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## DEPARTMENT OF ENVIRONMENTAL QUALITY AIR QUALITY DIVISION ACTIVITY REPORT: Scheduled Inspection

FACILITY: EDW C LEVY CO PLA	SRN / ID: B4243	
LOCATION: 13800 MELLON AVE	E, DETROIT	DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Thomas Smith, Gene	eral Manager	ACTIVITY DATE: 08/07/2015
STAFF: Katherine Koster	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: 2015 Targeted Inspec	tion	
RESOLVED COMPLAINTS:	· · · ·	

Reason for Inspection: Targeted Inspection Level of Inspection: PCE Inspected by: Katie Koster, AQD Personnel Present: Tom Green and Ben Kroeger, corporate environmental staff Facility phone number: 313-690-0139

#### FACILITY BACKGROUND

Edw C. Levy Plant 6 is a support facility for AK Steel – Dearborn Works (formerly Severstal Dearborn, LLC). All of the plant operations are entirely dependent on AK Steel. It operates 24 hours a day, 7 days a week, and handles and processes steel slag such as BOF slag, runway/pit slag, caster slag, and other miscellaneous slag generated by the mill. Blast furnace (BF) slag is not processed here; it is processed at the BF slag pits at Miller and Dix by Levy and desulfurization slag is processed at the recently installed desulfurization slag/kish pot watering station (PTI 70-13). All metallics are separated, crushed, and screened and returned to AK Steel. The non metallic portion of the slag is conveyed across the Rouge River to Mellon Street, separated into different sizes, and sold by Levy.

## **REGULATORY ANALYSIS**

Although this site is a support facility to AK Steel, it was negotiated through a court order that the facility be issued its own ROP. Below is an excerpt from the existing ROP staff report (Severstal name is used because that was the company in operation when this was decided):

"Under Rule 336.1119(r), Edw. C. Levy Co., Plant 6 and the Severstal North America, Inc. are determined and treated as a single stationary source and therefore Edw. C. Levy Co., Plant 6 was originally aggregated in the Severstal North America, Inc.'s Title V permit as Section 2. However through negotiations that arose from the court judgment of the suit filed by the company against the AQD contesting the aggregation of the Levy Plant 6 with the Severstal ROP, Edw. C. Levy Co., Plant 6 agreed to submit a separate ROP application and will be issued its own ROP." As such, the facility has its own ROP, but it only pays emissions fees; not the facility fee.

Facility is operating under its own Wayne County fugitive dust SIP consent order 18-1993 revised 9/9/94 which is included in the ROP. The ROP is currently in renewal status.

New Source Performance Standards (NSPS)

The facility is not subject to Subpart OOO. Slag is not considered a non metallic mineral. See file for EPA applicability determination.

I reviewed the list of source categories for NSPS. No other NSPS appear to apply. The regulation for metallic mineral processors (Subpart LL) relates to mining and recovery of materials from ore which is not the situation at Plant 6.

#### **NESHAP/MACT**

Facility did not include any MACT subject equipment, such as generators, in the recent ROP application.

## PROCESS OVERVIEW

The Levy Plant 6 operation handles all of AK Steel's steel slag. The steel slag is collected in slag pots from AK Steel's Basic Oxygen Facility (BOF). The slag is conveyed by Levy using motorized pot carriers to the EUBOFSLAGPIT where it is poured into one of three pits for cooling before processing. There is fourth pit designated for caster slag. After the pit is full, it is water quenched with water sprays for about 16-24 hours. It is very important that during dumping of molten slag that the area is free of water due to the potential for a thermal explosion. The temperature of the slag and molten steel causes the water to instantly expand into steam and the water-slag mixture "explodes". During normal routine steel making operations at the AK Steel BOF, Levy dumps 12 to 16 pots per 8-hour shift and digs this dumped slag after 16-24 hours. Slag is moved by front end loader to another area where it is sprayed with more water and then moved to the staging area for loading into the screening/crushing process. Slag moves through a series of conveyors and screens to remove the metallics on the "Dearborn side". Anything metallic from 6 to 60 inches is returned to the mill for reuse. The non metallic portion is conveyed across the river in the "bridge conveyor" for crushing and separation into various sizes.

Slag pots usually contain some steel as it is impossible to get a complete separation of steel and slag. After dumping the molten slag out of the pot, a hard accumulation of cooled steel/slag usually remains at the bottom and sides of the pot which is called a "skull". To remove this accumulation, the pot carrier moves to the skull knock station, tips the pot, and bangs it on the wall of the pit. During the banging, the red hot skull dislodges from the pot and falls into the pit. This can create a cloud of fugitive emissions. A partial enclosure was constructed at the skull knocking pit several years ago for dust control. In addition, two dust boss misters are also in operation during knocking. Skulls are watered and moved to the EUDROPBALLCRANE operation located near the slag pits. The skulls are cracked and broken into smaller pieces by dropping a heavy steel ball with electromagnetic crane onto the skulls. The broken skulls are returned to AK Steel's BOF for remelting.

Facility has periodically been a source of fallout and opacity complaints. However, AQD has not received a complaint since 9/30/2014.

Levy Plant 6 consists of the following emission units as submitted in the ROP:

- 1. EULEVYPLANT6 This process group comprises all the equipment located on the AK Steel property and designated as "Dearborn Site" because this portion of Plant 6 is located within the City of Dearborn. The equipment included in this grouping is: grizzly feeder, seven conveyors, two screens, and a crusher.
- 2. EUDEISTERSCREEN This process group contains the 350 ton per hour Deister triple deck screen designed to separate slag and related materials into various finished product sizes, seven conveyors and four knuckle conveyors all but one conveyor is located downstream of the screen. This process group is located across the Rouge River from the AK Steel property in the Levy owned property referred to as "Detroit Site" because this portion of Plant 6 is located within the City of Detroit.
- EUCONVEYORSYSTEM This process group contains five conveyors located downstream of the Deister screen designed to transfer slag and related materials to finished product stockpiles. The ten (10) additional conveyors located downstream of the Deister screen including the four (4) knuckle conveyors are not part of this process group/emission unit but part of the EGDIESTERSCREEN process group/emission unit.
- 4. EUBOFSLAGPIT This emission unit comprises the BOF steel slag dumping area with a water spray quench system for slag cooling and fugitive dust control.
- 5. EUPROCESSNO.2 This emission unit comprises the hopper and conveyor used to transport spilled material back to processing plant. This emission unit according to Bob was not operated for several years now. This emission unit was included in flexible grouping FGRULE290.
- EUCOLDCLEANER This emission unit comprises the cold cleaner placed into operation in the plant after July
  1, 1979. This emission unit was included in flexible grouping FGCOLDCLEANER as it is exempt from the permit
  to install requirements pursuant to Rule 281(h) and Rule 285(r)(iv) but have an underlying applicable
  requirement.
- 7. EUDROPBALLCRANE This emission unit comprises the steel skull breaking operation where the steel skulls are broken into smaller pieces by lifting a heavy steel ball with electromagnetic crane, and dropping the ball onto the skulls. Broken skulls are returned to AK Steel's BOF for remelting.
- 8. Skull knock station This is not an emission unit in the existing ROP; although it is included in the current draft renewal. Over time, a hard mass forms at the bottom of the slag pots which is removed by knocking the slag pot

against a concrete pad to loosen the mass (aka skull) into a pit. A three sided enclosure with a roof and dust boss misters are in place to reduce fugitive emissions.

## **INSPECTION NARRATIVE**

I arrived at Levy Plant 6 around 12:30 p.m. on August 7, 2015. Mr. Ed Patino, area manager for all Levy company steel mill services, was on site in addition to Tom Green and Ben Kroeger from the Levy corporate office.

Mr. Kroeger drove me around the site. On the way to Plant 6, we observed the kish pot watering station and natural gas fired preheater. Visual observation of the water sprays occurs on a weekly basis and potassium permanganate used for odor control. Kish pots are dumped near the watering station after a minimum of 24 hours of watering. A magnet is used to remove metallics and the remaining material is loaded into truck by front end loader and taken off site. Levy periodically checks the permanganate tank levels and adds material as needed. Water sprays were all operational and appeared to be in good working order based on visual observation of the flow of water out of the spray.

No slag pots were being dumped in the pits during the inspection. Water sprays were in use at the pits and at the staging area and appeared to be in good working order. The skull knocking station and crane were not in operation. Front end loaders were digging quenched slag from the watering station and moving it to the staging area for loading into conveyor. Material appeared to be thoroughly wetted. I did not observe any fugitive emissions from this process.

The skull knocking station enclosure appeared to be in good condition. During the prior inspection, the enclosure had recently been damaged by an explosion.

We went into the office and reviewed the recordkeeping system where fugitive dust observations and dust suppressant applications are logged and well as throughput and hours of operation.

Next, Mr. Kroeger drove us to the Mellon Street side of the operations. There are 6 different products sizes. We viewed the material exiting the conveyors onto piles. The piles were wet. I did not observe any fugitive dust from the piles. Water sprays along the conveyors are manually initiated as needed; too much water could mud up the operation. No load out operations were occurring at the time.

## **APPLICABLE RULES/PERMIT CONDITIONS**

Levy Plant 6 has an approved fugitive dust control operating program made part of a legally enforceable program under Consent Order SIP 18-1993 Revised 9/9/94. The requirements and conditions of the Consent Order were made part of the ROP as Source-wide Requirements.

Below is an explanation I received regarding how the facility certifies compliance with the tons/hour limits for EULEVYPLANT6, EUCONVEYORSYSTEM, and EUDIESTERSCREEN (see facility file for the entire email). Certifying compliance with the tons/hour limits for EULEVYPLANT6, EUCONVEYORSYSTEM and EUDESITERSCREEN are handled in two different ways. For EULEVYPLANT6, production data is entered into Levy's OPM system which is also programmed into the LEAP system. Each day and each month, Levy Environmental Services can verify the tons/hour limit is not exceeded by running a report that shows tons produced per day, hours operated per day and operational limits. The EUCONVEYORSYSTEM and EUDEISTERSCREEN only operate with a total tons capacity that is 71% that of the EULEVYPLANT6 emission unit.

# EULEVYPLANT 6 - MI-ROP-B4243-2009

## I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM10	1. 1.06 pounds IN	1. per hour	EULEVYPLANT6	NA	R336.1201(3)

IN COMPLIANCE #3 and #4 above – In compliance based on records generated by the Method 9 reader. A summary of the M9 readings for 2014 and YTD 2015 is on CD.

# II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario		Monitoring/ Testing Method	Underlying Applicable Requirements
	400 tons IN COMPLIANCE – As explained above,	per hour	EULEVYPLANT6	VI(1-3)	R336.1201(3)

throughput	ughput and hours of operation are tracked on a daily basis and used to arrive at an hourly number. Based on information in Appendix B, 400 tons per hour limit has not been exceeded for July 2015. 704,000 tons IN COMPLIANCE – Based on MAERS, 2014 throughput was 377,222 tons (Appendix A). 12 month rolling records are maintained. See		
	are maintained. See attached example for Jan – July 2015. Highest 12 month rolling total was 384,082 tons. Appendix B		

## III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall maintain minimum moisture content of 1.5 percent by weight in the raw materials and crushed stone. (R336.1201(3)) DID NOT DETERMINE – See attached for 2014 and 2015 (Appendix C). Average moisture contents for the finished product (crushed stone) are above the 1.5% minimum. Awaiting information from company on whether any individual results were below 1.5%. Proper operation and maintenance of the slag pit water sprays should ensure compliance with the raw material moisture content.
- The permittee shall not operate the slag processing plant unless the adjustable stacker height mechanisms and water spray systems are installed, and maintained to minimize fugitive dust emissions on crushers, screens, conveyors, and at all exit points. (R336.1201(3)) IN COMPLIANCE – Conveyor heights are adjustable and water spray systems are installed and in use as observed during the inspection. Piles underneath the conveyors were wet.
- The permittee shall not crush and screen asbestos tailings or asbestos containing materials, as defined by the National Emission Standards for Hazardous Air Pollutants (40 CFR, 61.143) regulations, in the crushing plant. (R336.1201(3) IN COMPLIANCE – Slag does not contain asbestos.

4. The permittee shall not operate the slag processing plant unless the program for continuous fugitive dust emissions control for the plant has been implemented and maintained. (R336.1201(3))
IN COMPLIANCE – Fugitive dust records were presented during the inspection. A log of the fugitive dust observations and activities for 2014 and YTD 2015 is on CD. Dust suppressant used is calcium chloride. Facility provided the following explanation. When abnormal conditions are observed, a note is made in the LEAP log and Kleenway is contacted to come onsite and lay down calcium chloride to control dust from the roadways. The record of actions taken are the Kleenway records for each day an abnormal condition is noted. A review of the SIP CO for fugitive dust does not contain a set frequency of dust suppressant application for paved and unpaved roads; it is only required as needed.

# IV. DESIGN/EQUIPMENT PARAMETER(S) and V. TESTING/SAMPLING

NA

# VI. MONITORING/RECORDKEEPING

- The permittee shall keep a record of the daily tonnage of material throughput. (R336.1201(3)) IN COMPLIANCE - See attached example for July 2015 from facility electronic recordkeeping system. Appendix B.
- The permittee shall keep a record of the daily hours of operation of the slag processing plant. (R336.1901\*) IN COMPLIANCE - See attached example for July 2015 from facility electronic recordkeeping system. Appendix B.
- The permittee shall keep a record of the total material throughput in the slag processing plant on a 12-month rolling time period as determined at the end of each calendar month.. (R336.1213(3))
   IN COMPLIANCE – Records were presented during the inspection. A sample for 2015 is attached Appendix B.
- 4. The permittee shall keep records as specified in the fugitive dust control program as specified and required under Table B2 and Appendix 2.4 of this permit. (R336.1201(3)) IN COMPLIANCE Records were presented during the inspection.
- 5. The permittee shall perform a Method 9 certified visible emission observation of a representative operating conveyor of the conveyor system at least once every two weeks for a minimum of 15 minutes during conveying operation. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken. (R336.1213(3)) IN COMPLIANCE – Fugitive dust records were presented during the inspection. A log of the fugitive dust characteristic entry of the solution of the solution.
  - dust observations and activities for 2014 and YTD 2015 is on CD. Dust suppressant used is calcium chloride.
- 6. The permittee shall conduct periodic inspections for the purpose of determining the operational condition of the opacity sensor, adjustable stacker height mechanisms and water spray systems on crushers, screens, conveyors and all exit points, and if necessary, the reasons for malfunction or failure. These inspections shall be conducted immediately after observing visible emissions in excess of the permit allowable limit, but not less frequently than at least once a month and shall keep a written record of each inspection and corrective action taken if any. (R336.1213(3)) IN COMPLIANCE Records were presented during the inspection. A log of the observations and actions taken for 2014 and YTD 2015 is on CD.

EUCONVEYORSYSTEMFive conveyors, located downstream of the Deister Screen (EUDEISTERSCREEN), designed to transfer slag and related materials to finished product stockpiles. Additional conveyors located downstream of the Deister Screen are not part of this emission unit.

# I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
Opacity	10%	6-Minute Average	EUCONVEYORSYSTEM	Method 9	R336.1301

IN COMPLIANCE – In compliance based on records generated by the certified Method 9 reader. A summary of the M9 readings for 2014 and YTD 2015 is on CD.

## II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
Material conveyed	1. 250 tons IN COMPLIANCE – Throughput and hours of operation are tracked	•	EUCONVEYORSYSTEM	VI(1-3)	R336.1201(3)

on a daily basis and 2 used to arrive at an	. per year		R336.1201(3)
hourly			
number. According to			
facility, the maximum			
throughput of conveyor			
is 71% of Plant 6. Based			
on throughput and			
hours for July 2015,			
Appendix B, the tons/hr	:		
for Plant 6 did not			
exceed 250 and			
therefore, the tons/hr	;		
for the conveyor			
system did not as well.			
2. 492,800 tons IN			
COMPLIANCE -			
According to MAERS,			
2014, throughput for			
the entire plant was			
377,222 tons. Appendix			
В			

# III. PROCESS/OPERATIONAL RESTRICTION(S)

 The permittee shall not operate the conveyor system unless the water spray systems are installed, maintained, and operated to minimize fugitive dust emissions on conveyors. (R336.1301, R336.1901<sup>1</sup>) IN COMPLIANCE – Water sprays were in use during inspection. Water sprays are visually inspected on a weekly basis. See CD for log of inspections.

2. The permittee shall not operate the conveyor system unless the program for continuous fugitive dust emissions control for all plant roadways, the plant yard, all material storage piles, and all material handling operations has been implemented and is maintained. (R336.1372, R336.1901<sup>1</sup>) IN COMPLIANCE – Fugitive dust records were presented during the inspection. A log of the fugitive dust observations and activities for 2014 and YTD 2015 is on CD. Dust suppressant used is calcium chloride.

 The permittee shall not process any asbestos tailing or waste materials containing asbestos in the conveyor system pursuant to the National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 61, Subpart M. (R336.1224, R336.1225<sup>1</sup>, R336.1901<sup>1</sup>) IN COMPLIANCE – Slag does not contain asbestos

# IV. DESIGN/EQUIPMENT PARAMETER(S) and V. TESTING/SAMPLING

1. NA

# VI. MONITORING/RECORDKEEPING

- 1. The permittee shall record the daily tonnage of material conveyed. (R336.1201(3)) . IN COMPLIANCE Records are maintained in the electronic recordkeeping system and presented during the inspection.
- The permittee shall record the daily hours of operation of the conveyor system. (R336.1901<sup>1</sup>) IN COMPLIANCE – Records are maintained in the electronic recordkeeping system and presented during the inspection.
- 3. The permittee shall record the total material throughput of the conveyor system on a 12-month rolling time period as determined at the end of each calendar month. (R336.1213(3)) IN COMPLIANCE Records were presented during the inspection. A sample for July 2015 is attached which shows throughput for the entire plant which is below the throughput limit for the conveyor system. (Appendix B).

4. The permittee shall perform a Method 9 certified visible emission observation of a representative operating conveyor of the conveyor system at least once every two weeks for a minimum of 15 minutes during conveying operation. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken. (R336.1213(3)) IN COMPLIANCE – In compliance based on records generated by the certified Method 9 reader. A summary of the M9 readings for 2014 and YTD 2015 is on CD. A log of dates when readings were conducted which appears to meet the required frequency.

EUDEISTERSCREENA 350 TON PER HOUR Deister Screen designed to separate slag and related materials into various finished product sizes. This emission unit includes seven conveyors and four knuckle conveyors-all but one conveyor is located downstream of the screen.

# I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/	Equipment	Monitoring/	Underlying
		Operating Scenario		-	Applicable
				Testing Method	Requirements
Opacity	10%	6-Minute Average	EUDEISTERSCREEN	Method 9	R336.1201(3)

IN COMPLIANCE – In compliance based on records generated from the certified Method 9 reader. A summary of the M9 readings for 2014 and YTD 2015 is on CD.

# II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
Material throughput	1. 350 tons IN COMPLIANCE – Throughput and hours of operation are tracked on a daily basis and used to arrive at an hourly number. Based on throughput and hours for July 2015, Appendix B, the tons/hr for Plant 6 did not exceed 350 and therefore, the tons/hr for the diester screen 2. 616,000 tons IN COMPLIANCE - According to MAERS, 2014 throughput for the entire plant was 377,222 tons. Appendix B.		EUDEISTERSCREEN	ΝΑ	R336.1201(3)

## III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall set and maintain the opacity sensor at a visible emission rate of five percent opacity. (R336.1201(3)) IN COMPLIANCE – Sensor is installed.

## IV. DESIGN/EQUIPMENT PARAMETER(S) and V. TESTING/SAMPLING

NA

# VI. MONITORING/RECORDKEEPING

- 1. The permittee shall record the hourly tonnage of material throughput. (R336.1213(3)) IN COMPLIANCE Records are maintained in the electronic recordkeeping system and presented during the inspection.
- The permittee shall record the daily hours of operation of the Deister screen system. (R 336.1213(3)) IN COMPLIANCE – Records are maintained in the electronic recordkeeping system and presented during the inspection.
- 3. The permittee shall record the total material throughput of the Deister screen system on a 12-month rolling time period as determined at the end of each calendar month. (R 336.1213(3)) IN COMPLIANCE Records were presented during the inspection. A sample for July 2015 is attached which shows throughput for the entire plant which is below the throughput limit for the diester screen. (Appendix B).

4. The permittee shall perform a Method 9 certified visible emission observation of a representative operating conveyor of the Deister screen system at least once every two weeks for a minimum of 15 minutes during screening operation. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken. (R336.1213(3)) IN COMPLIANCE – In compliance based on records generated by the certified Method 9 reader. A summary of the M9 readings for 2014 and YTD 2015 is on CD. A log of dates when readings were conducted which appears to meet the required frequency.

EUBOFSLAGPIT - Basic Oxygen Furnace (BOF) slag pit with water spray system for fugitive dust emission control.

# I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario		Monitoring/ Testing Method	Underlying Applicable Requirements
Opacity	20%		From roads, lots, or storage pile	Method 9D	R324.5524(2)

Did not evaluate. This is an incorrect citation and will be changed in the renewed ROP.

# II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

# III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall quench the dumped slag by water sprays before digging. (Consent Order SIP 18-1993, (Revised 9/9/94), Exhibit A, Section 3.A) IN COMPLIANCE – Water sprays in use as evidenced during the inspection.

# IV. DESIGN/EQUIPMENT PARAMETER(S) and V. TESTING/SAMPLING

NA

# VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall perform a Method 9 certified visible emission observation of a representative slag dumping or digging operation at least once every two weeks for a minimum of 15 minutes during dumping or digging operation. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken. (R336.1213(3)) IN COMPLIANCE - IN COMPLIANCE - In compliance based on records generated by the certified Method 9 reader. A summary of the M9 readings for 2014 and YTD 2015 is on CD. A log of dates when readings were conducted which appears to meet the required frequency.

2. The permittee shall conduct periodic inspections for the purpose of determining the operational condition of the water spray systems on slag pits dumping areas, and if necessary record the reasons for malfunction or failure noted from the inspection. These inspections shall be conducted during scheduled outages or downtimes, and immediately after observing visible emissions, but not less frequently than at least once a month and shall keep a written record of each inspection and corrective action taken if any. (R336.1213(3)) IN COMPLIANCE -Records were presented during the inspection. Also log of dates indicates this is performed weekly. See CD.

# **COMPLIANCE DETERMINATION**

At this time, facility appears to be in compliance with applicable state and federal regulations evaluated in this

report. NAME

DATE //// SUPERVISOR W. M.