (VEO)				Method 9 Observation [3]		Corrective Actions Taken
			WS	WD	VEO < 20%	VEO > 20%	Date	Time	Date	Time	
<b>Tailings #4 – Required VOP points</b>											
S-1 Water Tank Hill (South Mill)	Top of Tailing Dam #4										
T-1 (NE Dam #7)	Top of Tailing Dam #4										
	East slope of Tailing Dam #4										
T-3 (NW Dam #4)	North Slope of Tailing Dam #4										
	Top of Tailing Dam #4										

Visual Observation Point	Date	Time	General Observations: (Conditions of Tailings/Actions Taken When Dust Present etc.)
<b>Tailings #4 – Required VOP points</b>			
S-1 Water Tank Hill (South Mill)			
T-1 (NE Dam #7)			
T-3 (NW Dam #4)			

Observer Name & Signature \_\_\_\_\_

Date \_\_\_\_\_

Last Inspection Date \_\_\_\_\_

Method 9 Certification Date \_\_\_\_\_

**Note:**  
[1] Visible emissions checks are required twice daily during berm building with construction equipment in actual normal operating mode on the berm.  
[2] If VE>20%, conduct a visible emissions observation in accordance with EPA, Method 9. Use the Method 9 observation form. Provide the complete Method 9 form to the Environmental Manager.

ASARCO MISSION COMPLEX  
TITLE V PERMIT #2026  
SUPPLEMENTAL VEO CHECKLIST - BERM BUILDING ACTIVITIES-TAILINGS 7

Visual Observation Point	Dust Source (N/A if none present)	Berm Building in Progress (Yes/No) [1]	Wind Speed & Wind Direction [2]		Visual Survey for Visible Emission Observation (VEO)				Method 9 Observation [3]		Corrective Actions Taken
			WS	WD	VEO < 20%	VEO > 20%	Date	Time	Date	Time	
<b>Tailings #7 - Required VOP points</b>											
T-1 (NE Dam #7)	East slope of Tailing Dam #7										
T-2 (SE Dam #7)	East Slope of Tailing Dam #7										
T-4 (NE Dam #6)	North Slope of Tailing Dam #7										
T-5 (SE Dam #6)	Top of Tailing Dam #7										

Visual Observation Point	Date	Time	General Observations: (Conditions of Tailings/Actions Taken When Dust Present etc.)
<b>Tailings #7 - Required VOP points</b>			
T-1 (NE Dam #7)			
T-2 (SE Dam #7)			
T-4 (NE Dam #6)			
T-5 (SE Dam #6)			

Observer Name & Signature \_\_\_\_\_

Date \_\_\_\_\_

Last Inspection Date \_\_\_\_\_

Method 9 Certification Date \_\_\_\_\_

Note:  
[1] Visible emissions checks are required twice daily during berm building with construction equipment in actual normal operating mode on the berm.  
[2] If VE>20%, conduct a visible emissions observation in accordance with EPA, Method 9. Use the Method 9 observation form. Provide the complete Method 9 form to the Environmental Manager.

ASARCO MISSION COMPLEX  
TITLE V PERMIT #2026  
SUPPLEMENTAL VEO CHECKLIST - BERM BUILDING ACTIVITIES-TAILINGS 8

Visual Observation Point	Dust Source (N/A if none present)	Berm Building in Progress (Yes/No) [1]	Wind Speed & Wind Direction [2]		Visual Survey for Visible Emission Observation (VEO)				Method 9 Observation [3]		Corrective Actions Taken
			WS	WD	VEO < 20%	VEO > 20%	Date	Time	Date	Time	
<b>Tailings #8 - Required VOP points</b>											
T-2 (SE Dam #7)	East Slope of Tailing Dam # 8										
T-5 (SE Dam #6)	Top of Tailing Dam #8										
	North Slope of Tailing Dam # 8										

Visual Observation Point	Date	Time	General Observations: (Conditions of Tailings/Actions Taken When Dust Present etc.)
<b>Tailings #8 - Required VOP points</b>			
T-2 (SE Dam #7)			
T-5 (SE Dam #6)			

Observer Name & Signature \_\_\_\_\_

Date \_\_\_\_\_

Last Inspection Date \_\_\_\_\_

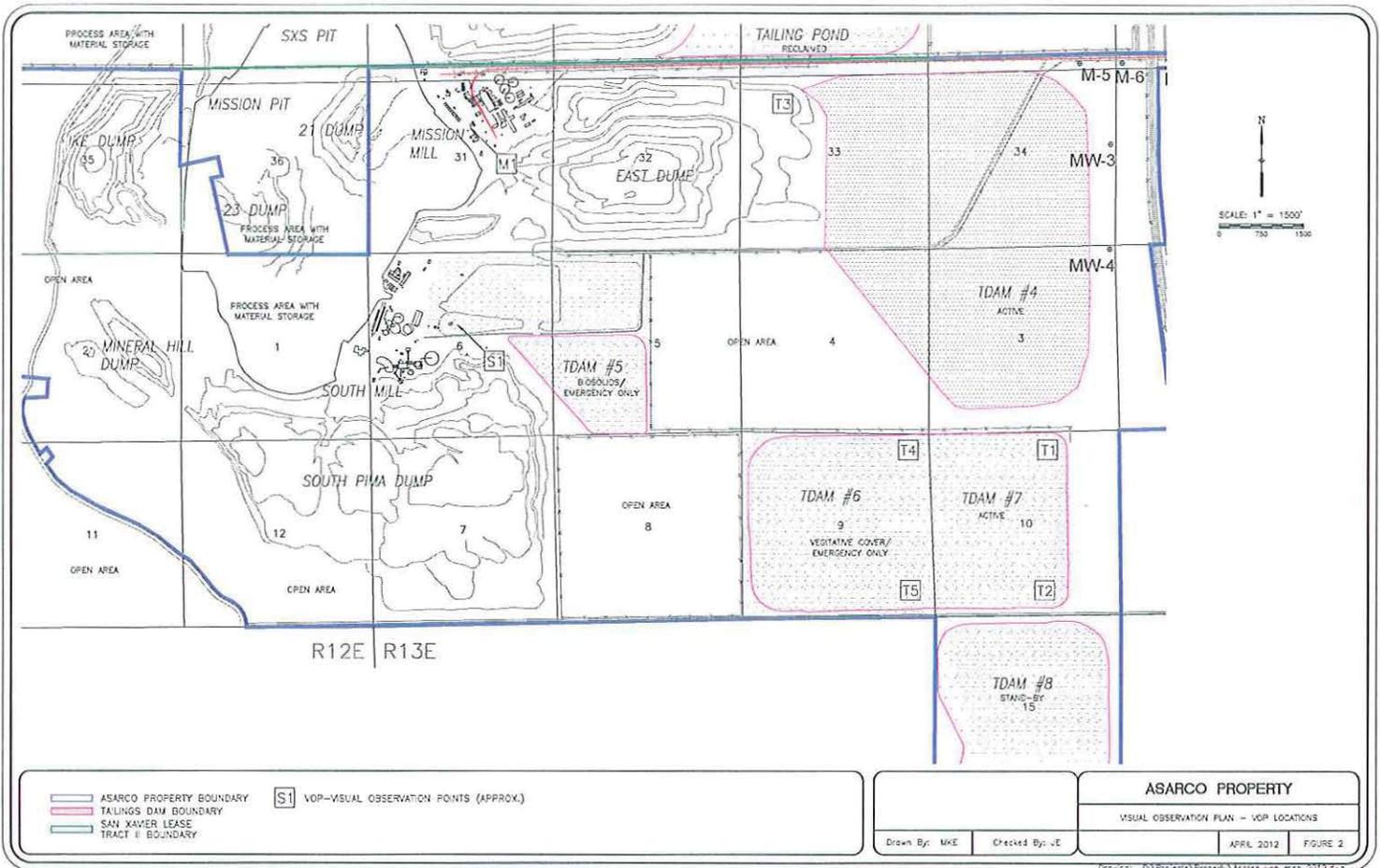
Method 9 Certification Date \_\_\_\_\_

**Note:**

[1] Visible emissions checks are required twice daily during berm building with construction equipment in actual normal operating mode on the berm.

[2] If VE>20%, conduct a visible emissions observation in accordance with EPA, Method 9. Use the Method 9 observation form. Provide the complete Method 9 form to the Environmental Manager.

**ATTACHMENT 3**  
**Visual Observation Map**



**ATTACHMENT 4**  
**Tailings Impoundment Surface Inspection Forms**

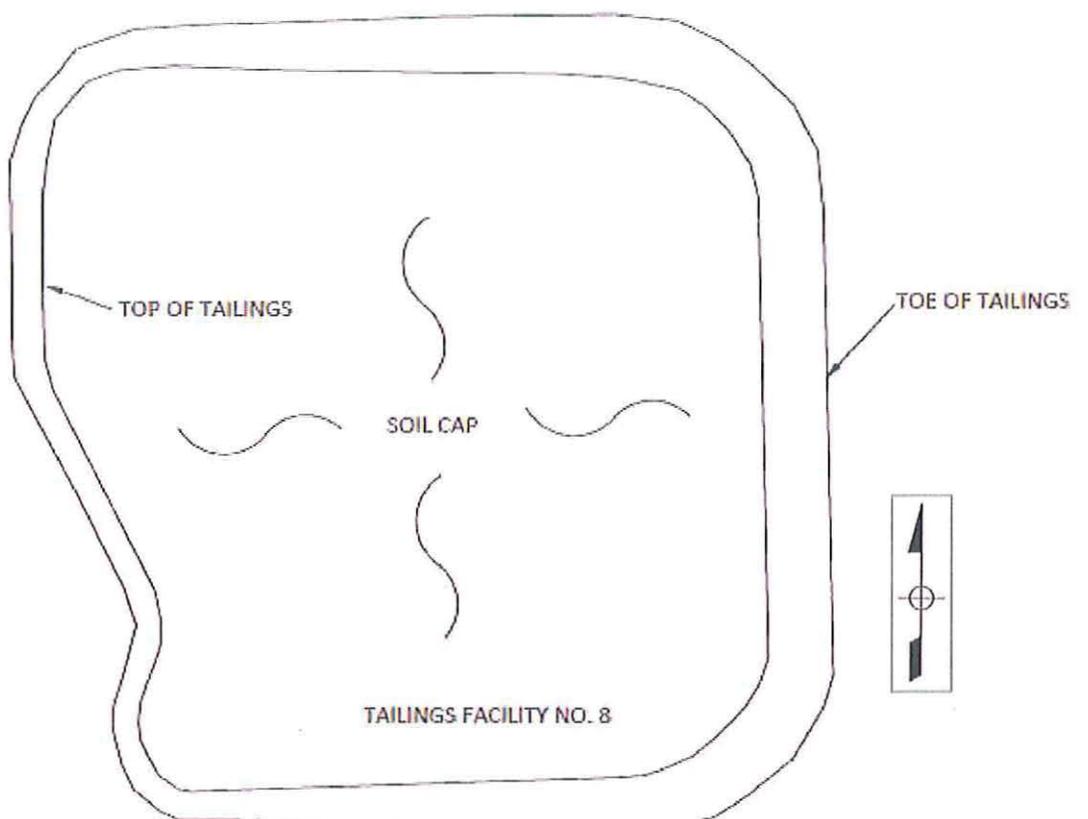
## Tailings Impoundment Periodic Surface Inspection – TSA #8

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Conditions: \_\_\_\_\_

Dam Inspection Areas: \_\_\_\_\_ Inspected By: \_\_\_\_\_

ACTION PLAN (if required): \_\_\_\_\_

Weather Conditions (est): Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_ Temp \_\_\_\_\_



Mark area inspected on diagram using appropriate identifier (A-H) below that best describes conditions observed.

ID	CONDITION	ACTION
<b>A</b>	Recent Deposition (14 days or less)	No Action Required
<b>B</b>	Moist Surface	No Action Required
<b>C</b>	Salt Crust	No Action Required
<b>D</b>	Crusted with light surface sands	Watch Area / Reinspect in one week
<b>E</b>	Crusts breaking down	Watch Area / Reinspect in one week
<b>F</b>	Piles of Standing Sands (blown in)	Action Required - Deposition or Suppressant Application
<b>G</b>	Broken Down Crust	Action Required - Deposition or Suppressant Application
<b>H</b>	Area with Dust Suppressant Applied Prior	Watch Area / Reinspect as necessary

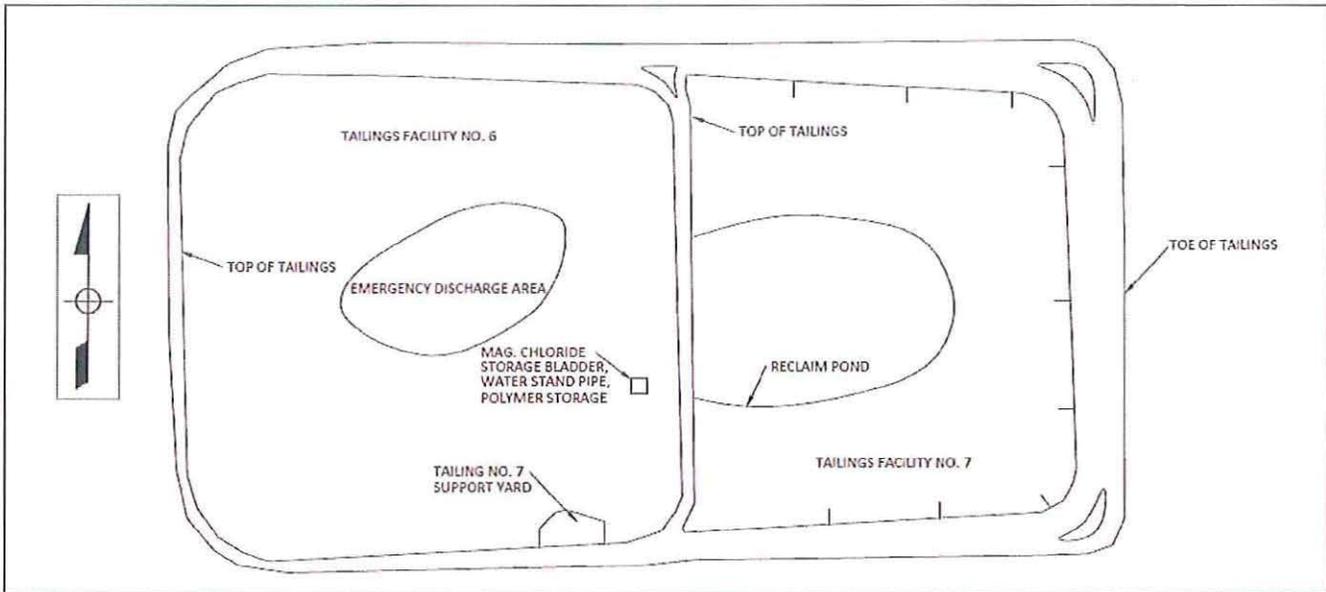
## Tailings Impoundment Periodic Surface Inspection – TSA #7

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Conditions: \_\_\_\_\_

Dam Inspection Areas: \_\_\_\_\_ Inspected By: \_\_\_\_\_

ACTION PLAN (if required): \_\_\_\_\_

Weather Conditions (est): Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_ Temp \_\_\_\_\_



Mark area inspected on diagram using appropriate identifier (A-H) below that best describes conditions observed.

ID	CONDITION	ACTION
<b>A</b>	Recent Deposition (14 days or less)	No Action Required
<b>B</b>	Moist Surface	No Action Required
<b>C</b>	Salt Crust	No Action Required
<b>D</b>	Crusted with light surface sands	Watch Area / Reinspect in one week
<b>E</b>	Crusts breaking down	Watch Area / Reinspect in one week
<b>F</b>	Piles of Standing Sands (blown in)	Action Required - Deposition or Suppressant Application
<b>G</b>	Broken Down Crust	Action Required - Deposition or Suppressant Application
<b>H</b>	Area with Dust Suppressant Applied Prior	Watch Area / Reinspect as necessary

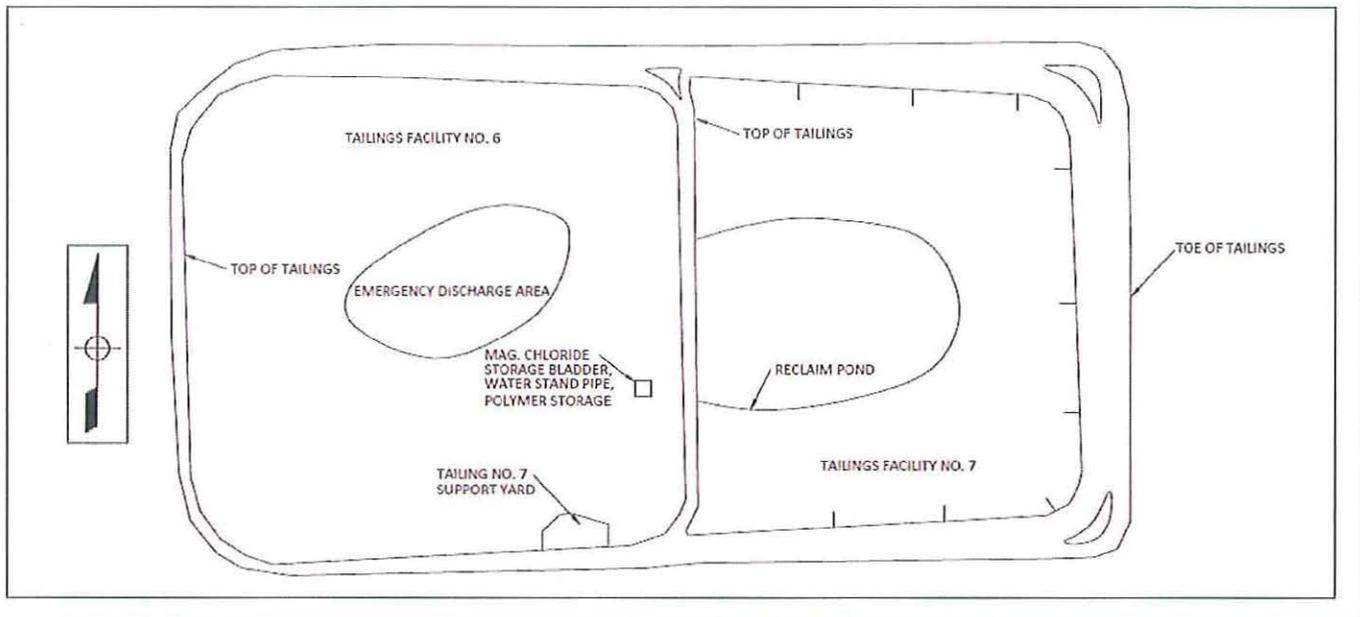
## Tailings Impoundment Periodic Surface Inspection - TSA #6

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Conditions: \_\_\_\_\_

Dam Inspection Areas: \_\_\_\_\_ Inspected By: \_\_\_\_\_

ACTION PLAN (if required): \_\_\_\_\_

Weather Conditions (est): Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_ Temp \_\_\_\_\_



Mark area inspected on diagram using appropriate identifier (A-H) below that best describes conditions observed.

ID	CONDITION	ACTION
<b>A</b>	Recent Deposition (14 days or less)	No Action Required
<b>B</b>	Moist Surface	No Action Required
<b>C</b>	Salt Crust	No Action Required
<b>D</b>	Crusted with light surface sands	Watch Area / Reinspect in one week
<b>E</b>	Crusts breaking down	Watch Area / Reinspect in one week
<b>F</b>	Piles of Standing Sands (blown in)	Action Required - Deposition or Suppressant Application
<b>G</b>	Broken Down Crust	Action Required - Deposition or Suppressant Application
<b>H</b>	Area with Dust Suppressant Applied Prior	Watch Area / Reinspect as necessary

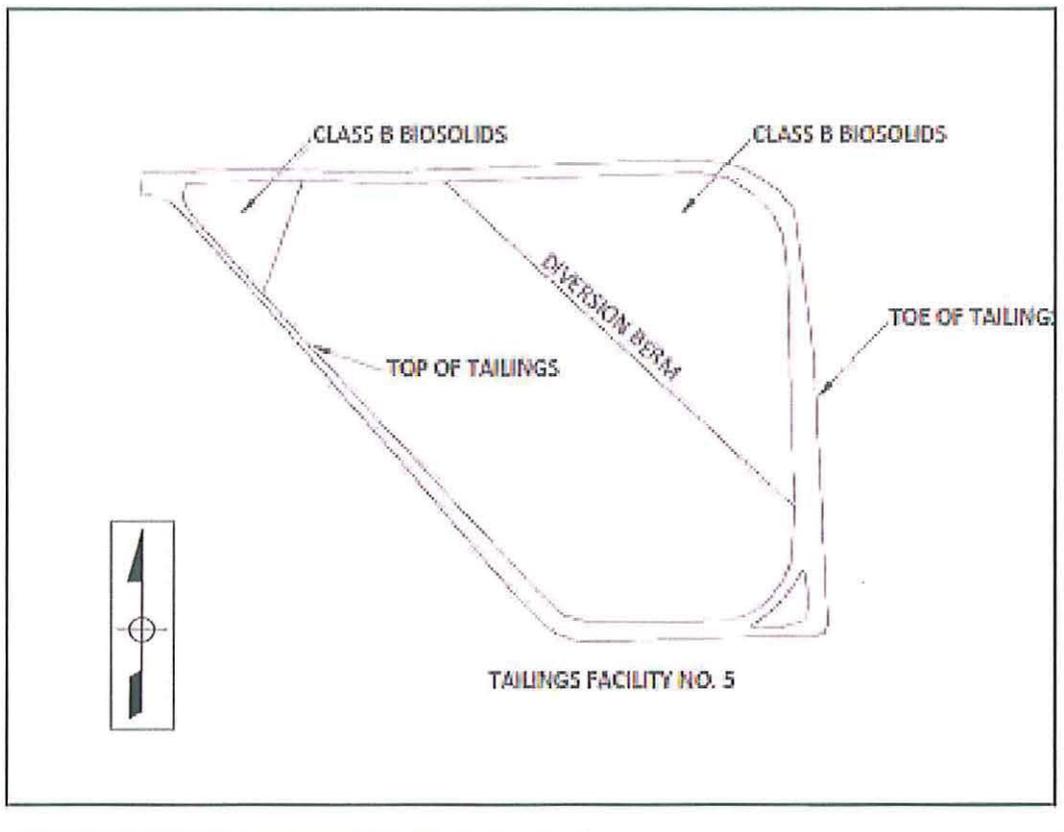
## Tailings Impoundment Periodic Surface Inspection – TSA #5

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Conditions: \_\_\_\_\_

Dam Inspection Areas: \_\_\_\_\_ Inspected By: \_\_\_\_\_

ACTION PLAN (if required): \_\_\_\_\_

Weather Conditions (est): Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_ Temp \_\_\_\_\_



Mark area inspected on diagram using appropriate identifier (A-H) below that best describes conditions observed.

ID	CONDITION	ACTION
<b>A</b>	Recent Deposition (14 days or less)	No Action Required
<b>B</b>	Moist Surface	No Action Required
<b>C</b>	Salt Crust	No Action Required
<b>D</b>	Crusted with light surface sands	Watch Area / Reinspect in one week
<b>E</b>	Crusts breaking down	Watch Area / Reinspect in one week
<b>F</b>	Piles of Standing Sands (blown in)	Action Required - Deposition or Suppressant Application
<b>G</b>	Broken Down Crust	Action Required - Deposition or Suppressant Application
<b>H</b>	Area with Dust Suppressant Applied Prior	Watch Area / Reinspect as necessary

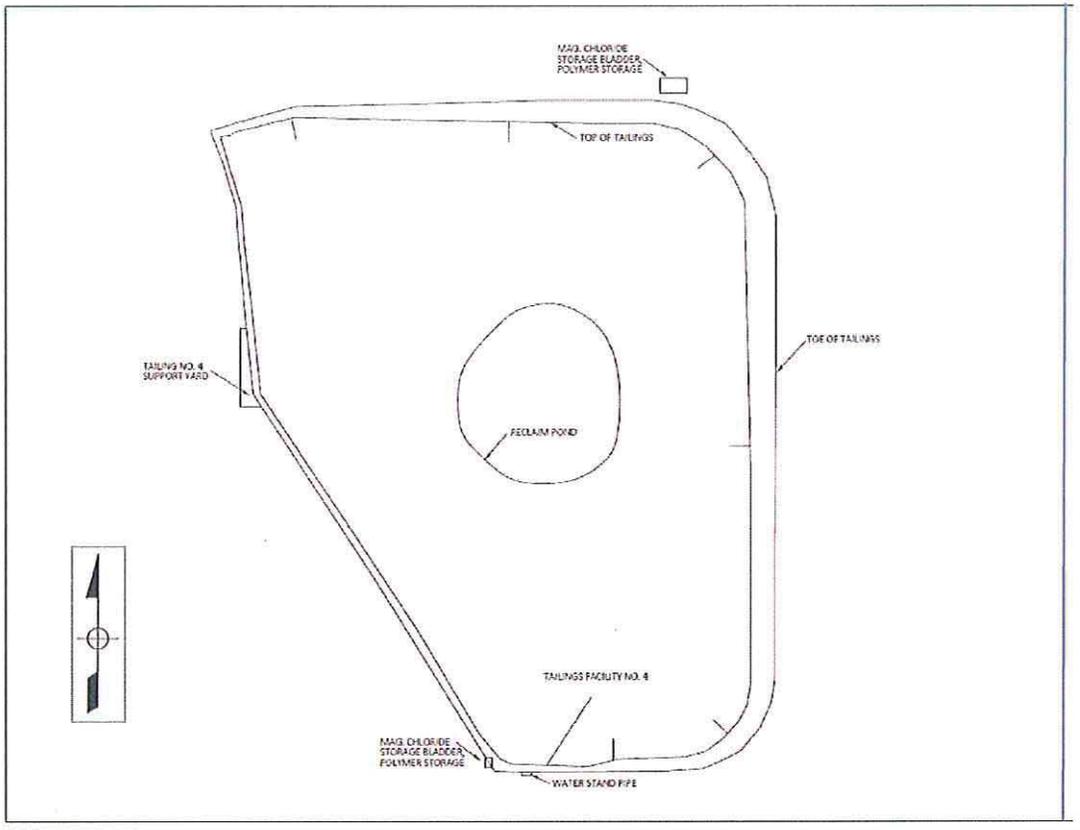
## Tailings Impoundment Periodic Surface Inspection – TSA #4

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Conditions: \_\_\_\_\_

Dam Inspection Areas: \_\_\_\_\_ Inspected By: \_\_\_\_\_

ACTION PLAN (if required): \_\_\_\_\_

Weath Conditions (est): Wind Speed \_\_\_\_\_ Wind Direction \_\_\_\_\_ Temp \_\_\_\_\_



Mark area inspected on diagram using appropriate identifier (A-H) below that best describes conditions observed.

ID	CONDITION	ACTION
<b>A</b>	Recent Deposition (14 days or less)	No Action Required
<b>B</b>	Moist Surface	No Action Required
<b>C</b>	Salt Crust	No Action Required
<b>D</b>	Crusted with light surface sands	Watch Area / Reinspect in one week
<b>E</b>	Crusts breaking down	Watch Area / Reinspect in one week
<b>F</b>	Piles of Standing Sands (blown in)	Action Required - Deposition or Suppressant Application
<b>G</b>	Broken Down Crust	Action Required - Deposition or Suppressant Application
<b>H</b>	Area with Dust Suppressant Applied Prior	Watch Area / Reinspect as necessary