ASARCO
GRUPO MEXICO

October 14, 2013

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PIMA COUNTY

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DEPARTMENT OF
ENVIRONMENTAL QUALITY

2026-23P
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2026-22P

Mr. Mukonde Chama
Air Quality Program
Pima County Department of Environmental Quality
33 N. Stone Ave., Suite 700
Tucson, AZ 85701

Re: Request for Minor Air Quality Permit Revision
ASARCO LLC—Mission Complex, Permit No. 2026

Dear Mr. Chama:

ASARCO LLC – Mission Complex ("Asarco") provides a minor permit application for changes to its South Mill operations. These changes, among other topics, were discussed with you during a meeting with Asarco representatives on July 24, 2013. During this meeting, we discussed the installation of two additional feeders under the coarse ore storage pile and one additional feeder to support the SAG reclaim pile. The purpose of these feeders is to increase access to the material in these storage piles. The installation of these feeders will not increase throughput as the speed and capacity of the corresponding conveyors will not be changed in any way.

ASARCO also requests that as part of this minor permit application, PDEQ add a 1.9 MMBTU natural gas fired water heater to ASARCO's equipment list. ASARCO believes that this non-process related hot water heater, used in the personnel locker room, is not otherwise subject to any applicable requirement.

Asarco requests that minor permit processing procedures be used on this application. A copy of the standard permit application form and supporting emissions calculations is attached. Asarco believes that the proposed addition of three feeders to the South Mill circuit and non-process related hot water heater qualify for a minor permit revision for the following reasons:

- Addition of the feeders and hot water heater does not violate any applicable requirement;
- Addition of the feeders and hot water heater does not require any substantive change to existing monitoring, reporting or recordkeeping requirements in the permit.
- Addition of the feeders and hot water heater does not require or change a case-by-case determination of an emission limitation, other standard, or a source-specific determination of ambient impacts or visibility.
- The addition of the feeders and hot water heater does not alter an emissions cap or federal alternative emissions limit. Instead, the units will comply with existing NSPS limits.

- The change is not a modification under any provision of Title I. There will be no emissions increase; thus, there is no impact to PSD "significant" thresholds, as demonstrated in the attached application materials.
- The installation of the feeders and hot water heater is not a change in fuels.
- The feeders and hot water heater will not cause a "significant" increase in air emissions.
- The feeders and hot water heater are not required to be processed as a "significant" permit revision by PCC 17.12.260.

PCC 17.12.255.A. Asarco therefore believes that a minor permit revision satisfies both the Pima County Code and Pima County SIP provisions and requests that PDEQ issue the requested permit revision as soon as possible.

I certify, based on reasonable inquiry of those involved in the preparation of this application, that the proposed units will operate in compliance with all applicable requirements and that the information included in this letter and all its attachments are true, accurate and complete.

Sincerely,

Tom Phillips
General Manager

Attachments

ATTACHMENT "A"
Standard Permit Application

PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY
Air Program
33 N. Stone Avenue ▪ Suite 700 ▪ Tucson, AZ 85701 ▪ Phone: (520) 243-7400

STANDARD PERMIT APPLICATION FORM FOR CLASS I SOURCES

(As required by A.R.S. § 49-480, and Title 17 of the Pima County Code)

1. **Permit to be issued to (Arizona Corporate Commission Registered Name):** ASARCO LLC

2. **Mailing Address:** 4201 West Pima Mine Road

   City: Sahuarita **State:** AZ **ZIP:** 85629

3. **Plant Name (if different than item #1):** Mission Complex

4. **Name (or names) of Owner or Operator:** ASARCO LLC

   FAX #: (520) 648-0802 **Phone:** (520) 648-2500

   Email: NA

5. **Name of Owner's Agent:** Thomas H. Phillips

   FAX #: (520) 625-9632 **Phone:** (520) 648-4528

6. **Plant/Site Manager/Contact Person:** Jamie Ekholm

   FAX #: (520) 648-0802 **Phone:** (520) 393-4671

   Email: jekholm@asarco.com

7. **Proposed Equipment/Plant Location Address:** Same as above

   City: _____ **State:** _____ **ZIP:** _____

   Indian Reservation (if applicable): NA **T/R/S, Lat/Long, Elev:** 31 59' 50.35"N/111 02'58.95" W, 3123 ft

8. **General Nature of Business:** Mining

   Standard Industrial Classification Code: 1021 **State Permit Class:** Title V, Class I

9. **Type of Organization:** ☐ **Corporation** ☐ **Individual Owner** ☐ **Partnership** ☐ **Government Entity** ☒ **Other** LLC

10. **Permit Application Basis** ***(Check all that apply):*** ☐ **New Source** ☐ **General Permit**

    ☐ **Renewal** ***Revision:*** ☐ **Administrative** ☒ **Minor** ☐ **Significant** **Existing Permit #** _____

    Date of Commencement of Construction or Modification: Once approved

    Is any of the equipment to be leased to another individual or entity? ☐ **Yes** ☒ **No**

11. **Signature of Responsible Official of Organization:** Ted W. Mei

    Official Title of Signer: General Manager

12. **Typed or Printed Name & E-mail of Signer:** Thomas H. Phillips

    Date: 10/15/2013 **Telephone Number:** (520) 648-4528

EQUIPMENT LIST

The following table should include all equipment utilized at the facility and be complete with all data requested. The date of manufacture must be included in order to determine if portions of the facility are subject to NSPS. Make additional copies of this form if necessary.

Type of Equipment	Maximum Rated Capacity	Make	Model	Serial Number	Equipment ID Number	Date of Manufacture
42" Feeder	500 TPH	NICO	FD-4465	TBD	30-930	TBD
42" Feeder	500 TPH	NICO	FD-4465	TBD	30-932	TBD
Vibrating Feeder	200 TPH	Syntron	F-450-B-DT	TBD	20-954	TBD
Natural Gas Boiler	1.9 MM Btu	Parker Boiler	WH-1900	1B61433	ADMIN-B-WH1900	2013

EMISSION SOURCES

COMPANY NAME: ASARCO LLC

DATE October 2013

Estimated "Potential to Emit" per 17.04.340.A.164.
Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS										
EMISSION POINT [1]		CHEMICAL COMPOSITION OF TOTAL STREAM	REG. AIR * POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION POINT [5]			STACK SOURCES [6]					NONPOINT SOURCES [7]	
										EXIT DATA				
NUMBER	NAME	REGULATED AIR POLLUTANT NAME [2]	#/ HR. [3]	TONS/ YEAR [4]	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (ft)	HEIGHT ABOVE STRUC. (ft)	DIA. (ft)	VEL (fps)	TEMP. (°F)	LENGTH (ft)	WIDTH (ft)
30-930	42" Feeder	PM	.89	3.9	12	765267	356508	5	NA	NA	NA	NA	NA	NA
		PM10	.46	2.0										
30-932	42" Feeder	PM	.89	3.9	12	765267	356581	5	NA	NA	NA	NA	NA	NA
		PM10	.46	2.0										
20-954	Vibrating Feeder	PM	.73	3.2	12	765692	356077	5	NA	NA	NA	NA	NA	NA
		PM10	.36	1.6										
ADMIN-B	Nat. Gas Boiler	NOx	.19	.82	12	495308	354183	NA	NA	NA	NA	NA	NA	NA
WH1900		CO	.16	.68										

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL 3123 feet. PDEQ STANDARD CONDITIONS ARE 293K AND 101.3 KILOPASCALS (17.04.340.A.210)

General Instructions:

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits, and Emissions Inventory Questionnaire. Include fugitive emissions. Limit emission point number to eight (8) character spaces. For each emission point use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler, tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are O.K.
2. Components to be listed include regulated air pollutants as defined in 17.04.340.A.182. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (NO_X), Sulfur Dioxide (SO_2), Volatile Organic Compounds (VOC), particulate matter (PM), particulate less than 10 microns (PM_{10}), etc. Abbreviations are O.K.
3. Pounds per hour (#/HR) is maximum potential emission rate expected by applicant.
4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.
5. As a minimum applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.
6. Supply additional information as follows if appropriate:
   (a) Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate if horizontal discharge with a note.
   (b) Stack's height above supporting or adjacent structures if structure is within 3 times the "stack height above the ground" of stack.
7. Dimensions of nonpoint sources as defined in 17.04.34.A.147.

*Please see Attachment "B" for explanation of PTE.

Certification of Compliance with all Applicable Requirements

Permit Number (If existing source) 2026

This certification must be signed by a Responsible Official. Applications without a signed certification will be deemed incomplete.

> *The responsible official is defined as a person who is in charge of principal business functions or who performs policy or decision making functions for the business. This may also include an authorized representative for such persons. For a complete definition, see Pima County Air Quality Control, Title 17, Section 17.04.340(A)(186).*

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Pima County Department of Environmental Quality (PDEQ) as public record. I also attest that I am in compliance with the applicable requirements and will continue to comply with such requirements and any future requirements that become effective during the life of my permit. I will present a certification of compliance to PDEQ no less than annually and more frequently if specified by PDEQ. I further state that I will assume responsibility for the construction, modification, or operation of the source in accordance with the requirements of Title 17 of the Pima County Code and any permit issued thereof.

Name (Print/Type): Thomas H. Phillips Title: General Manager

(Signature): Ted W. Mulin for Date: 10/15/2013

Certification of Truth, Accuracy, and Completeness

17.12.160(H) - Certification of Truth, Accuracy, and Completeness. Any application form, report, or compliance certification submitted pursuant to this Chapter shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the documents are true, accurate, and complete.

By my signature I,(Name) Thomas H. Phillips, hereby certify that based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Signature of Responsible Official of Organization: Ted W. Mulin for

Title: General Manager Date: 10/15/2013

Fee Summary for Class I Sources - Revised December 20, 2007	
Application Processing Fee $105.80# per hour (Minimum One Hour – No Maximum	Accelerated Permit Application Fee $15,000*
Class I Source Category	**Administrative Fee**
Aerospace	$15,570
Cement Plants	$47,680
Combustion/Boilers	$11,590
Compressor Stations	$9,530
Electronics	$15,340
Expandable Foam	$10,990
Foundries	$14,610
Landfills	$11,940
Lime Plants	$44,660
Copper and Nickel Mines	$11,220
Gold Mines	$11,220
Mobile Home Manufacturing	$11,110
Paper Mills	$15,330
Paper Coaters	$11,590
Petroleum Products Terminal Facilities	$17,020
Polymeric Fabric Coaters	$15,330
Reinforced Plastics	$11,590
Semiconductor Fabrication	$20,170
Copper Smelters	$47,680
Utilities - Natural Gas	$12,310
Utilities - Fossil Fuel Except Natural Gas	$24,380
Vitamin/Pharmaceutical Manufacturing	$11,830
Wood Furniture	$11,590
Others	$11,940
Others with Continuous Emissions Monitoring	$15,340
Emission Based Fee/ Ton of regulated pollutants	$14.18#

* Fee due 60 days prior to submitting application with letter requesting accelerated processing **(No exceptions)**

Adjusted every November 1 based on the Consumer Price Index for urban consumers published by the US Dept. of Labor. Information is taken from Pima County Code Title 17 Section 17.12.510. Refer to this section for more complete information.

ATTACHMENT "B"
Emissions Calculations

Feeders

Asarco does not believe that installation of the two additional feeders at the coarse ore storage pile and one additional feeder at the SAG reclaim pile will result in increased emissions. All feeders are limited by the associated conveyor speed and capacity.

Asarco will install two additional feeders under the coarse ore storage pile (one feeder for the 134 conveyor (proposed feeder 30-930) and one feeder for the 136 conveyor (proposed feeder 30-932)) to allow for better blending of rock types and for the ability to better control the flow of feed by increasing access to the footprint of the pile.

Asarco will also install one additional feeder (proposed 20-954) on the 251 conveyor to allow for better selection of feed by increasing access to the footprint of the SAG reclaim pile.

The installation of these three feeders will not increase throughput as the speed or capacity of the conveyors will not be changed in any way. The additional feeders will aid in blending and reaching areas of the stockpile not currently accessible to the current feeders; however, no matter what feeders are supplying the conveyors, the throughput of these feeders is limited by the conveyor speed and capacity. There will be no increase to the PTE as a result of this modification.

Hot Water Heater

The hot water heater is a 1.9 MMBtu natural gas fired unit. The hot water heater is located in the personnel locker room and is not process-related. Using AP-42 Emission Factors for Natural Gas Combustion Sources less than 100 MMBtu, potential emissions from the 1.9 MMBtu source are insignificant at 0.82 tons/year NOx and 0.68 tons/year CO. (See AP-42 Section 1.4, Table 1.4-1, Small Boilers, Uncontrolled) This is based on 8,760 hour per year usage, which severely overestimates the use of this locker room water heater.

ATTACHMENT "C"
Additional Information

1. Description of the process to be carried out by each unit.

30-134 and 30-136 are conveyors that convey ore from the coarse ore stockpile to the Mission South SAG Mill. Installation of two additional feeders (one to each conveyor) will allow for better blending of rock types and for the ability to better control the flow of feed by increasing access to the footprint of the coarse ore stockpile.

20-954 is a conveyor that conveys oversized ore from the SAG reclaim stockpile to the SAG Mill. Installation of one additional feeder on the 251 conveyor will allow for better selection of feed by increasing access to the footprint of the SAG reclaim pile.

Locker Room Hot Water Heater will be used to heat water for non-process related employee hot water needs.

2. Description of raw materials, intermediates and products.

The proposed 30-930 and 30-932 feeders provide ore to conveyors 30-134 and 30-136 respectively, which convey coarse ore to the Mission South SAG Mill.

The proposed- 20-954 feeder provides oversized ore from the SAG reclaim stockpile to conveyor 20-251 which conveys reclaim ore back to the SAG Mill.

Locker Room Hot Water Heater – Not applicable.

3. Description of alternating operating scenario.

Asarco will run feeders as necessary to feed ore to the conveyors. Feeders may be run concurrently or one at a time, but no matter what feeders are being run the throughput of these feeders is limited by the associated conveyor speed and capacity.

Locker Room Hot Water Heater – Not applicable.

4. Description of alternate operating scenario product(s), if applicable.

Not applicable.

5. Flow Diagram for All Processes

See Mission South Primary Crusher and Stockpile diagram and Mission South Concentrator diagram (Attachment D).

6. A material balance for all processes (optional, only if emissions calculations are based on a material balance)

Not applicable.

7. Emissions Related Information

See Attachment "B".

8. Citation and description of all applicable requirements as defined in 17.04.340.A.25.

Feeders 30-930, 30-932
Federal New Source Performance Standard 40 C.F.R. part 60, subpart LL is applicable to these feeders. The feeders shall not cause process fugitive emissions to be discharged to the atmosphere greater than 10 percent opacity per 40 C.F.R. § 60.382(b).

These feeders are controlled by SSOPS-3 [Dry Dust Collectors 30-150A/30-150B]. SSOPS-3 is not currently subject to NSPS Subpart LL. As a result of this modification, SSOPS-3 will be subject to 0.02 g/dscm particulate matter and 7 percent opacity standards per 40 C.F.R. § 60.382 (a). SSOPS-3 is currently limited to 0.003 gr/scf (0.0069 g/dscm). (Final Permit Action #2026-11P dated December 1, 2011). Accordingly, no change in the current permit limitation SSOPS-3 is required or requested.

Feeder 20-954
Federal New Source Performance Standard 40 C.F.R. part 60, subpart LL is applicable to this feeder. The feeder shall not cause process fugitive emissions to be discharged to the atmosphere greater than 10 percent opacity per 40 C.F.R. § 60.382(b).

This feeder is already controlled by SSOPS-4/4a [Ducon wet scrubber 20-270/20-256]. SSOPS-4/4A is subject to NSPS Subpart LL; thus, this scrubber is already subject to limits and no change is required or requested.

Locker Room Hot Water Heater
There are no other applicable regulatory requirements for this hot water heater:

NSPS Subpart Dc—Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units applies to steam generating units greater than or equal to 10 MMBtu (see 40 CFR § 60.40c(a)). This unit is below the NSPS Subpart Dc regulatory threshold.

NESHAP Subpart JJJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers - Area Sources, does not apply to gas

fired boilers (see 40 CFR § 63.11195(e)). Because this unit is a natural gas fired boiler at an area source of HAPs, NESHAP Subpart JJJJJJ does not apply.

Pima County Code 17.16.160 - Standards of performance for fossil-fuel fired steam generators and general fuel burning equipment - does not apply. Article IV, New and Existing Stationary Source Performance Standards, applies to stationary EXISTING point sources (see PCC 17.16.130.A.) Because this unit is a new source, 17.16.160 does not apply to this source.

PCC 17.16.165 - Standards of performance for fossil-fuel fired industrial and commercial equipment - is also limited to existing sources under PCC 17.16.130.A., so it does not apply.

Last, PCC 17.12.140.B.3.c does not apply because this non-process related hot water heater will not be "fired at a sustained rate of more than one million BTUs per hour for more than an eight-hour period."

9. An explanation of any proposed exemptions from otherwise applicable requirements.

Not applicable.

10. The following information to the extent it is needed to determine or regulate emissions:
a. Maximum annual process rate (actual) for each piece of equipment that generates air emissions.

Feeders 30-930, 30-932
Current feeders 30-130 through 30-133, which feed conveyors 30-134/136, are each limited to 500 TPH. Asarco requests the same 500 TPH limit for each feeder 30-930 and 30-932. As discussed above, all feeders supplying coarse ore to conveyors 30-134/136 are limited to the speed and capacity of these conveyors and the addition of two new feeders will not increase the conveyor capacity.

Feeder 20-954
Current feeders 20-252, 253 and 254, which feed conveyor 20-251, are each limited to 200 TPH. Asarco requests feeder 20- 954 be subject to the same 200 TPH limit. As discussed above, all feeders supplying reclaim ore to conveyor 20-251 are limited to the speed and capacity of this conveyor and the addition of the new feeder will not increase the conveyor capacity.

Locker Room Hot Water Heater – Not applicable.

b. Maximum annual process rate (actual) for the whole plant.

The South mill circuit is limited to 12,500,000 tons per year. Asarco is prohibited from operating the South Mill primary crusher at a capacity greater than 2,000 tons per hour except during any period when the Mission Primary Crusher (M303-E3), or the Mission Secondary Crushers (307-E3 and 307-E4), or the North Primary Crusher (361-26-1) is off-line.

c. Maximum rated hourly process rate (potential) for each piece of equipment that generates air emissions

Feeders 30-930 and 30-932 are each rated at 500 TPH.

Feeder 20-954 is rated at 200 TPH.

d. Maximum rated hourly process rate (potential) for the whole plant.

Unaffected by the change.

e-g. Not applicable.

h. Limitations on source operations and any work practice standards affecting emissions.

The South mill circuit is limited to 12,500,000 tons per year. Asarco is prohibited from operating the South Mill primary crusher at a capacity greater than 2,000 tons per hour except during any period when the Mission Primary Crusher (M303-E3), or the Mission Secondary Crushers (307-E3 and 307-E4), or the North Primary Crusher (361-26-1) is off-line.

SSOPS-3 is currently limited to 0.003 gr/scf. SSOPS-4/4A is currently subject to NSPS Subpart LL.

11. Description of all process and control equipment for which permits are required

See "Standard Permit Application Form for Class I Sources," page 2.

12. Stack Information

See "Standard Permit Application Form for Class I Sources," page 3.

13. Site Diagram

Attached as Attachment "D".

14. Air Pollution Control Equipment

Feeders 30-930, 30-932

These feeders are controlled by SSOPS-3 [Dry Dust Collectors 30-150A/30-150B]. SSOPS-3 is not currently subject to NSPS Subpart LL. As a result of this modification, SSOPS-3 will be subject to 0.02 g/dscm particulate matter and 7 percent opacity standards per 40 C.F.R. § 60.382(a). SSOPS-3 is currently limited to 0.003 gr/scf (0.0069 g/dscm). (Final Permit Action #2026-11P dated December 1, 2011). Accordingly, no change in the current permit limitation SSOPS-3 is required or requested.

Asarco proposes to test these dust collectors within 60 days of achieving maximum production or 180 days of startup (installation of the new feeders), whichever comes first.

Feeder 20-954

This feeder is already controlled by SSOPS-4/4a [Ducon wet scrubber 20-270/20-256]. SSOPS-4/4A is subject to NSPS Subpart LL; thus, this scrubber is already subject to limits and no change is required or requested.

15. Not Applicable

16. Compliance Plan and Schedule

Asarco is currently in compliance with all requirements applicable to current feeders and associated conveyors 30-134/136 and 20-954. For example, the conveyors are controlled by dry dust collectors and wet scrubbers and meet or perform better than the NSPS and Pima County Code standards applicable to this source. Asarco will continue to meet all applicable regulations. Asarco will timely comply with any new applicable requirements that come into effect during the permit term.

17. Compliance certification

Asarco will meet all compliance certification requirements set forth in its existing Class I permit or the requested permit revision at least annually, which satisfies this requirement. Asarco's responsible corporate official has certified this application as required.

18. Not Applicable

19. New major source or major modification requirements

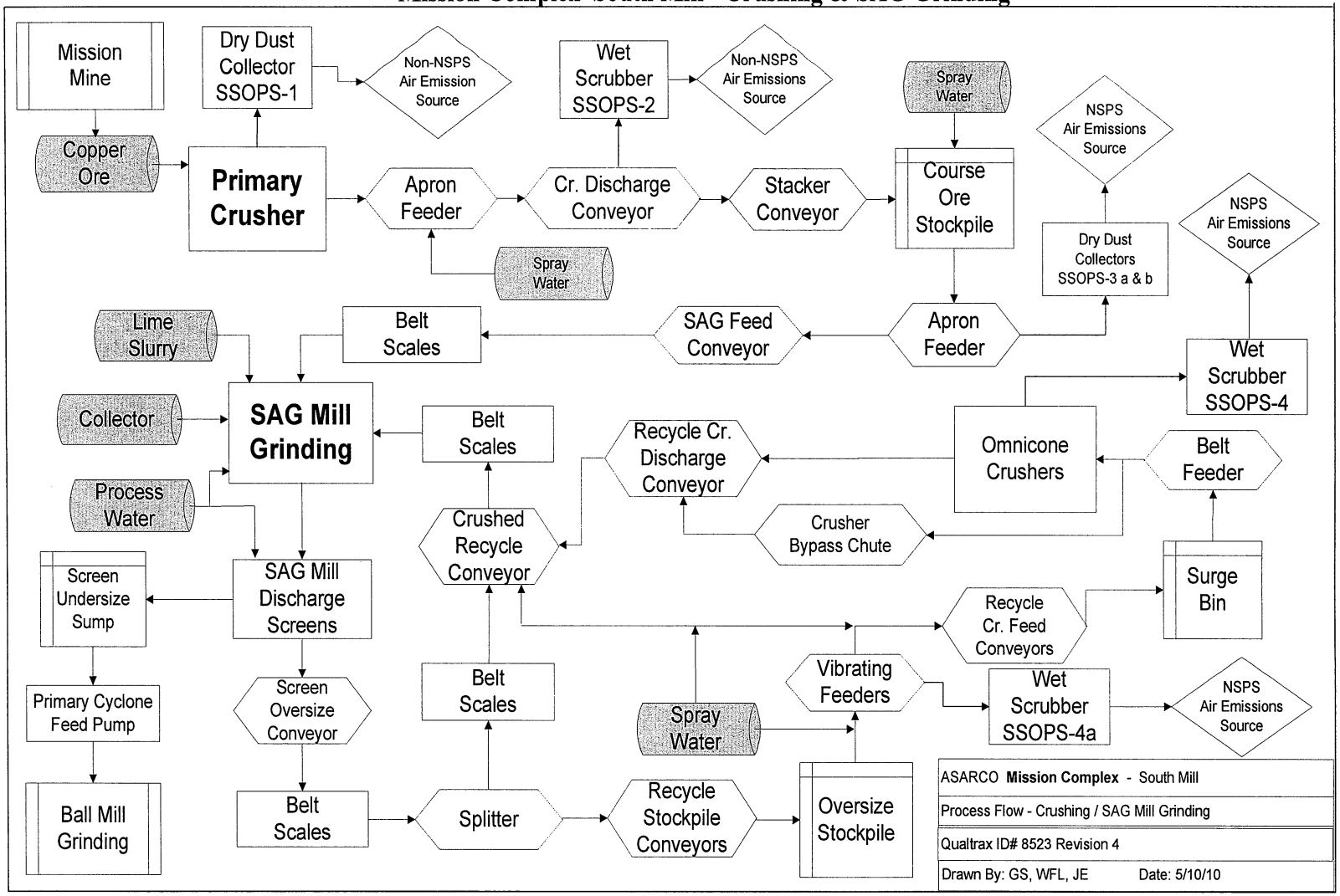
Based on ASARCO's emission calculations contained in Attachment "B," the proposed replacement does not trigger PSD review because the total emissions of the project are less than significant.

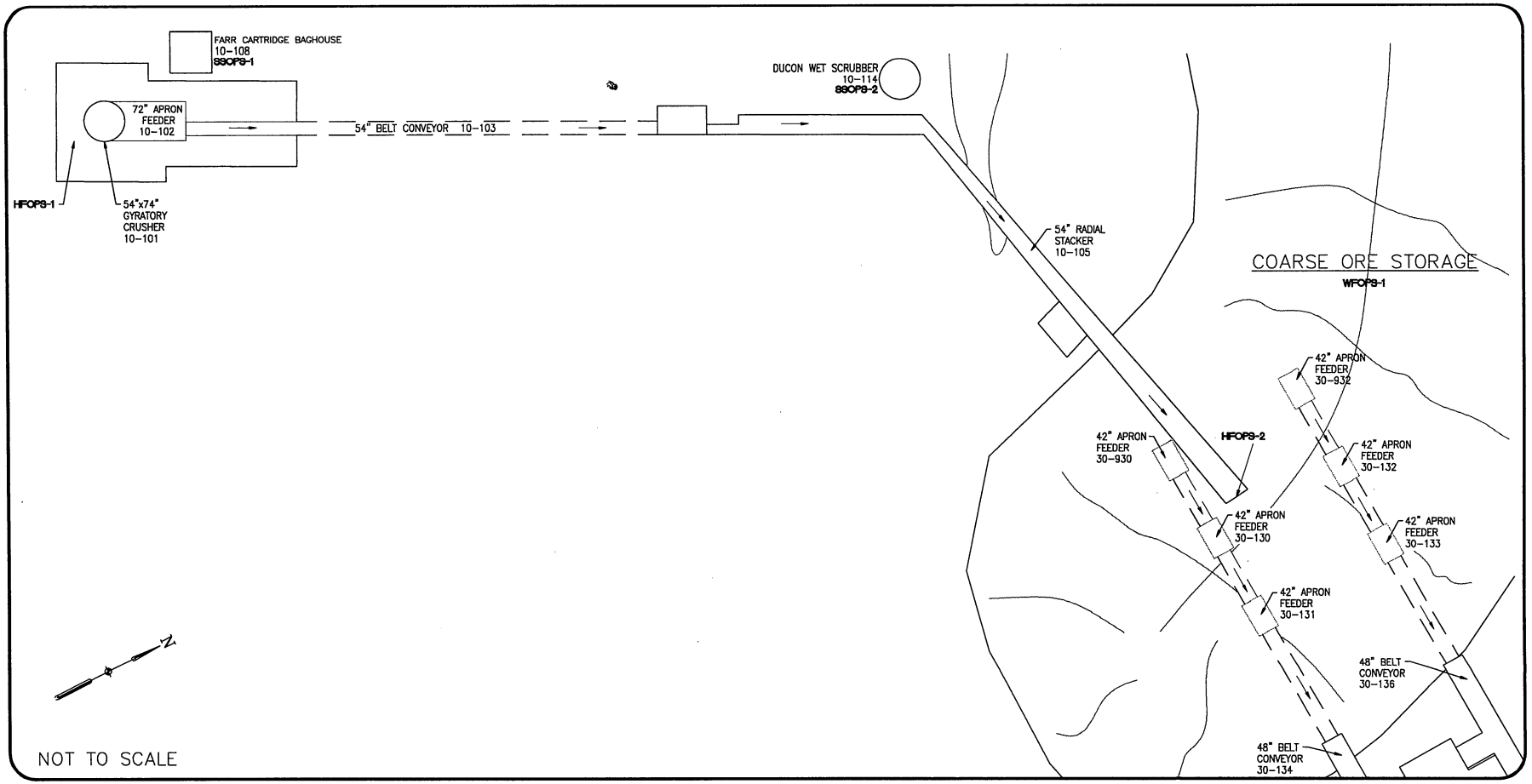
20. Calculations on which all information requested in this application are based

See Attachment "B".

ATTACHMENT "D"
Site & Flow Diagrams

Mission Complex South Mill - Crushing & SAG Grinding





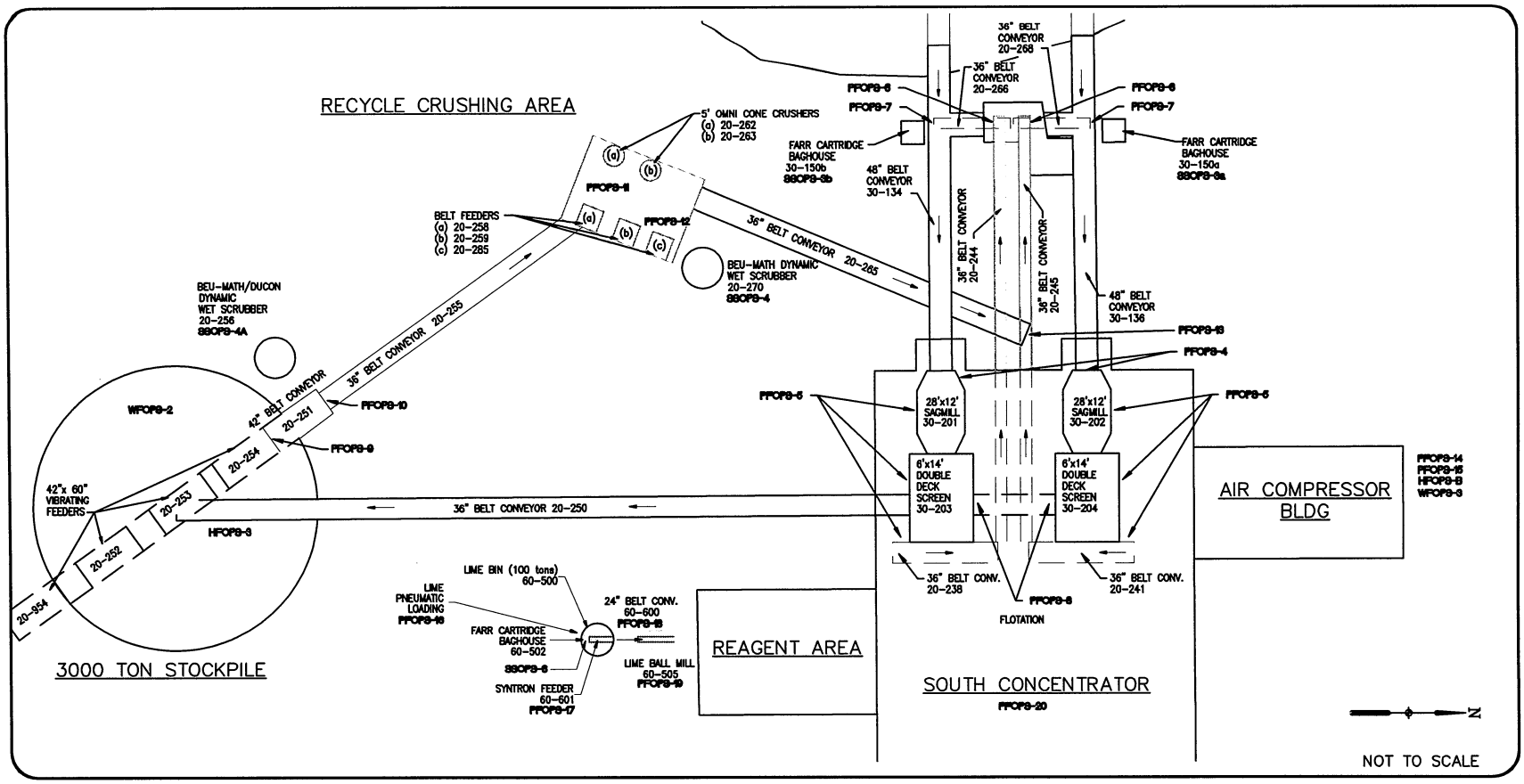
EPN's: SSOPS-1
SSOPS-2
HFOPS-1
HFOPS-2
WFOPS-1

MISSION AIR PERMIT

Mission South Primary Crusher and Stockpile – Equipment Location

Project No. 934X009A	FIGURE 2	
Drawn By: MKE	Checked By: JE	Date: SEPT. 2013

ASARCO MISSION COMPLEX



EPN's:					
	SSOPS–3a	PFOPS–4	PFOPS–10	PFOPS–15	PFOPS–20
	SSOPS–3b	PFOPS–5	PFOPS–11	PFOPS–16	HFOPS–3
	SSOPS–4	PFOPS–6	PFOPS–12	PFOPS–17	HFOPS–A
	SSOPS–4A	PFOPS–7	PFOPS–13	PFOPS–18	HFOPS–B
	SSOPS–5	PFOPS–8	PFOPS–14	PFOPS–19	WFOPS–2
	SSOPS–6	PFOPS–9			WFOPS–3

MISSION AIR PERMIT

Mission South Concentrator – Equipment Locations

Project No. 934X009A	FIGURE 3	
Drawn By: MKE	Checked By: JE	Date: JUNE 2011 Revised Sept 2013

ASARCO MISSION COMPLEX

ASARCO
GRUPO MEXICO

October 14, 2013

Mr. Mukonde Chama
Air Quality Program
Pima County Department of Environmental Quality
33 N. Stone Ave., Suite 700
Tucson, AZ 85701

Re: Wet Scrubber 20-256: Inlet Flow Balancing Approval Request

Dear Mr. Chama:

If you recall, ASARCO LLC ("Asarco") Mission Complex is permitted to move the existing 30-150 wet scrubber, previously located at the 134/136 conveyors, to its new location near the 20-251 conveyor. The wet scrubber has been renamed equipment ID 20-256. It is rated at 14,800 cfm.

After running calculations, Asarco has discovered the new system only requires approximately 8,750 cfm, considerably less than the scrubbers 14,800 cfm design flow. (See attached flow diagram and memorandum from Laron, dated October 8, 2013). This reduced flow rate presents capture efficiency issues and compromises the overall operation of the scrubber unit.

Asarco proposes the following to maintain the designed capture efficiency. The unit will operate at its rated flow capacity of 14,800 cfm; however, to prevent vacuuming ore off the belt by increasing flow rates at the hoods, Asarco proposes to have an inlet near the scrubber that draws in ambient air (approximately 6,050 cfm) to balance the system. By installing this inlet, the existing capture system will operate at its designed flows and velocities and the scrubber will operate at its proper internal velocity and meet its required capture efficiency. The scrubber will maintain the same size, flow rate and emission limit of 0.01 gr/scf as currently permitted. Asarco requests PDEQ's concurrence with this inlet balancing proposal.

I certify, based on reasonable inquiry of those involved in the preparation of this application, that the proposed units will operate in compliance with all applicable requirements and that the information included in this letter and all its attachments are true, accurate and complete.

Sincerely,

Tom Phillips
General Manager

Attachments

LARON

An Employee–Owned Company

Solutions To Keep Industry In Motion

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Memorandum

Date: 8 October 2013

From: John P. Mieding
Mechanical Engineering Manager

To: Jamie Ekholm
Environmental Engineer

Subject: 251 Conveyor System Collector System Design.

Reference:

A) Laron Drawing Sheet M2.0 (marked up) Attached

Dear Mr. Ekholm:

The purpose of this memo is to detail the design parameters for the subject dust collection system. Please refer to the reference A drawing attached. The drawing shows clouded areas that are affected.

At the project outset, it was desired to remove the existing Ducon wet scrubber from service at the 134 -136 systems and set it in place at the 251 system. This scrubber was designed to operate 99% efficiency at 14,800 SCFM.

The wet scrubber operates by centrifugally spinning the air in a wet environment to remove the particles from the air. The dimensions of the collector are chosen to provide the internal air velocity at the design flow rate required to remove the dust particles at the design efficiency. Calculations show that the scrubber will be 99.5% efficient in the 1-2 micron range in the 13,320-14,800 SCFM flow region. Collector efficiency falls off at lower flow rates.

The -251 collector system has five pick-up points requiring a total air flow of 8750 SCFM. This flow rate is only 59% of the scrubber design flow rate. The lower flow rate will not provide target collection efficiencies.

Increasing the hood flow rates will increase the collection velocities and result in increased ore material being drawn into the system before being deposited on the belt. This will result in higher maintenance due to clogging and reduced input into the mill.

As an alternative, the system has been re-designed to show an air admittance inlet at the scrubber inlet and 20" duct to change flow velocities in upstream sections of duct. This duct is sized to provide a 14,500 SCFM total flow into the scrubber. This flow will provide the proper internal velocities and allow the existing scrubber to perform at expected levels.

4255 Santa Fe Drive • Kingman, AZ 86401 • Phone 928.757.8424 • Fax 928.757.8995

Should you have any questions or require further information, please advise.

Best regards,

John P. Mieding, P.E.
Mechanical Engineering Manager

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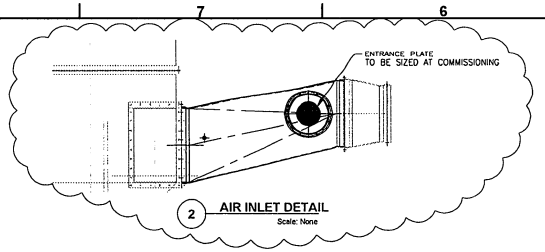
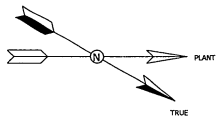
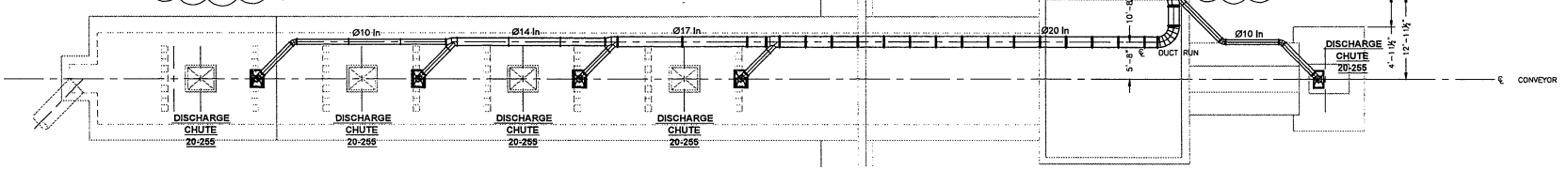
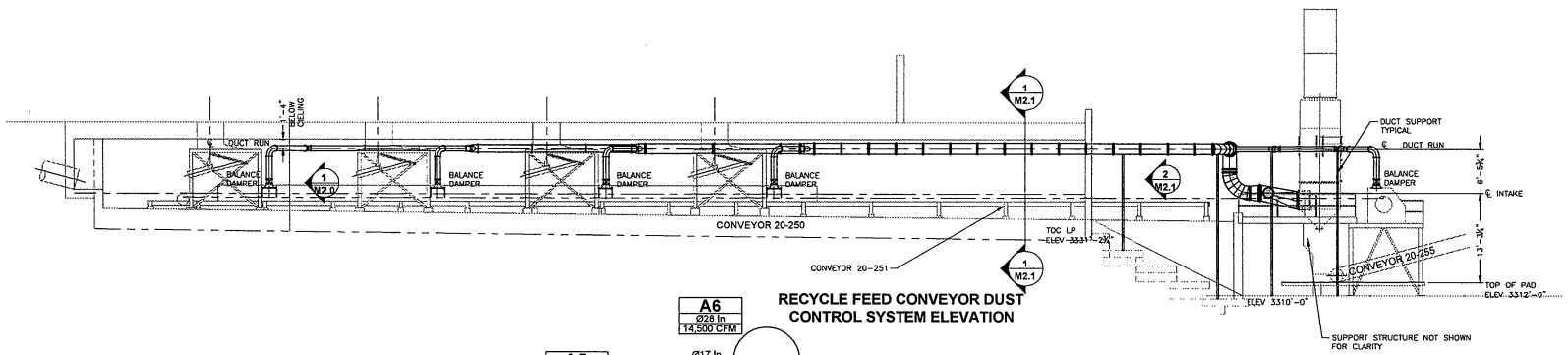


2 AIR INLET DETAIL
Scale: None

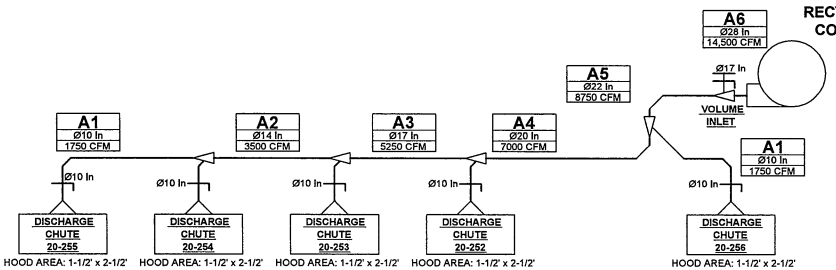


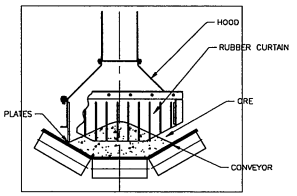


RECYCLE FEED CONVEYOR DUST CONTROL SYSTEM PLAN



RECYCLE FEED CONVEYOR DUST CONTROL SYSTEM ELEVATION





1 HOOD DETAIL
Scale: None

	DESIGN PARAMETERS			DETAILED DESIGN RESULTS					DUCT SYSTEM FRICTION LOSSES						HOOD / EXPANSION LOSSES						SYSTEM	
DUCT IDENT	REQUIRED FLOW CFM	DESIGN VELOCITY ft/min	REQUIRED DUCT DIA in	SELECTED DUCT DIA in	FLOW AREA ft²	DESIGN VELOCITY ft/min	SLIP FACT	TRNSPRT VELOCITY ft/min	DUCT LENGTH ft	FITTINGS No /Type	EQUIV LENGTH ft	TOTAL EQ LNGTH ft	FRICTION FACTOR in/100 ft	FRICTION LOSS in wc	DUCT ENTR VEL PRESS in wc		HOOD ENTR VEL PRESS in wc		TOTAL HOOD LOSS in wc	TOTAL ST PRESS in wc	in wc
A1	1,750.0	3,000	10.342	10	0.545	3,209	0.80	2,567	32.50	1-90 & 1-45 Elbow	32.50	65.00	1.51	0.98	0.640	1	0.15	1.15	0.736	1.718		
A2	3,500.0	3,000	14.625	14	1.069	3,274	0.80	2,619	23.00	None	23.00	46.00	1.52	0.70	0.640	0	0.15	0.15	0.096	0.795		
A3	5,250.0	3,000	17.912	17	1.576	3,331	0.80	2,665	23.00	None	23.00	46.00	1.33	0.61	0.640	0	0.15	0.15	0.096	0.708		
A4	7,000.0	3,000	20.684	20	2.182	3,209	0.80	2,567	56.66	None	23.00	81.66	1.56	1.27	0.640	0	0.15	0.15	0.096	1.370		
A5	8,750.0	3,000	23.125	22	2.640	3,315	0.80	2,652	8.00	2-90 Elbow	39.60	47.60	1.59	0.76	0.640	0	0.15	0.15	0.096	0.853		
A6	14,500.0	3,000	29.769	28	4.276	3,391	0.80	2,713	8.00	None	39.60	47.60	1.59	0.76	0.640	0	0.15	0.15	0.096	0.853		
																			Subtotal	4.590	4.590	
																			TOTAL:		4.590	

INFORMATION ONLY
NOT FOR CONSTRUCTION
UNLESS ISSUED

RIGHT ANGLE PROJECTION
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS .XX ± 0.010 .XXX ± 0.005
ANGLES ± ½°
FINISH ALL MACHINED SURFACES 125
BREAK ALL CORNERS & EDGES R 0.010/0.031
CHAMFER ALL THREADS FOR 1ST THREAD
PERFECT ORIENTATION OR LOCATION AT MMC FOR RELATED FEATURES

DO NOT SCALE DRAWING

JOB NO	12-00293	DWG NO	24698
DRAWN	CAP	DATE	29JLY2013
CHECK	JPM	DATE	7 AUG 2013
ENGR APPROVD	N/A	DATE	N/A
MFCG APPROVD	N/A	DATE	N/A
QUAL APPROVD	N/A	DATE	N/A
CUSTOMER APPROVAL			

LARON
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Kingsport, TN 37660
Ph: 423.247.5433
Fax: 423.247.4095

DRAWING TITLE
MECHANICAL LAYOUT
RECYCLE CONVEYOR DUST COLLECTION SYSTEM

SIZE	CAGE CODE	DRAWING NO	REV.
D		M2.0	3

SCALE 1:100 WEIGHT TBD Lbs SHEET 3 OF 7