

Nancy Koon (adpce.ad)

From: Terry Liu (adpce.ad)
Sent: Monday, April 24, 2023 7:45 AM
To: Nancy Koon (adpce.ad)
Subject: FW: Exploratory Ventures - Amendment of Application for NPDES Permit No. AR0053384 (AFIN 47-01073)
Attachments: 01_EV_WW Permit Appl_Cover Letter_Page 1_Rev1_April-19-2023.pdf; 02_EV_WW Permit Appl_Summary_Page 2_Rev1_Edited_April-19-2023.pdf; 03_EV MM2_EPA Form 2D_Page 2_Outfall EV202_Rev1_FX_April-19-2023.pdf; 04_EV_EPA Form 2D_Table 2-Units_Page 2_Rev1_April-19-2023.pdf; 05_EV_Construct Appl Forms_SY Pond_Attachment 11_Rev1_April-19-2023.pdf; 06_EV_WW Permit Appl_Process Description_Pages 2 & 32_Rev1_Edited_April-19-2023.pdf; 07_EV_WW Permit Appl_Figure H-1 R1_April-19-2023.pdf; 08_EV_NPDES Appl Amendment_Redline_Draft_April-19-2023.pdf

From: David Carstens <dcarstens@harborenv.com>
Sent: Friday, April 21, 2023 10:13 AM
To: Terry Liu (adpce.ad) <Terry.Liu@adeq.state.ar.us>
Cc: Jessica Sears (adpce.ad) <Jessica.Sears@adeq.state.ar.us>
Subject: FW: Exploratory Ventures - Amendment of Application for NPDES Permit No. AR0053384 (AFIN 47-01073)

Hello Mr. Liu:

This email is submitted on behalf of Exploratory Ventures, LLC (EV) in Osceola, Arkansas (AFIN 47-01073).

EV filed an application for an NPDES permit for a new steel manufacturing complex on November 9, 2022.

EV wants to amend the permit application to incorporate the dust suppression water applied in the slag yard and subsequently discharged from the slag yard pond at Outfall EV202.

Replacement pages for the November 2022 permit application are enclosed. These items are as follows:

- (1). Cover letter (page 1)
- (2). Summary of Permit Application (Section A, page 2)
- (3). EPA Form 2D (Section C, Form 2D, page 2)
- (4). Table 2D-2, Summary of Wastewater Treatment Units (Section C, page 2D-2-2)
- (5). DEQ Construction Forms for Slag Yard Pond (Section D, Attachment 11)
- (6). Process Description (Section F, pages F-2 and F-32)
- (7). Figure H-1, Water Flow and Water Balance Diagram (Section H)

Redline-strikeout versions of the revised documents which show the changes that were made are also enclosed (file 8).

Your consideration of our request to amend the permit application is appreciated. Please contact me if you have any questions. Thank you.

David Carstens

David Carstens, *Sr. Project Manager*
HARBOR · P 501.663.8800 · C 501.574.1169 · dcarstens@harborenv.com
5800 Evergreen Dr | Little Rock, AR 72205

November 9, 2022

Mr. Terry Liu, P.E.
Engineer
Water Permits Branch
Office of Water Quality
Division of Environmental Quality (DEQ)
Arkansas Department of Energy and Environment
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

RE: Application for NPDES Wastewater Permit and State Construction Permit
Exploratory Ventures, LLC, Osceola, Mississippi County, Arkansas
AFIN: 47-01073
Expedited Review is Requested

Dear Mr. Liu:

Harbor Environmental and Safety (Harbor) is pleased to submit the enclosed application for an individual National Pollutant Discharge Elimination System (NPDES) wastewater discharge permit on behalf of Exploratory Ventures, LLC (EV) in Osceola, Arkansas. Issuance of a State Construction Permit for the installation of a new wastewater treatment system is also requested.

EV is constructing a new scrap steel-to-steel products manufacturing complex in Osceola (the "Facility"). It is designed to produce a full range of high-strength steel products for key niche markets, primarily through the recycling of scrap metal. The process wastewater generated during the steel mill operations will be treated on-site in the Facility's wastewater treatment system. The treated wastewater effluent will subsequently be continuously discharged to the Mississippi River at Outfall EV201.

The Facility will include a 34-acre slag yard for storing the residue generated during the steel manufacturing operations. The slag will subsequently be recovered for reuse as a road-building material. A 2.4-acre pond will be used to store the stormwater runoff from the slag yard. Water may be sprayed onto the slag to quench the hot material. The quench water will flow to the pond. Water will also be applied to the slag yard as needed to suppress dust. The runoff will flow into the pond. The commingled stormwater, dust suppression water, and quench water will be periodically discharged to the Mississippi River at Outfall EV202.

Revised April 2023

- Stage 3 – Metals Removal: The combined wastewater stream will contain various dissolved metals (nickel, zinc, etc.) which will be removed via chemical treatment followed by floatation and precipitation. Two dissolved air floatation (DAF) units will be operated. The treated wastewater, floating solids, and heavy sludge will be subjected to further processing.
- Stage 4 – Clarification: The wastewater from the DAF units will be transferred to two clarifier units. The suspended solids will be removed via gravity settling. The sludge will then be dewatered in filter presses. The sludge cake will subsequently be shipped off-site for disposal.
- Stage 5 – Aeration for Iron Oxidization: The treated wastewater from the clarifiers will be aerated to convert dissolved iron in ferrous form (Fe^{+2}) to insoluble iron in ferric form (Fe^{+3}). The aerated wastewater will then be routed to sand filters for solids removal.
- Stage 6 – Filtration: The wastewater will be processed through sand filters to remove the suspended solids, primarily the insoluble iron particles generated in the aeration basins. The filtered effluent will subsequently be discharged at Outfall EV201.
- Stage 7 – Sludge Processing Area: The sludge generated during the oil removal operation (Stage 1) and the metals removal operation (Stage 3) will be transferred to a sludge processing area for drying. The dewatered sludge will then be shipped off-site for disposal.

The Facility will include a 34-acre slag yard for storing the residue generated during the steel manufacturing operations. The slag will subsequently be recovered for reuse as a road-building material. A 2.4-acre pond will be used to store the stormwater runoff from the slag yard. Water may be sprayed onto the slag to quench the hot material. The quench water will flow to the pond. Water will also be applied to the slag yard as needed to suppress dust. The runoff will flow into the pond. The surface impoundment will function as a sedimentation basin. The commingled stormwater, dust suppression water, and quench water will be periodically discharged to the Mississippi River at Outfall EV202. Approximately 0.137 MGD of slag yard runoff, dust suppression water, and quench water will be generated.

Installation of the wastewater treatment system is a key component of the overall construction project for the Facility. The treatment equipment must be installed as soon as possible so that various wastewater streams can be processed when the new production units become operational in September 2023. Construction of the new wastewater treatment system is scheduled to begin in March 2023 for completion in September 2023.

The process wastewater effluent discharged at Outfall EV201 will be subject to the Effluent Limitations Guidelines for the Iron and Steel Manufacturing Point Source Category (40 Code of Federal Regulations, Part 420). Nine (9) industrial subcategories will be applicable. The Effluent Guidelines establish mass discharge limitations (i.e., pounds per day limits) for certain wastewater parameters. The discharge limits are based on the production levels for the applicable subcategories, and on the wastewater treatment technologies utilized and their performance

Table 2D-2 – Form 2D, Section 3.1 – Summary of Wastewater Treatment Units
Outfall EV201 (Process Wastewater Effluent)

Operation	Average Flow
Steel Manufacturing (Process Wastewater, Contact Cooling Water, and Non-Contact Cooling Water)	1.250 MGD

Description	Codes from Table 2C-1	Final Disposal of Solid or Liquid Wastes other than by Discharge
○ Oil Removal Process	–	–
Floatation	1-H	–
○ Homogenization Process	–	–
Mixing	1-O	–
○ Metals Removal Process	–	–
Flocculation	1-G	–
Floatation	1-H	–
Sedimentation (Settling)	1-U	–
Belt Filtration	5-C	–
○ Aeration for Iron Oxidation Process	–	–
Chemical Oxidation	2-B	–
○ Sand Filtration Process	–	–
Rapid Sand Filtration	1-R	–
Discharge to Surface Water	4-A	–
○ Sludge Processing	–	–
Drying Beds	5-H	–
Landfill	5-Q	Landfill

See Section F, Process Description for Wastewater Treatment System and Slag Yard Pond, for more information.

Outfall EV202 (Discharge from Slag Yard Pond)

Operation	Average Flow
Slag Yard (Stormwater Runoff, Dust Suppression Water Runoff, and Quench Water)	0.137 MGD

Description	Codes from Table 2C-1	Final Disposal of Solid or Liquid Wastes other than by Discharge
Sedimentation (Settling)	1-U	-
Discharge to Surface Water	4-A	-

See Section F, Process Description for Wastewater Treatment System and Slag Yard Pond, for more information.

ATTACHMENT 11
PRIMARY SEDIMENTATION

A. Settling Tanks:

1. Type: _____ 2. Number of units: _____
3. Dimensions: (ft)
Width _____ Length _____ Diameter _____ Depth _____
- Surface Loading: _____ gpd/ft²
6. Overflow Rate: _____ gpd/ ft. weir
7. Design of inlet and outlet baffles: _____
8. Design for skimming: _____
9. Disposal of scum: _____
10. Diameter sludge pipes: _____ inches
11. Provision for flushing and draining sludge lines? Yes No

B. Other:

Describe the type of primary sedimentation provided in detail. Provide pertinent design information and details.

The slag yard will include a surface impoundment for storing stormwater runoff, runoff of dust suppression water, and quench water prior to discharge. The slag yard pond will function as a sedimentation basin. The solids in the stormwater runoff, dust suppression water, and quench water will settle out within the basin. The accumulated sediment will be removed when necessary for off-site disposal. Refer to Attachment L, Construction Specifications, for more information.

overall amount, about 987 m³/hr (4,346 gpm or 6.258 MGD) of water will be lost to evaporation in the plant's cooling towers. The remaining 351 m³/hr (1,544 gpm or 2.224 MGD) of water will consist of contact cooling water, non-contact cooling water, and process wastewater. EV will recondition the effluent contact cooling water and non-contact cooling water streams in the water treatment plants. These streams will be recycled to the extent possible; approximately 154 m³/hr (676 gpm or 0.974 MGD) of water will be reclaimed. The process wastewater, plus any unrecycled contact cooling water and non-contact cooling water, will be routed to the wastewater plant for treatment; these streams will be introduced at various stages of the treatment system. The design capacity of the wastewater treatment plant will be 1.250 MGD, which is equivalent to a flow rate of 197 m³/hr (868 gpm). The process wastewater effluent will be continuously discharged to the Mississippi River at Outfall EV201.

The Facility will include a 34-acre slag yard for storing the residue generated during the steel manufacturing operations. The slag will subsequently be recovered for reuse as a road-building material. A 2.4-acre pond will be used to store the stormwater runoff from the slag yard. Water may be sprayed onto the slag to quench the hot material. The quench water will flow to the pond. Water will also be applied to the slag yard as needed to suppress dust. The runoff will flow into the pond. The commingled stormwater, dust suppression water, and quench water will be periodically discharged to the Mississippi River at Outfall EV202. No treatment will be performed; however, the pond will function as a sedimentation basin. Approximately 0.137 MGD of slag yard runoff, dust suppression water, and quench water will be generated.

2.0 Description of Wastewater Streams

The process wastewater streams generated by EV during its steel manufacturing operations will be categorized in three general groups. These streams are as follows:

- Emulsified Oily Discharges (Stream #1)
- Acid Discharges (Stream #2)
- Alkaline Discharges (Stream #3)

All three process wastewater streams will be generated at multiple locations throughout the Facility. Both continuous and batch discharges will be generated. Refer to the following Table F-1 for more information on the proposed wastewater streams. Said table is presented at the end of this narrative.

Additional non-process wastewater streams will also be generated during the steel manufacturing operations. These streams are as follows:

- Sand Filter Backwash (Stream #4)
- Contact Cooling Water (NCW, Stream #5)
- Non-Contact Cooling Water (NCCW, Stream #6)

6.0 Operation of Slag Yard Pond

Slag will be generated as a by-product of the steel manufacturing operations at the Facility. It will be produced during separation of the impurities from the molten steel in the steelmaking furnaces. The slag will be a molten liquid that solidifies upon cooling. The material will be a complex solution of silicates and oxides.

The slag will be routinely collected and removed from the Melt Shop. The material will be transferred via large trucks to the Slag Yard for storage. The slag will subsequently be recovered for reuse as a road-building material. Water may be sprayed onto the slag to quench the hot material. Water will also be applied to the slag yard as needed to suppress dust. The Slag Yard at the Facility will encompass approximately 33.9 acres.

The Slag Yard Pond will be located down-gradient of the Slag Yard. This surface impoundment will be used to accumulate the stormwater runoff from the Yard. The quench water and dust suppression water will also flow to the basin. The Pond will encompass approximately 2.4 acres.

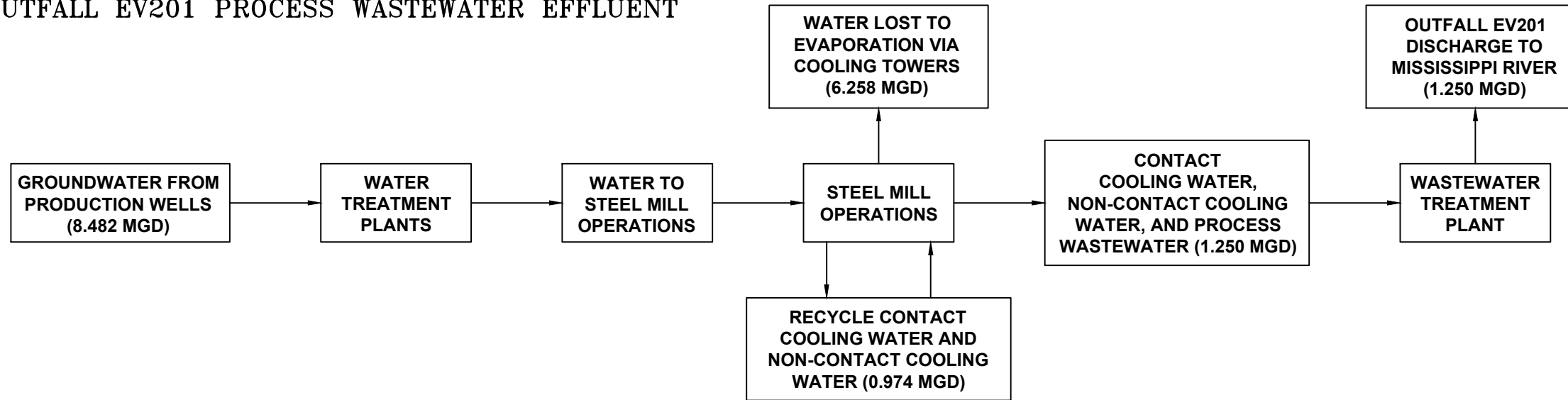
The Slag Yard Pond will function as a sedimentation basin. The solids in the stormwater runoff, dust suppression water, and quench water will settle out within the basin. The accumulated sediment will be removed when necessary for off-site disposal.

The wastewater in the Slag Yard Pond will be periodically discharged to the Mississippi River. The water will be pumped through a below-ground pipeline to Outfall EV202.

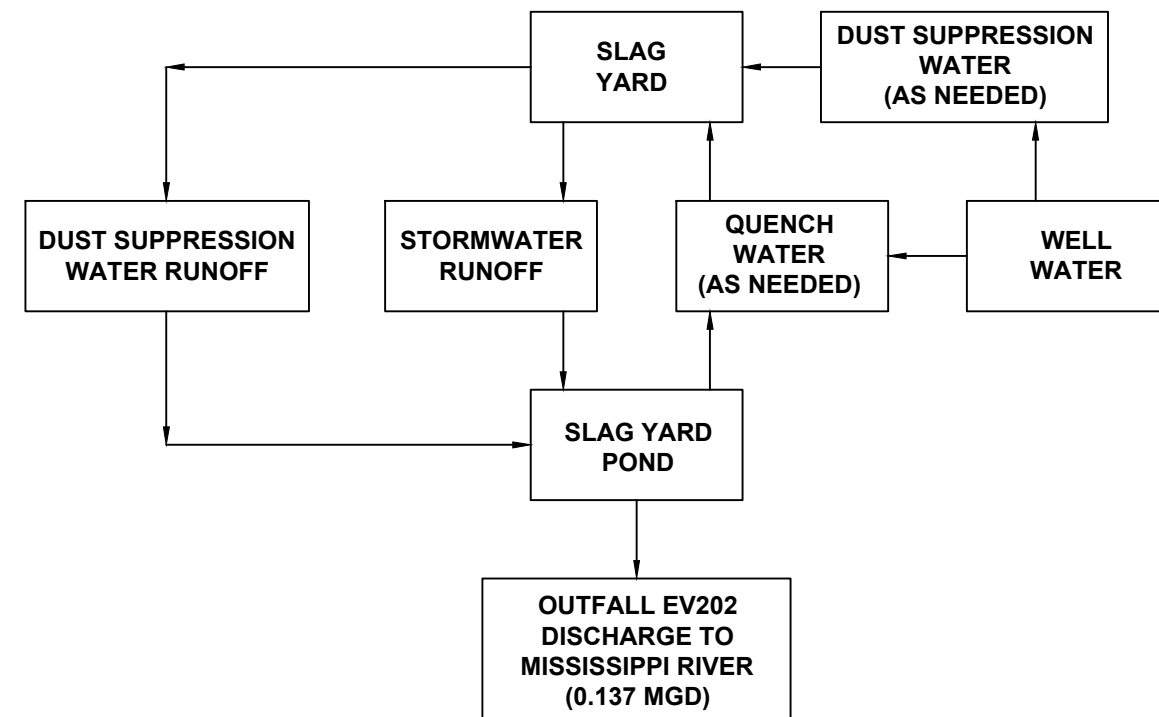
Approximately 0.137 MGD of stormwater runoff and quench water will be generated. The commingled wastewater will be discharged on a batch basis depending on the weather conditions and the pond level. Approximately 0.500 MGD will be discharged to Outfall EV202. The estimated rate of wastewater generation in the Slag Yard is based on the following information: (1) the Slag Yard (including the pond) encompasses an area of 33.86 acres total; and (2) the average rainfall in Osceola, Arkansas is 50.28 inches per year (1981 through 2010), which is equivalent to 4.19 feet per year. It was assumed that all the rain which falls within the Slag Yard will flow to the pond for eventual discharge at Outfall EV202; rain will also fall directly into the basin. The total amount is equal to 46.226 million gallons per year, which is equivalent to an average daily rate of generation of 0.127 MGD. Also, it is estimated, based on best professional judgement, that an average of 10,000 gallons per day (0.010 MGD) of dust suppression water and quench water will be used in the Slag Yard. The dust suppression water and quench water will also flow to the pond for eventual discharge at Outfall EV202.

Upon request, EV will provide the DEQ with all available information, including additional equipment specifications, deemed necessary for completing the wastewater permitting process. This documentation will be forwarded to the Office of Water Quality in a timely manner.

OUTFALL EV201 PROCESS WASTEWATER EFFLUENT



OUTFALL EV202 SLAG YARD POND



EXPLORATORY VENTURES, LLC
 STEEL MANUFACTURING COMPLEX

OSCEOLA ARKANSAS
 SIMPLIFIED WATER FLOW AND WATER BALANCE DIAGRAM

DATE
4-19-23

REVISION DESCRIPTION
GENERAL REVISION

NO. 1

Drawn By:
AES
 Date:
9-26-22
 Project No:
BHLP-22172
 Scale:
NONE

November 9, 2022

Mr. Terry Liu, P.E.
Engineer
Water Permits Branch
Office of Water Quality
Division of Environmental Quality (DEQ)
Arkansas Department of Energy and Environment
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

RE: Application for NPDES Wastewater Permit and State Construction Permit
Exploratory Ventures, LLC, Osceola, Mississippi County, Arkansas
AFIN: 47-01073
Expedited Review is Requested

Dear Mr. Liu:

Harbor Environmental and Safety (Harbor) is pleased to submit the enclosed application for an individual National Pollutant Discharge Elimination System (NPDES) wastewater discharge permit on behalf of Exploratory Ventures, LLC (EV) in Osceola, Arkansas. Issuance of a State Construction Permit for the installation of a new wastewater treatment system is also requested.

EV is constructing a new scrap steel-to-steel products manufacturing complex in Osceola (the "Facility"). It is designed to produce a full range of high-strength steel products for key niche markets, primarily through the recycling of scrap metal. The process wastewater generated during the steel mill operations will be treated on-site in the Facility's wastewater treatment system. The treated wastewater effluent will subsequently be continuously discharged to the Mississippi River at Outfall EV201.

The Facility will include a 34-acre slag yard for storing the residue generated during the steel manufacturing operations. The slag will subsequently be recovered for reuse as a road-building material. A 2.4-acre pond will be used to store the stormwater runoff from the slag yard. Water may be sprayed onto the slag to quench the hot material. The quench water will ~~also~~ flow to the pond. [Water will also be applied to the slag yard as needed to suppress dust. The runoff will flow into the pond.](#) The commingled stormwater, [dust suppression water](#), and quench water will be periodically discharged to the Mississippi River at Outfall EV202.

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The process wastewater effluent discharged at Outfall ~~EV021~~ [EV201](#) will be subject to the Effluent Limitations Guidelines for the Iron and Steel Manufacturing Point Source Category (40 Code of Federal Regulations, Part 420). Nine (9) industrial subcategories will be applicable. The Effluent Guidelines establish mass discharge limitations (i.e., pounds per day limits) for certain wastewater parameters. The discharge limits are based on the production levels for the applicable subcategories, and on the wastewater treatment technologies utilized and their performance

Outfall EV202 (Discharge from Slag Yard Pond)

Operation	Average Flow
Slag Yard (Stormwater Runoff, Dust Suppression Water Runoff , and Quench Water)	0.137 MGD

Description	Codes from Table 2C-1	Final Disposal of Solid or Liquid Wastes other than by Discharge
Sedimentation (Settling)	1-U	–
Discharge to Surface Water	4-A	–

See Section F, Process Description for Wastewater Treatment System and Slag Yard Pond, for more information.

ATTACHMENT 11
PRIMARY SEDIMENTATION

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1. Type: _____ 2. Number of units: _____
3. Dimensions: (ft)
Width _____ Length _____ Diameter _____ Depth _____
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9. Disposal of scum: _____
10. Diameter sludge pipes: _____ inches
11. Provision for flushing and draining sludge lines? Yes No

B. Other:

Describe the type of primary sedimentation provided in detail. Provide pertinent design information and details.

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overall amount, about 987 m³/hr (4,346 gpm or 6.258 MGD) of water will be lost to evaporation in the plant's cooling towers. The remaining 351 m³/hr (1,544 gpm or 2.224 MGD) of water will consist of contact cooling water, non-contact cooling water, and process wastewater. EV will recondition the effluent contact cooling water and non-contact cooling water streams in the water treatment plants. These streams will be recycled to the extent possible; approximately 154 m³/hr (676 gpm or 0.974 MGD) of water will be reclaimed. The process wastewater, plus any unrecycled contact cooling water and non-contact cooling water, will be routed to the wastewater plant for treatment; these streams will be introduced at various stages of the treatment system. The design capacity of the wastewater treatment plant will be 1.250 MGD, which is equivalent to a flow rate of 197 m³/hr (868 gpm). The process wastewater effluent will be continuously discharged to the Mississippi River at Outfall EV201.

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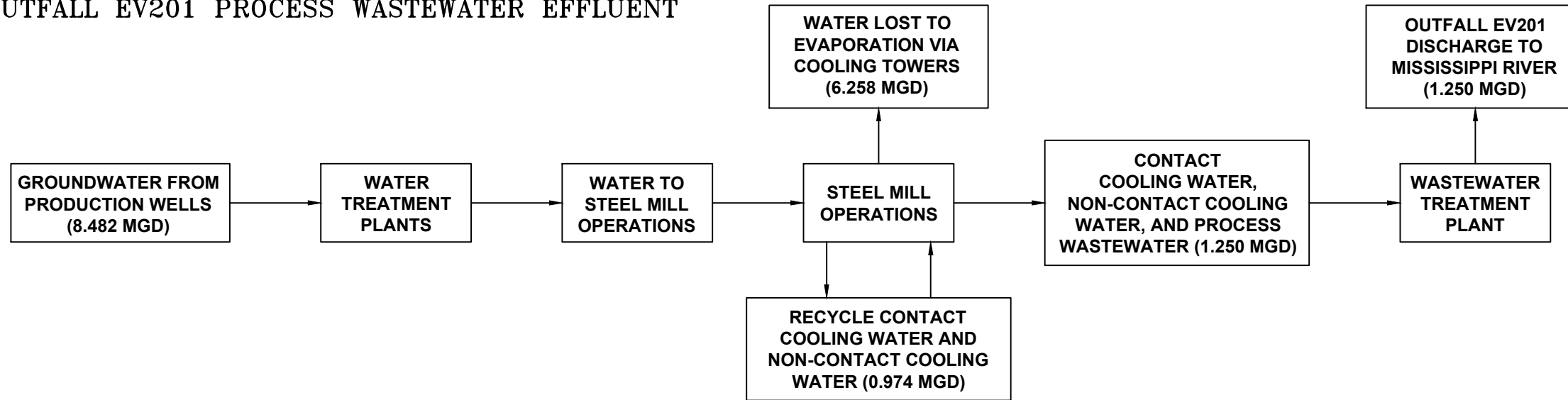
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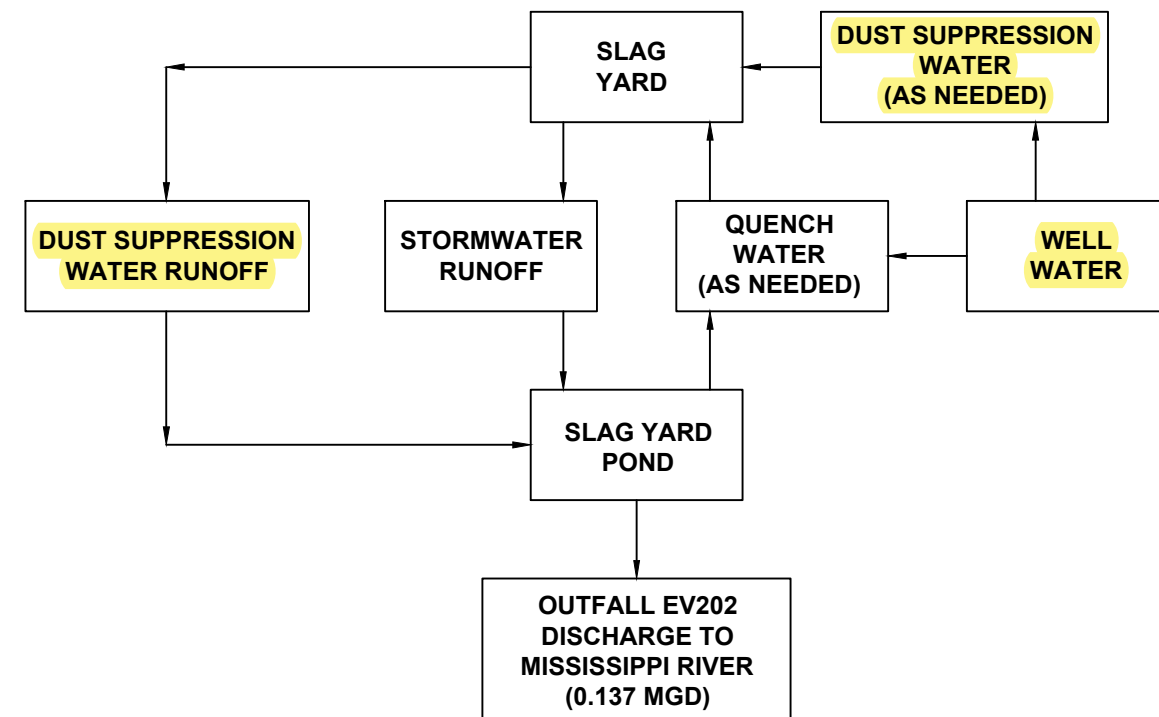
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Upon request, EV will provide the DEQ with all available information, including additional equipment specifications, deemed necessary for completing the wastewater permitting process. This documentation will be forwarded to the Office of Water Quality in a timely manner.

OUTFALL EV201 PROCESS WASTEWATER EFFLUENT



OUTFALL EV202 SLAG YARD POND



EXPLORATORY VENTURES, LLC
 STEEL MANUFACTURING COMPLEX

ARKANSAS

OSCEOLA

SIMPLIFIED WATER FLOW AND WATER BALANCE DIAGRAM

DATE
4-19-23

REVISION DESCRIPTION
GENERAL REVISION

NO. 1

Drawn By:
AES

Date:
9-26-22

Project No:
BHP-22172

Scale:
NONE

FIG H-1