Western Refining Southwest LLC
A subsidiary of Marathon Petroleum Corporation
I-40 Exit 39
Jamestown, NM 87347

March 2, 2022

Mr. Kevin Pierard, Chief
New Mexico Environment Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, NM 87505-6303

RE: Response to Disapproval
Heat Exchanger Bundle Pad Investigation Work Plan
Western Refining Southwest LLC (dba Marathon Gallup Refinery)
EPA ID# NMD000333211
HWB-WRG-21-013

Dear Mr. Pierard:

Attached please find the response to comments contained in the New Mexico Environment Department (NMED) Disapproval letter dated November 22, 2021. A timeline of the documents for the heat exchanger bundle pad is provided below.

- Heat Exchanger Bundle Pad Investigation Work Plan, submitted September 2021
- Disapproval, received November 22, 2021

If you have any questions or comments regarding the information contained herein, please do not hesitate to contact Mr. John Moore at (505) 879-7643.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction of supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,
Western Refining Southwest LLC, Marathon Gallup Refinery

Ruth A Cade

Ruth Cade
Vice-President

Enclosure

cc: D. Cobrain, NMED HWB
L. Barr, NMOCD
K. Luka, Marathon Petroleum Company
H. Jones, Trihydro Corporation
M. Suzuki, NMED HWB
L. King, USEPA
J. Moore, Marathon Gallup Refinery

ATTACHMENT A

New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter
"Disapproval Heat Exchanger Bundle Pad Investigation Work Plan" (November 22, 2021)

NMED General Comment	Marathon Petroleum Company Response
Comment 1:	**Response 1:**
In the Scope of Activities Section, page 5 of 8, paragraph 2, the Permittee states, "[s]oil borings will be completed with a geoprobe direct-push drill rig at eight locations around the Bundle Pad to a total depth of 15 ft bgs (Figure 2). Soil borings will be screened in the field for presence of volatiles using a photoionization detector (PID)." According to the LIF log for boring MKFT-LIF-66 which was advanced adjacent to well MKTF-16, the presence of separate phase hydrocarbon (SPH) diminishes at depths deeper than 12 feet below ground surface (bgs); therefore, the proposed termination depth of the borings (i.e.,15 feet bgs) may be adequate to delineate the vertical extent of contamination. Since a photoionization detector (PID) will be used for volatile organic compound (VOC) screening, include a provision to extend the boring depth and collect additional soil samples if elevated PID readings are recorded at the proposed termination depth of 15 feet bgs. Revise the Work Plan accordingly.	A provision has been added to the specified section to extend the borehole termination depth if the photoionization detector and/or a visual/olfactory inspection indicates potential volatile organic compound impacts beneath the planned 15-foot termination depth. More specifically: "If the PID indicates significant presence of volatile organic compounds (VOCs) (e.g., greater than 50 parts per million [ppm]) at the planned 15 ft bgs termination depth, the borehole will be extended until PID readings drop below 50 ppm. Visual and olfactory inspections will also be used to assess if the boring total depth is adequate for vertical delineation."

New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter "Disapproval Heat Exchanger Bundle Pad Investigation Work Plan" (November 22, 2021)

NMED General Comment	Marathon Petroleum Company Response
Comment 2:	**Response 2:**
In the Scope of Activities Section, page 6 of 8, paragraph 2, and the Sample Collection Procedures Section, page 7 of 8, number 2, the Permittee states, "[s]oil samples will be analyzed for benzene via Method 8260B." The concentrations of multiple VOCs (e.g. BTEX, MTBE, chlorinated solvents) and total petroleum hydrocarbons-gasoline, diesel, and motor oil range organics (TPH-GRO, DRO and MRO) in the groundwater samples collected from well MKTF-16 exceeded applicable screening levels. Therefore, it is possible that these analytes may also be detected in the soil samples collected from the vicinity of well MKTF-16. All confirmation soil samples, at a minimum, must be analyzed for the constituents listed in EPA Method 8260B, and TPH-GRO, ORO and MRO. Revise the Work Plan accordingly.	Benzene was selected as the target constituent due to Comment #46 from the *Disapproval Annual Groundwater Monitoring Report Gallup Refinery – 2019* which suggested that the source of benzene could be from leaks in the process sewer line near the bundle pad. Historically, benzene concentrations at MKTF-16 have been the highest detected constituent in magnitude relative to the applicable groundwater standard. However, as requested, additional review of the historical groundwater analytical data from MKTF-16 has been conducted. The constituent list has been modified throughout the work plan to incorporate other commonly detected constituents at MKTF-16 as well as indicator compounds/main risk drivers with respect to migration to groundwater. More specifically, the constituent list has been expanded to the following: ▪ Benzene ▪ Ethylbenzene ▪ Toluene ▪ Xylenes ▪ Naphthalene ▪ Total Petroleum Hydrocarbons (TPH) – Gasoline Range Organics ▪ TPH – Diesel Range Organics ▪ TPH – Oil Range Organics

New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter
"Disapproval Heat Exchanger Bundle Pad Investigation Work Plan" (November 22, 2021)

NMED General Comment	Marathon Petroleum Company Response
Comment 3:	**Response 3:**
In the Scope of Activities Section, page 6 of 8, paragraph 2, the Sample Collection Procedures Section, page 7 of 8, number 3, and the Data Evaluation and Waste Management Section, page 7 of 8, paragraph 4, the Permittee states, "[a]nalytical results will be compared to NMED Industrial Soil Screening Levels (SSL)." The soil sampling results must also be compared to residential and construction worker soil screening levels. In addition, if the Permittee wishes to petition for a corrective action complete (CAC) without controls status at the site in the future, it is appropriate to select residential soil screening levels as criteria to determine whether further remediation and/or investigation is necessary. Furthermore, note that the proposed screening criteria (NMED industrial soil screening levels) are only applicable to the soils collected from depths between zero to one foot bgs. Since this investigation requires a collection of soils below one foot bgs, the proposed screening must, at a minimum, include the construction worker exposure criteria. Revise the Work Plan accordingly.	As an idled industrial site, a soil screening level assessment based on industrial and construction worker exposure scenarios is appropriate. The work plan has been revised to include comparison of analytical results to construction worker soil screening levels in addition to commercial/industrial.

New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter
"Disapproval Heat Exchanger Bundle Pad Investigation Work Plan" (November 22, 2021)

NMED General Comment	Marathon Petroleum Company Response
Comment 4:	**Response 4:**
In the Scope of Activities Section, page 6 of 8, paragraph 3, the Permittee states, "Figure 2 also includes the proposed soil boring/sample locations for the Sour Naphtha Release Investigation. There are seven proposed borings from the intersection northwest of the Bundle Pad to MKTF- 16. These sample locations have been proposed in the Sour Naphtha Release Investigation Work Plan to determine if the elevated benzene concentrations found in MKTF-16 are related to the 2017 Sour Naphtha release." The benzene concentrations detected in the samples collected from well MKTF-16 prior to the March 2017 naphtha release were generally higher than the observed concentrations after the release. Also, a notable spike in the benzene levels after the release was not identified in well MKTF-16. There may not be a correlation between the elevated benzene levels in well MKTF-16 and the 2017 naphtha release. Since the naphtha release is not likely to be the cause of elevated benzene concentrations in well MKTF-16, this evaluation would more appropriately be proposed in the Heat Exchanger Bundle Pad Investigation rather than the Sour Naphtha Release Investigation. Revise the Work Plan to include the seven borings proposed for advancement between the intersection northwest of the Bundle Pad and MKTF-16.	Six of the seven locations have been removed from the Sour Naphtha Release Investigation and added to the Heat Exchanger Bundle Pad Investigation. One of the locations (the location within the intersection; furthest to the north) remains within the Sour Naphtha Release Investigation due to its proximity to the sour naphtha release. The work plan has been updated throughout to detail the inclusion of the additional six sample locations. Figure 2 has been modified accordingly.
Comment 5:	**Response 5:**
The Scope of Activities and Investigation Methods Sections, pages 6 through 7, do not include a provision to collect groundwater samples if groundwater is encountered. Since the depth to water (DTW) readings in well MKTF-16 are recorded approximately ten feet bgs, water bearing zones may be encountered during drilling activity. In this case, the Permittee must document all observed water bearing zones in the investigation report for use if monitoring wells are installed in the area in the future.	Detailed soil boring logs will be completed at each soil boring location as discussed on page 6 of 8 Investigation Methods Section, Paragraph 1, sentence 2. Additional text has been added to clarify the inclusion of moisture/water bearing zones within the soil boring logs. More specifically: "Detailed boring logs will be compiled in the field by qualified staff, **including the presence of moisture/water bearing zones**."

ATTACHMENT B-1

CLEAN

Heat Exchanger Bundle Pad Investigation Work Plan

WESTERN REFINING SOUTHWEST LLC
D/B/A MARATHON GALLUP REFINERY

Gallup, New Mexico

EPA ID# NMD000333211

September 2021

Revised February 2022

Executive Summary

The Marathon Gallup Refinery is submitting this work plan for soil investigation in the vicinity of the Heat Exchanger Bundle Pad (Bundle Pad). The New Mexico Environment Department (NMED) commented on elevated benzene concentrations in groundwater at monitoring well MKTF-16 in Comment 46 from the *Disapproval Annual Groundwater Monitoring Report Gallup Refinery – 2019* (dated November 23, 2020), which suggested the benzene source could be from leaks in the process sewer line near the Bundle Pad. Specifically, NMED Comment 46 requested an investigation into the integrity of the sewer lines in the area of the Bundle Pad.

Based on February 2020 process sewer video/photo inspections and March 2021 dye tests conducted near the Bundle Pad sewer, no sewer integrity issues were identified. The proposed work plan will investigate the presence of elevated hydrocarbon-related constituents in monitoring well MKTF-16 by installing and sampling soil borings in the vicinity of MKTF-16 and around the Bundle Pad. Soil boring samples will be collected using a geoprobe direct-push drill rig.

Table of Contents

List of Figures

List of Appendices

List of Acronyms

amsl	above mean sea level
bgs	below ground surface
BTEXN	benzene, toluene, ethylbenzene, xylenes, and naphthalene
COC	chain of custody
ft	feet
NMED	New Mexico Environment Department
PID	photoionization detector
ppm	parts per million
QA/QC	Quality Assurance / Quality Control
SSL	soil screening level
TPH	total petroleum hydrocarbons
VOC	volatile organic compound

Introduction

The Western Refining Southwest, LLC., D/B/A Marathon Gallup Refinery (the Refinery) is located approximately 17 miles east of Gallup, New Mexico along the north side of Interstate Highway I-40 (Figure 1). The physical address is I-40, Exit #39 Jamestown, New Mexico 87347. The Refinery property covers approximately 810 acres.

This work plan is for the investigation of soils around the Heat Exchanger Bundle Pad (Bundle Pad) and monitoring well MKTF-16. The New Mexico Environment Department (NMED) commented on elevated benzene concentrations in groundwater at monitoring well MKTF-16 in Comment 46 from the *Disapproval Annual Groundwater Monitoring Report Gallup Refinery – 2019* (dated November 23, 2020), which suggested the benzene source could be from leaks in the process sewer line near the Bundle Pad. Specifically, Comment 46 requested an investigation into the integrity of the sewer lines in the area of the Bundle Pad. Based on February 2020 process sewer video/photo inspections (Appendix A), no sewer integrity issues were identified. On March 19, 2021, a dye test was performed at the Bundle Pad sump. The inlets and outlet of the Bundle Pad sump were plugged and green fluorescent dye and water were added to fill the sump (photos included as Appendix B). The sump was inspected 24 hours later, Saturday, March 20, and no decrease in fluid level was noted.

This work plan will investigate the potential source of elevated hydrocarbon-related constituents in monitoring well MKTF-16 by collecting soil samples from soil borings in the vicinity of MKTF-16 and near the Bundle Pad. Soil samples will be collected using a geoprobe direct-push drill rig.

Site Conditions

The Refinery has been indefinitely idled since August 2020. Historically, the Refinery generally processed crude oil transported to the facility by pipeline or tanker truck. While operating, various process units were operated at the Refinery including crude distillation, reformer, fluidized catalytic cracker, alkylation, sulfur recovery, merox treater, and hydrotreater units. Refinery operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.

Surface Conditions

Local site topographic features include high ground in the southeast gradually decreasing to a lowland fluvial plain to the northwest. Elevations on the refinery property range from 6,860 feet (ft) above mean sea level (amsl) to 7,040 ft amsl. The Bundle Pad area is approximately 6,951 ft amsl.

Subsurface Conditions

The shallow subsurface soil (alluvium) is comprised of clay and silt with some inter-bedded sand layers. Beneath the alluvium is the Petrified Forest Member of the Chinle Group, which primarily consists of interbedded mudstone, siltstone, and sandstone. The Alluvium/Chinle interface is as little as 15 ft below ground surface (bgs) to over 32 ft bgs.

Scope of Activities

The investigative activities detailed in this work plan will be completed to gain knowledge of the subsurface in the area of the Bundle Pad and help identify the source of benzene found in MKTF-16. Pending NMED approval, the Refinery anticipates investigation work to be completed during 2022.

Soil borings will be completed with a geoprobe direct-push drill rig at 14 locations around the Bundle Pad to a planned total depth of 15 ft bgs (Figure 2). Soil borings will be screened in the field for presence of volatiles using a photoionization detector (PID). If the PID indicates significant presence of volatile organic compounds (VOCs) (e.g., greater than 50 parts per million [ppm]) at the planned 15 ft bgs termination depth, the borehole will be extended until PID readings drop below 50 ppm. Note that visual and olfactory inspections will also be used to assess if the boring total depth is adequate for vertical delineation.

The total depth of the Bundle Pad sump and process sewer line in this area is approximately 12 ft bgs. Soil samples will be collected from 12 ft bgs, the bottom of the boring, and at depths where field screening indicates potential impacts. Soil samples will be analyzed for benzene, ethylbenzene, toluene, xylene, and naphthalene (BETXN), as well as total petroleum hydrocarbons (TPH) gasoline range organics, TPH diesel range organics, and TPH oil range organics. The constituents were selected based on significant detection exceedances in groundwater at nearby monitoring well MKTF-16. Analytical results will be compared to NMED industrial/occupational soil screening levels (SSL) and construction worker SSLs.

Investigation Methods

Soils obtained will be visually inspected and classified in general accordance with American Society for Testing and Materials D2487 (Unified Soil Classification System) and D2488 (Description and Identification of Soils). Detailed boring logs will be compiled in the field by qualified staff, including the presence of moisture/water bearing zones. Samples will be field screened using a PID for evidence of organic volatiles. PID results will be recorded on the boring logs and used to determine additional sample intervals.

Sample Collection Procedures

Samples will be collected in accordance with the soil sampling Standard Operating Procedure (Appendix C). Details related to sample collection will be documented on the boring log field forms (Appendix D). General observations recorded on the field forms for each soil sample location will include sampling start and end times, weather, site conditions, sampling team members, and other personnel present. Sample-specific information will include field sample identification, time of sample collection, sample start and end depth, collection method, sample type (i.e., composite or aliquot), soil classification and characteristics, any deviations from or clarification of sampling procedures, and other observations.

PID readings will be collected on intervals corresponding with sample collection. Headspace vapor screening targets VOCs and involves placing a soil sample in a plastic sample bag allowing space for ambient air. The container will be sealed and then shaken gently to expose the soil to the air trapped in the container. The sealed container will be allowed to rest while vapors equilibrate. Vapors present within the sample bag's headspace will then be measured by inserting the probe of the instrument in a small opening in the bag. The maximum value and the ambient air temperature will be recorded on the field boring or test pit log for each interval. Note that if samples are cold (i.e., below 32 degrees Fahrenheit) they will be sealed in airtight bags and warmed in a heated building and/or vehicle before screening.

After collecting the PID reading, sample jars will be filled, labeled, and placed in a cooler. Before shipment, each cooler will be packed with ice and a laboratory-provided trip blank. A chain of custody (COC) form will accompany each sample shipment. Coolers will be sealed and delivered to an appropriate analytical laboratory. A summary of the proposed sampling activities is provided below:

1. Installation of fourteen soil borings, visual screening/logging, collection of PID readings for evidence of impacts, and collection of soil samples. Samples will be collected from:
    - 12 ft bgs (approximate depth of Bundle Pad sump and process sewer line)
    - The bottom of boring
    - Any additional intervals where field screening indicate impacted soils.
2. Submit samples to analytical laboratory.
3. Compare analytical data with applicable NMED SSLs.

Data Quality and Validation

Quality assurance/quality control (QA/QC) samples will be collected during sampling to monitor the validity of the sample collection procedures. Field duplicates will be collected at a rate of 10% or at a minimum of 1 per day. Equipment blanks will be collected from re-usable equipment at a rate of 10% at a minimum of 1 per day. One trip blank per cooler will accompany the samples to the laboratory. The field duplicates, equipment blank samples, and trip blanks will be submitted to the laboratory along with the soil samples. QA/QC samples will be recorded on the field forms and COCs. All data will undergo Tier II data validation.

Data Evaluation and Waste Management

The soil analytical results will be compared to applicable NMED Industrial SSLs. The results will be presented to NMED in an investigation report. Soil recovered during sampling will be placed in drums, labeled, and stored on the 90-Day Pad. Waste characterization will be conducted prior to disposal. Waste characterization analysis will include testing for Method 8260 - volatile organic compounds, Method 8270 - semi-volatile organic compounds, and Resource Conservation and Recovery Act-8 Metals. Any wasted determined to be hazardous will be disposed of within 90 days.

Schedule

Pending NMED approval, the Refinery anticipates the investigation to be completed during 2022. Once the investigation has been completed, the Refinery will prepare an investigation report summarizing the sampling results and investigation conclusions within 120 days of the receipt of the analytical data.

References

New Mexico Environment Department (NMED). 2020. Disapproval Annual Groundwater Monitoring Report Gallup Refinery – 2019. Western Refining Southwest LLC, Marathon Gallup Refinery, EPA ID #NMD000333211, HWB-WRG-20-013. November 23.

Figures

Image Cite: National Agriculture Imagery Program (NAIP) Colored Orthophoto, Mckinley County, New Mexico, Publication: 2014

QUADRANGLE LOCATION

NOTE:
SITE LEGAL DESCRIPTION -
TOWNSHIP 15 NORTH,
RANGE 15 WEST, SECTION 33

EXPLANATION

40 INTERSTATE HIGHWAY

N

0 2 MILES

Trihydro CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE 1

SITE LOCATION MAP

WESTERN REFINING SOUTHWEST, LLC
MARATHON GALLUP REFINERY
GALLUP, NEW MEXICO

Drawn By: REP	Checked By: JP	Scale: 1" = 2 MILES	Date: 9/7/2021	File: 697-BP-SITELOC-202109

M:\TOM\MARATHON\CADD\GALLUP_REPORTS\SWMU\SWMU_3_HXBUNDLEPAD\697-BP-SITELOC-202109

Image Cite: USDA /fsa – Aerial Photography Field Office, NAIP MrSID – Publication: 2014

2 PROPOSED SOIL BORING LOCATIONS
SCALE: 1" = 30'

N

0 30'

Image Cite: USDA /fsa – Aerial Photography Field Office, NAIP MrSID – Publication: 2014

1 KEY MAP
SCALE: 1" = 800'

N

0 800'

EXPLANATION

- MKTF-16 — CHINLE/ALLUVIUM INTERFACE WELL AND DESIGNATION
- PROPOSED BUNDLE PAD INVESTIGATION SOIL BORING LOCATION
- MANHOLE LOCATION
- S — PROCESS SEWER LINE
- BUNDLE PAD SUMP
- TANK

Trihydro CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE 2

**HEAT EXCHANGER BUNDLE PAD INVESTIGATION
PROPOSED SOIL BORING LOCATIONS**

**WESTERN REFINING SOUTHWEST, LLC
MARATHON GALLUP REFINERY
GALLUP, NEW MEXICO**

Drawn By: REP	Checked By: JH	Scale: AS SHOWN	Date: 1/12/22	File: 697-BP-SOILLOCS-202109

Appendix A - Process Sewer Inspection Report

Insta-Pipe

**2520 50th Avenue SW,
Tumwater, WA 98512**

Remote Visual and Cleaning Inspection

FACILITY: Gallup, New Mexico

		Kelly Caillier Report Prepared By	Reliability Engineer Title	
B. James Inspector	Remote Visual Inspector Title			
		B. James Inspector Sign Off	2.10.2020 Date	
Brad Roberts Inspector	Remote Visual Inspector Title			
		Kelly Caillier Engineering	2.10.2020 Date	
		Client Sign Off	Date	

Inspection Type:	RVI INSPECTION	Inspection Date:	1.2020	Inspector:	B.James/Brad Roberts
Equipment Name:	Process & Storm Water Lines	Report Revision:	1		

RVI ANALYSIS NAVIGATION INSTRUCTIONS

Located inside of your RVI analysis is a navigation system installed for ease of quickly moving around the analysis without the need for scrolling. Beginning on the cover page, mouse clicking on the symbol will navigate to the first page of the Asset Maps. While on any of the summary pages (Pages 8 & 9 of analysis), mouse clicking on the will bring the user to the reflective asset detail page of the analysis. While on this page mouse clicking anywhere on the page will navigate to the drawing details report, where any PACP findings can be viewed in detail. To arrive in the same location from the summary, mouse clicking on the symbol will navigate directly to the assets detailed PACP finding drawing. A couple of the assets in this report have photographs only. By mouse clicking on the icon, this action will lead you directly to the photographs associated with the asset. Lastly, by clicking on the Insta-pipe logo anywhere in the analysis, this action will navigate back to the summary page.

CATEGORY STRUCTURE

The Analysis was also built with a five (5) level asset current condition category structure for ease of viewing and future planning. They are as follows:

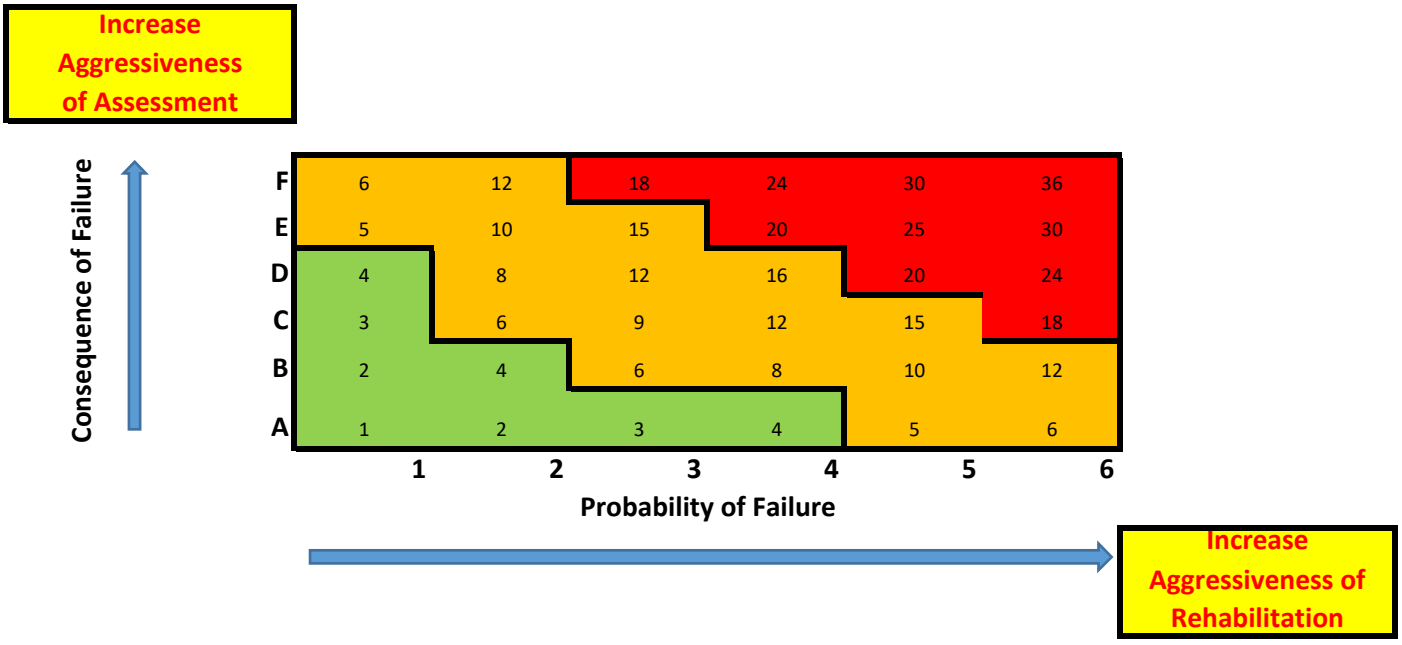
1. **Category 1 Assets:**
   a. Definition: PACP Code Defect Exist (Highest Probability of Failure Assets)
2. **Category 2 Assets:**
   a. Definition: RVI Inspector abandoned survey due to excess debris, material, or water.
3. **Category 3 Assets:**
   a. Definition: RVI Inspector abandoned survey due geometry challenges of the system.
4. **Category 4 Assets:**
   a. Definition: RVI Inspector was able to complete entire survey.
5. **Category 5 Assets:**
   a. Definition: Unknown Lines - No Survey, Only Map and Photographs.

Risk Based Inspection Methodology Introduction

The Analysis was built with an introduction to Risk Modeling and utilizing the tool for possible future scheduling and budget preparation. There are many facets and models incorporated into a reliable risk model implementation. Insta-Pipe's experience level with this implementation is unmatched. Below is an introduction and beginning model comparable to the values implemented in the report.

Note 1: Taking advantage of resinspection dates in place of risk values can be installed into this model for scheduling and budgeting purposes based on Risk Dynamics of the Asset condition is highly recommended after a deeper study into Marathon Asset focus.

NOTE 2: The goal of this implementation is sustainability of all assets in a balanced manner.



Matrix 1

If further discussion on the implementation of the Asset Risk Module or any of the values in this analysis is needed, please do not hesitate to request further information.

Sincerely,

Kelly P. Caillier, CRE

INSPECTION MAP OVERVIEW

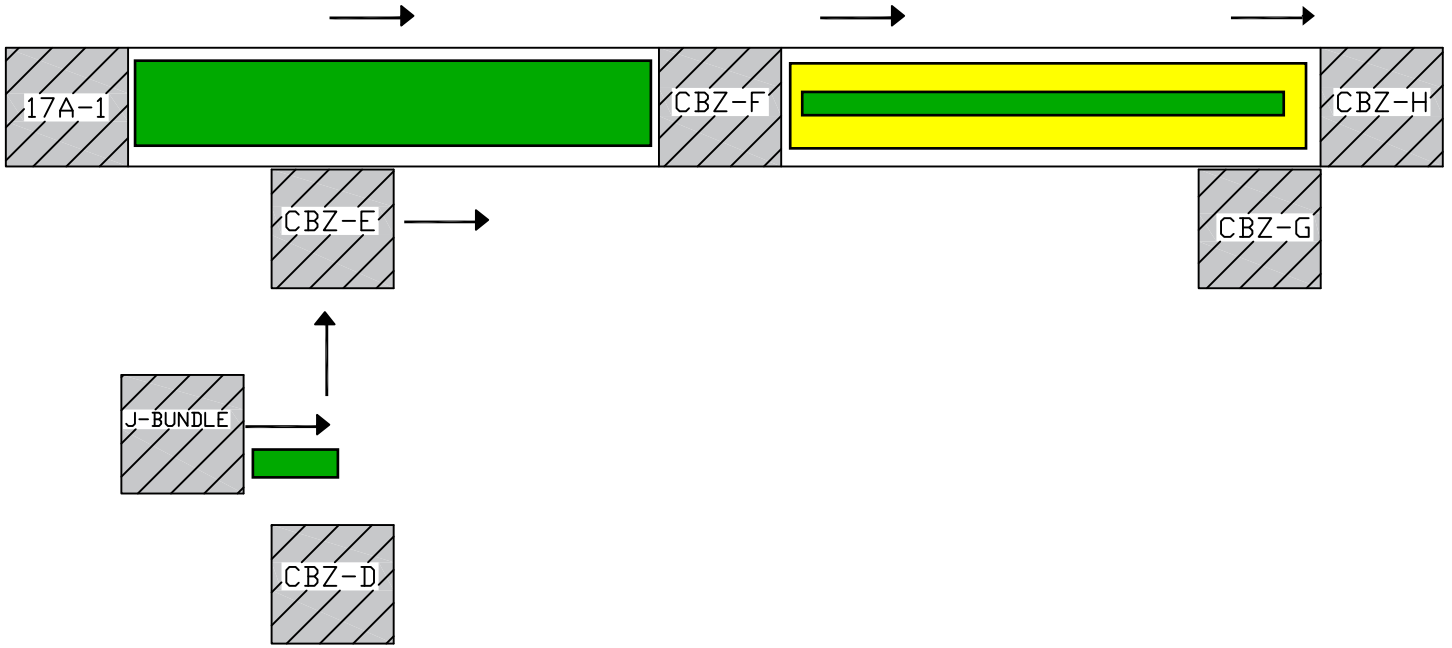
NORTH

UNKNOWN PROCESS 1

UNKNOWN STORM 1

JETTER UTILIZED

CRAWLER VIDEO



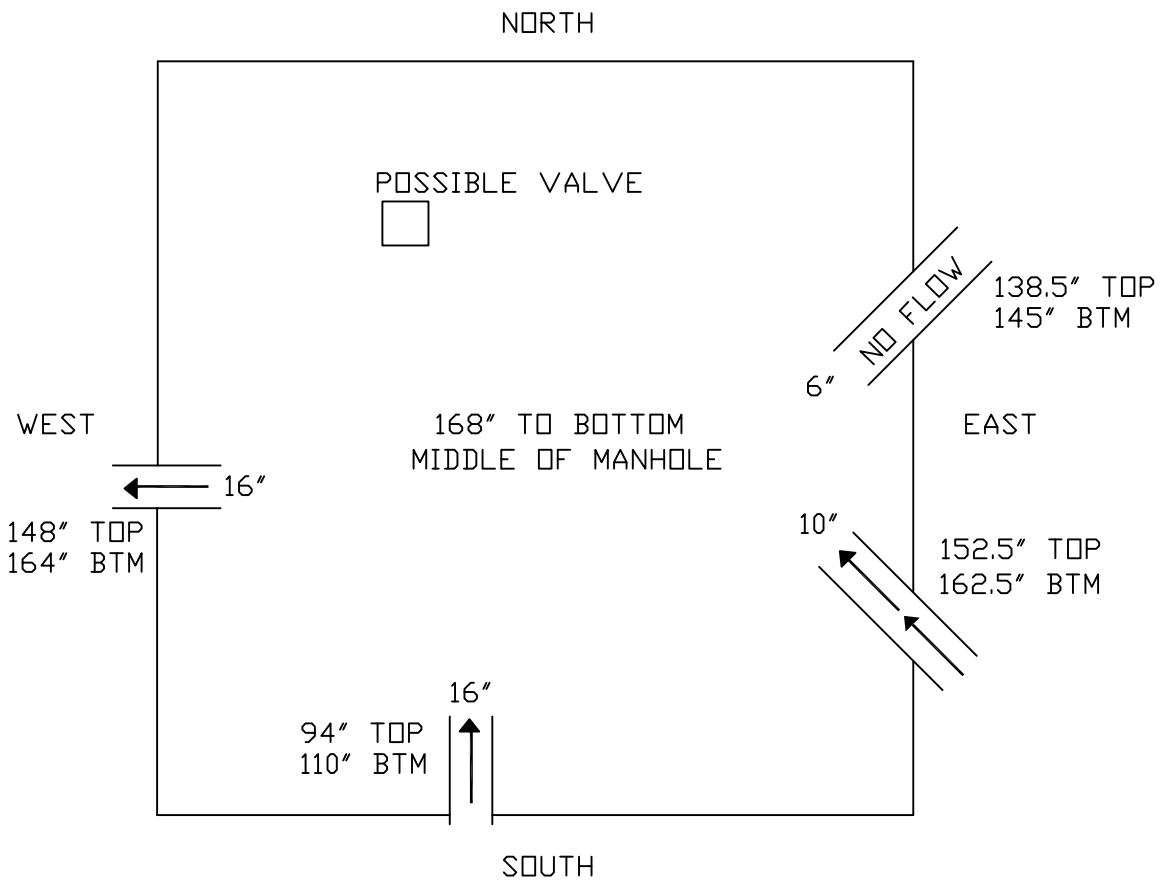
REVISIONS

Rev. No.	DATE	BY	DESCRIPTION
0	11/14/2019	TD	GENERATED TO CAD

insta-pipe TRENCHLESS PIPE REPAIR

CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	DESC: INSPECTION MAP OVERVIEW	DWG#: 1	2.5.2020

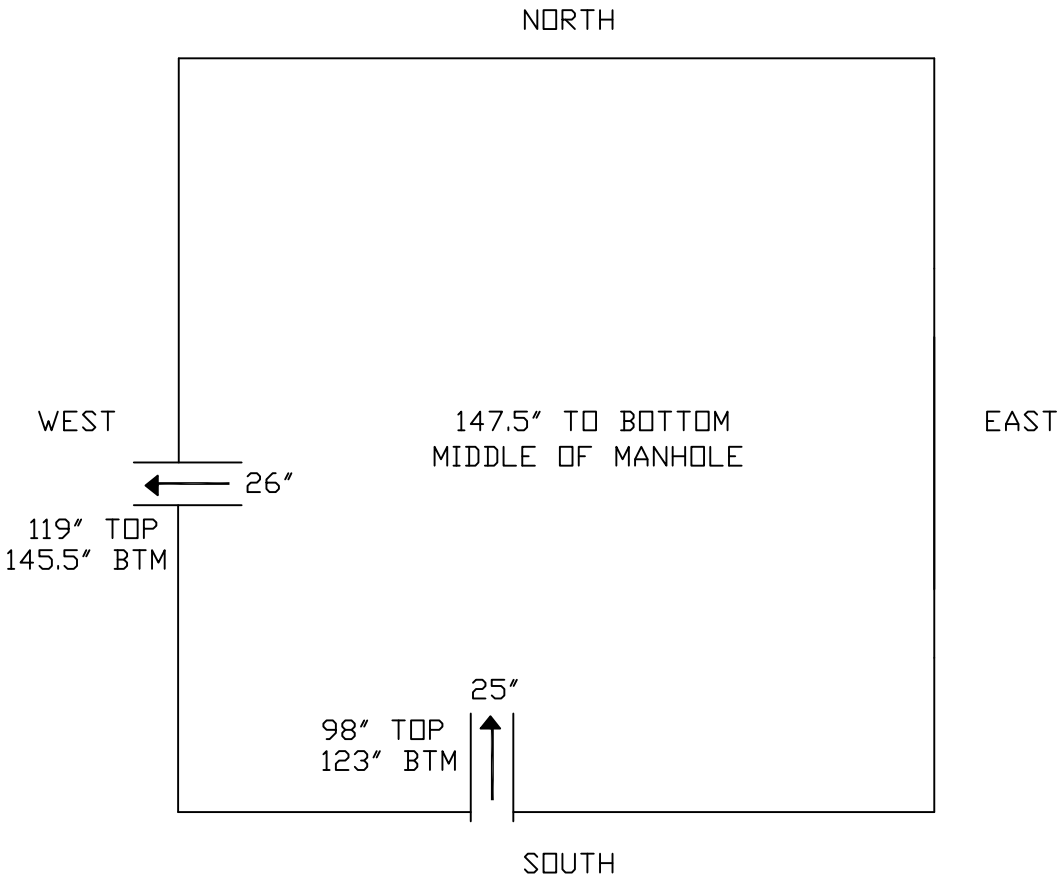
MANHOLE CBZ-G



REVISIONS			
Rev. No.	DATE	BY	DESCRIPTION
0	11/14/2019	TD	GENERATED TO CAD

CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	DESC: MANHOLE CBZ-G OVERALL VIEW	DWG#: 1	2.5.2020

MANHOLE CBZ-H

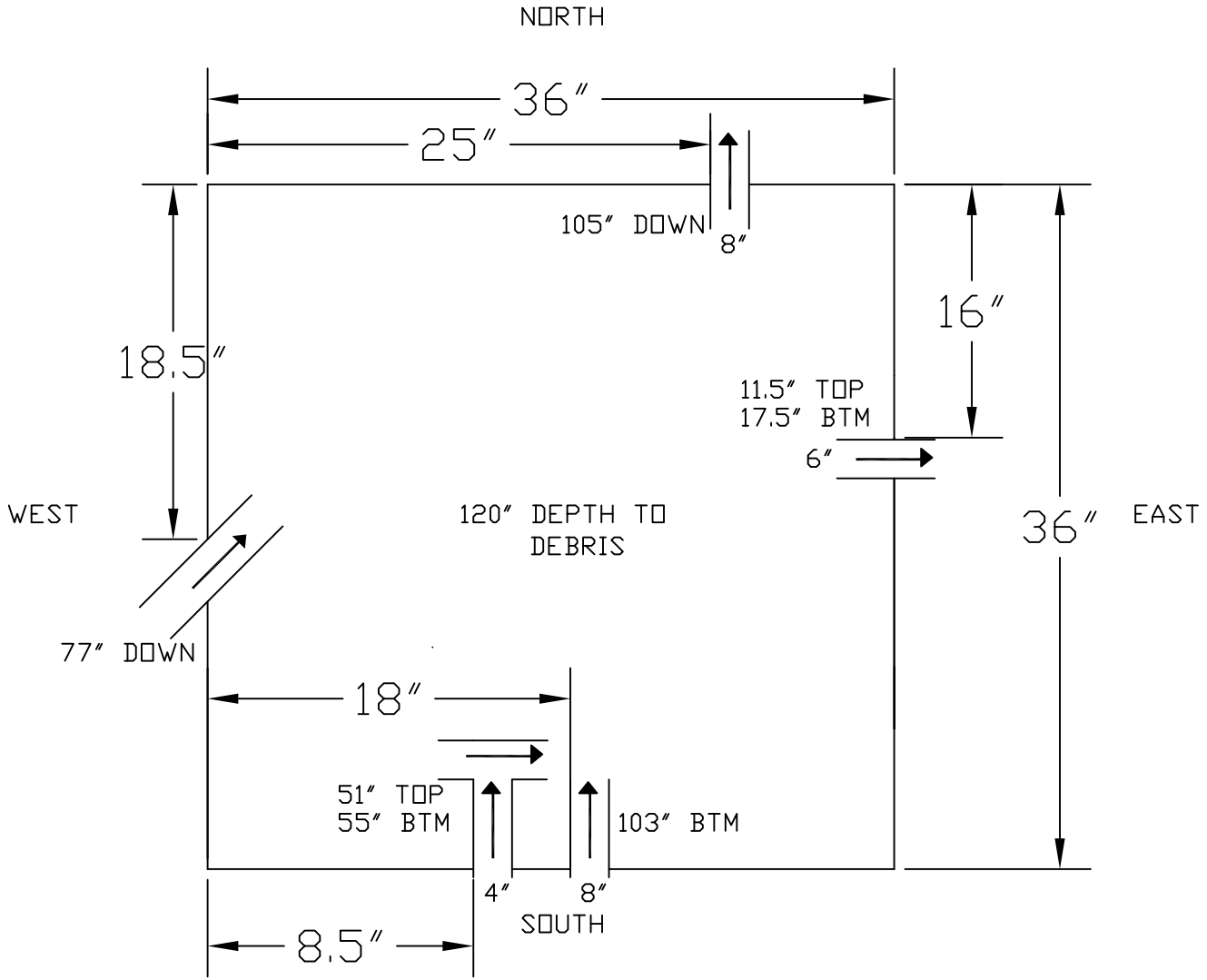


REVISIONS

Rev. No.	DATE	BY	DESCRIPTION
0	11/14/2019	TD	GENERATED TO CAD

CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	DESC: MANHOLE CBZ-H OVERALL VIEW	DWG#: 1	2.5.2020

MANHOLE J-BUNDLE PAD



REVISIONS			
Rev. No.	DATE	BY	DESCRIPTION
0	11/14/2019	TD	GENERATED TO CAD

CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	J-BUNDLE PAD	DWG#: 1	2.5.2020

RVI INSPECTION CAMPAIGN
Gallup New Mexico Facility
Process and Stormwater Systems

Component Type	Component Identification	WGS84 Coordinates	Component Description	Campaign Date	Survey Length (FT)	Risk Ranking	PACP Findings
Category 1 Assets: PACP CODE DEFECT EXIST							
During the Jan 2020 Survey No PACP defects exist							
Category 2 Assets: ABANDONED SURVEY DUE TO EXCESS DEBRIS, MATERIAL OR WATER							
PolyVinyl Chloride	CBZ-E towards CBZ-F		**UP:** CBZ-E **Down:** CBZ-F Street: Bundle Pad	1.28.2020	3.0*	*E	M
Category 3 Assets: ABANDON SURVEY DUE TO GEOMETRY OF SYSTEM							
Ductile Iron Pipe	J-Bundle Pad towards CBZ-E		**UP:** JBP **Down: CBZ-E** Street: Bundle Pad	1.29.2020	71.7	1E	M
Category 4 Assets: NO DEFECTS EXIST & SURVEY COMPLETE							
PolyVinyl Chloride	17A-1 towards CBZ-E		**UP:** 17A-1 **Down:** CBZ-E Street: Bundle Pad	1.29.2020	12.0	1E	
Ductile Iron Pipe	Bundle Pad towards CBZ-E		**UP:** Bundle Pad **Down:** CBZ-E Street: Bundle Pad	1.28.2020	66.0	1E	
PolyVinyl Chloride	CBZ-F towards CBZ-G		**UP:** CBZ-F **Down:** CBZ-G Street: Bundle Pad	1.28.2020	421.6	1E	
Ductile Iron Pipe	CBZ-G towards CBZ-H		**UP:** CBZ-G **Down:** CBZ-H Street: Bundle Pad	1.30.2020	12.0	1E	

PACP FINDINGS INDEX

S	Structural	H	Hydraulics	C	Constructional
M	Miscellaneous	O	O & M	*	Incomplete

RVI INSPECTION CAMPAIGN
Gallup New Mexico Facility
Process and Stormwater Systems

Component Type	Component Identification	WGS84 Coordinates	Component Description	Campaign Date	Survey Length (FT)	Asset Size	PACP Findings
			Category 5 Assets: Unknown Lines - No Survey				
Unknown Component	Process Line		**Unknown**	1.30.2020	N/A	N/A	
Unknown Component	Storm Water Line		**Unknown**	1.30.2020	N/A	N/A	

PACP FINDINGS INDEX

S	Structural	H	Hydraulics	C	Constructional
M	Miscellaneous	O	O & M	*	Incomplete

ITpipes
4921 Alexander Blvd
Albuquerque, NM
505-341-0109

Defect Listing Plot with Images

Pipe Segment Refere...	City	Street	Material		Location C...	Pipe Use
	GALLUP	BUNDLE PAD	PolyVinyl Chloride			Stormwater
Upstream MH	Total Length	Year Constructed	Shape		Location Details	
17A-1			Circular			
Downsstream MH	Length surveyed	Year Renewed	Height	Width	Pipe Joint...	
CBZ-E	12		16	16		

SPR	0	MPR	0	PO Number	Customer
SPRI	0	MPRI	0		
QSR	0000	QMR	0000	Work Order Number	Purpose

OPR	Surveyed By	Direction	Date	Media label	
0	BJAMES	Downstream	20200129		
OPRI	Certificate Number	Pre-Cleaning	Time	Weather	
0	U-0317-07007227	Light Cleaning	11:40		
Date Cleaned			End Time	Additional Info	
			11:47		

0.0 ft. Access Point Manhole

START AT MANHOLE 17A-1

0.0 ft. Miscellaneous Water Level

12.0 ft. Access Point Manhole

CBZ-E

LEGEND

COLLAPSE

CRACK

HOLE

TAP FACTORY

ROOTS

DEPOSITS

GRADE

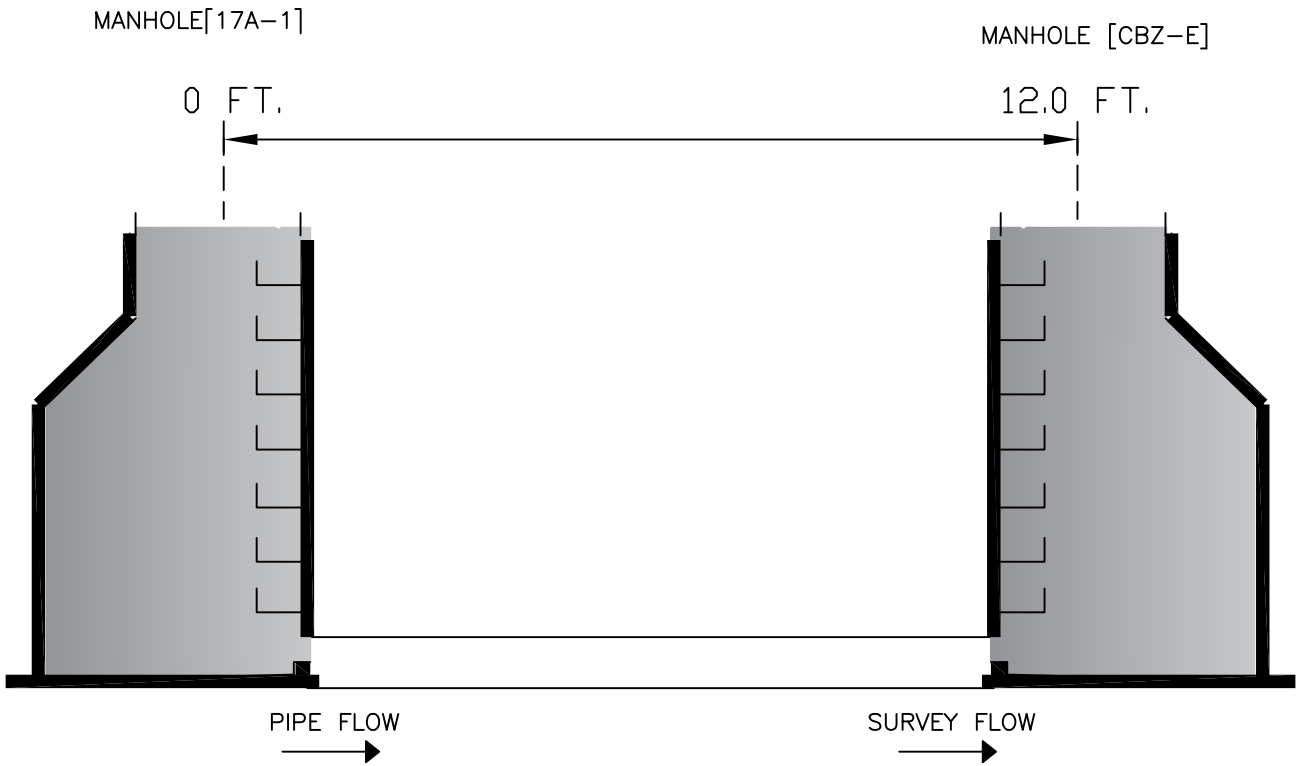
JOINT

FLOW

STRUCTURAL DEFECT CODING
*ABBREVIATION + STRUCT. DEFECT TYPE + SIZE OF DEFECT

C	CRACK
F	FRACTURE
B	BROKEN
H	HOLE
J	JOINT
D	DEFORMED
X	COLLAPSE
LF	LINING FEATURES
WF	WELD FAILURE
RP	POINT REPAIR
A	ACCESS POINT
V	VISIBLE
S	SURFACE DAMAGE

	ROOTS
F	FINE
M	MEDIUM
T	TAP
B	BALL
	JOINTS
JOS	OFFSET SMALL
JOM	OFFSET MEDIUM
JOL	OFFSET LARGE
	CRACKS
CL	LONGITUDINAL
CC	CIRCUMFERENTIAL
CM	MULTIPLE
CS	SPIRAL
CH	HINGE



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Rev. No.	DATE	BY	DESCRIPTION
0	11/14/2019	TD	GENERATED TO CAD

CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	DESC: 17A-1 to CBZ-E	DWG#: 1	2.5.2020

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Defect Listing Plot with Images

Pipe Segment Refere...	City	Street	Material		Location C...	Pipe Use
	GALLUP	BUNDLE PAD	Ductile Iron Pipe			Stormwater
Upstream MH	Total Length	Year Constructed	Shape		Location Details	
BUNDLE PAD			Circular			
Downsstream MH	Length surveyed	Year Renewed	Height	Width	Pipe Joint...	
CBZ-E	66		8	8		

				PO Number	Customer
SPR	0	MPR	0		
SPRI	0	MPRI	0	Work Order Number	Purpose
QSR	0000	QMR	0000		

OPR	Surveyed By	Direction	Date	Media label	
0	BJAMES	Upstream	20200128		
OPRI	Certificate Number	Pre-Cleaning	Time	Weather	
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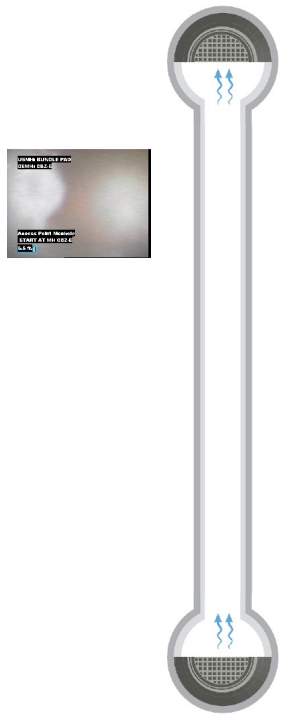
Date Cleaned			End Time	Additional Info	
			11:15		



CBZ-E

0.0 ft. Access Point Manhole

START AT MH CBZ-E

0.0 ft. Miscellaneous Water Level

66.0 ft. Access Point Manhole

BUNDLE PAD

BUNDLE PAD

LEGEND

COLLAPSE

CRACK

HOLE

TAP FACTORY

ROOTS

DEPOSITS

GRADE

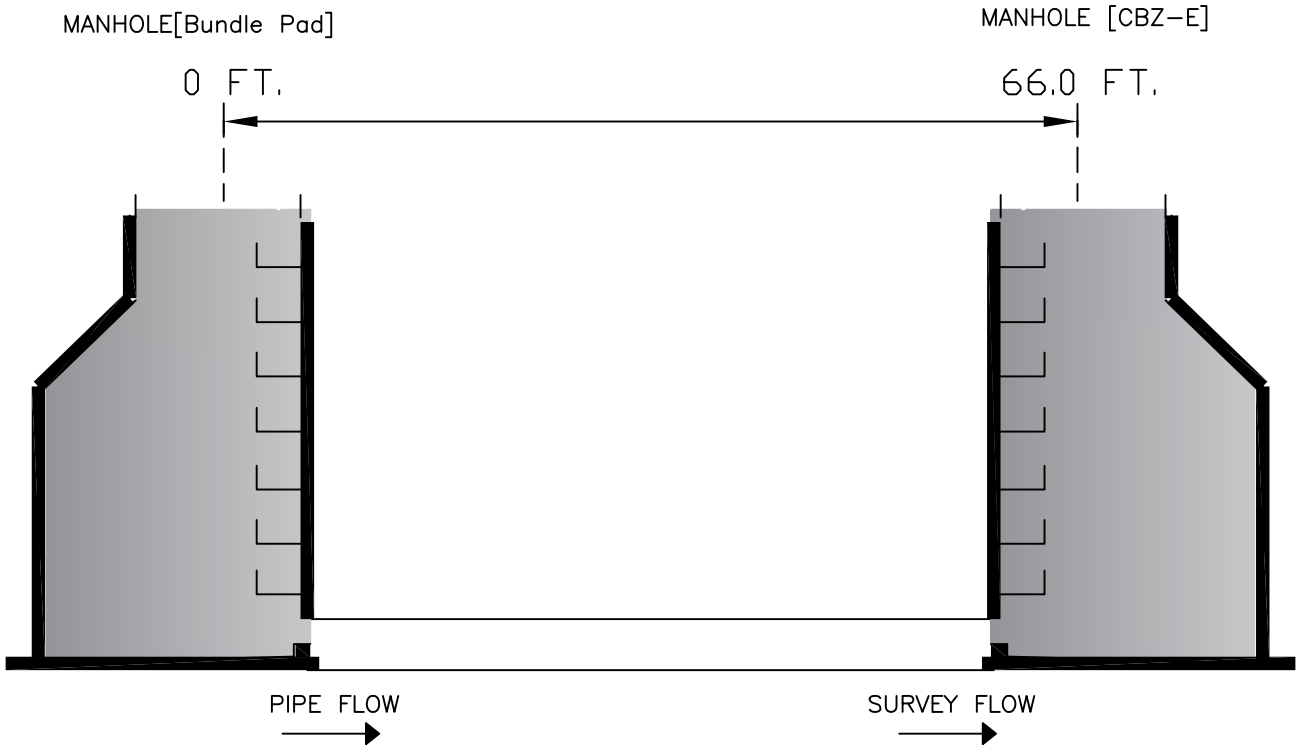
JOINT

FLOW

STRUCTURAL DEFECT CODING
*ABBREVIATION + STRUCT. DEFECT TYPE + SIZE OF DEFECT

C	CRACK
F	FRACTURE
B	BROKEN
H	HOLE
J	JOINT
D	DEFORMED
X	COLLAPSE
LF	LINING FEATURES
WF	WELD FAILURE
RP	POINT REPAIR
A	ACCESS POINT
V	VISIBLE
S	SURFACE DAMAGE

	ROOTS
F	FINE
M	MEDIUM
T	TAP
B	BALL
	JOINTS
JOS	OFFSET SMALL
JOM	OFFSET MEDIUM
JOL	OFFSET LARGE
	CRACKS
CL	LONGITUDINAL
CC	CIRCUMFERENTIAL
CM	MULTIPLE
CS	SPIRAL
CH	HINGE



REVISIONS

Rev. No.	DATE	BY	DESCRIPTION
0	11/14/2019	TD	GENERATED TO CAD

CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	DESC: Bundle Pad - CBZ-E	DWG#: 1	2.5.2020

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505-341-0109

Defect Listing Plot with Images

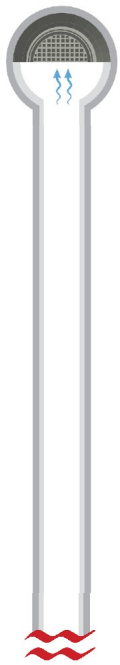
Pipe Segment Refere...	City	Street	Material	Location C...	Pipe Use
	GALLUP	BUNDLE PAD	PolyVinyl Chloride		Stormwater

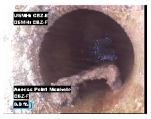
Upstream MH	Total Length	Year Constructed	Shape	Location Details
CBZ-E			Circular	

Downsstream MH	Length surveyed	Year Renewed	Height	Width	Pipe Joint...	
CBZ-F	3		16	16		

SPR	0	MPR	0	PO Number	Customer
SPRI	0	MPRI	0		
QSR	0000	QMR	0000	Work Order Number	Purpose

OPR	Surveyed By	Direction	Date	Media label	
0	BJAMES	Upstream	20200128		
OPRI	Certificate Number	Pre-Cleaning	Time	Weather	
0	U-0317-07007227	No Pre-Cleaning	12:45		
Date Cleaned			End Time	Additional Info	
			12:51		



0.0 ft.	Access Point Manhole			CBZ-F
0.0 ft.	Miscellaneous Water Level			
3.0 ft.	Miscellaneous Survey Abandoned			CAN NOT MOVE PAST DEBRI

LEGEND

COLLAPSE

CRACK

HOLE

TAP FACTORY

ROOTS

DEPOSITS

GRADE

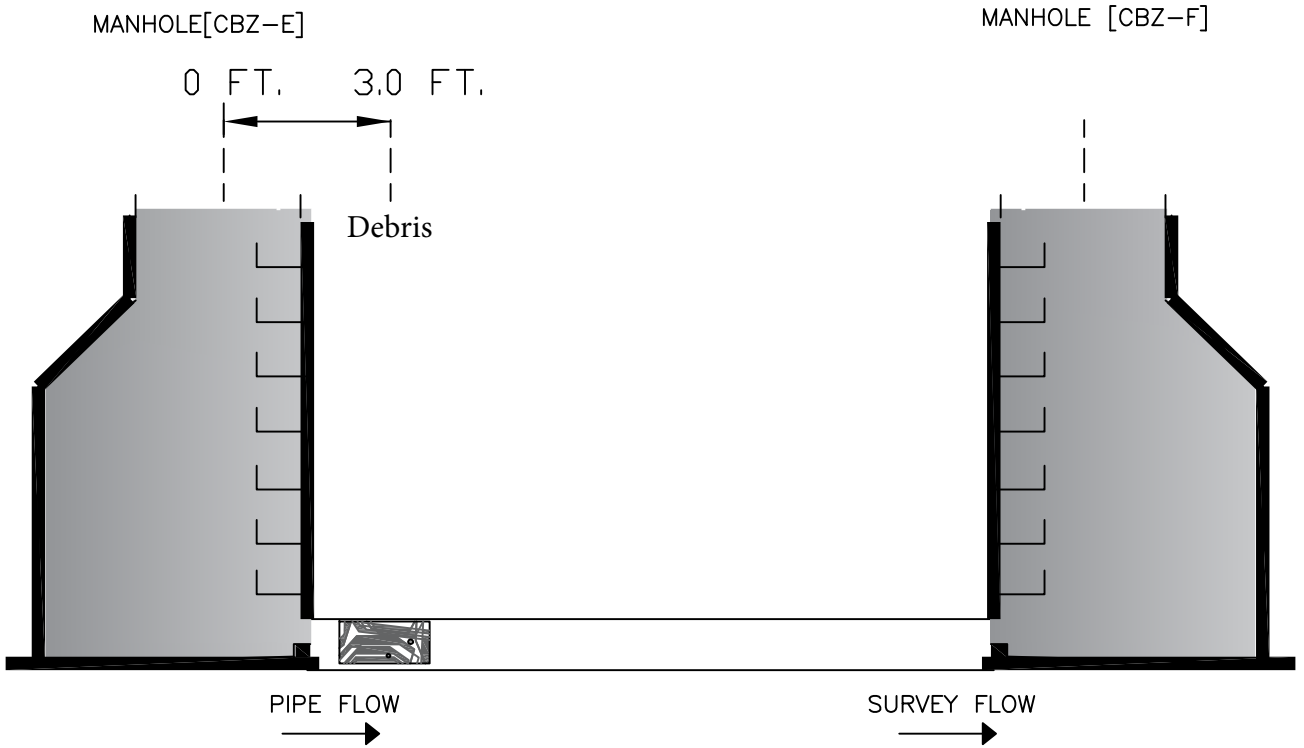
JOINT

FLOW

STRUCTURAL DEFECT CODING
*ABBREVIATION + STRUCT. DEFECT TYPE + SIZE OF DEFECT

C	CRACK
F	FRACTURE
B	BROKEN
H	HOLE
J	JOINT
D	DEFORMED
X	COLLAPSE
LF	LINING FEATURES
WF	WELD FAILURE
RP	POINT REPAIR
A	ACCESS POINT
V	VISIBLE
S	SURFACE DAMAGE

	ROOTS
F	FINE
M	MEDIUM
T	TAP
B	BALL
	JOINTS
JOS	OFFSET SMALL
JOM	OFFSET MEDIUM
JOL	OFFSET LARGE
	CRACKS
CL	LONGITUDINAL
CC	CIRCUMFERENTIAL
CM	MULTIPLE
CS	SPIRAL
CH	HINGE



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Rev. No.	DATE	BY	DESCRIPTION
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CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	DESC: CBZ-E - CBZ-F	DWG#: 1	2.5.2020

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Defect Listing Plot with Images

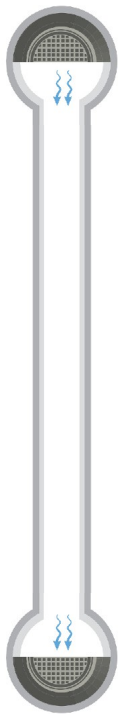
Pipe Segment Refere...	City	Street	Material	Location C...	Pipe Use
	GALLUP	BUNDLE PAD	PolyVinyl Chloride		Stormwater

Upstream MH	Total Length	Year Constructed	Shape	Location Details
CBZ-F			Circular	

Downsstream MH	Length surveyed	Year Renewed	Height	Width	Pipe Joint...	
CBZ-G	421.6		16	16		

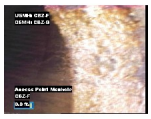
SPR	0	MPR	0	PO Number	Customer
SPRI	0	MPRI	0		
QSR	0000	QMR	0000	Work Order Number	Purpose

OPR	Surveyed By	Direction	Date	Media label	
0	BJAMES	Downstream	20200128		
OPRI	Certificate Number	Pre-Cleaning	Time	Weather	
0	U-0317-07007227	No Pre-Cleaning	13:21		
Date Cleaned			End Time	Additional Info	
			13:41		



CBZ-F

0.0 ft. Access Point Manhole



CBZ-F

0.0 ft. Miscellaneous Water Level

421.6 ft. Access Point Manhole

END AT MH CBZ-G

CBZ-G

LEGEND

COLLAPSE

CRACK

HOLE

TAP FACTORY

ROOTS

DEPOSITS

GRADE

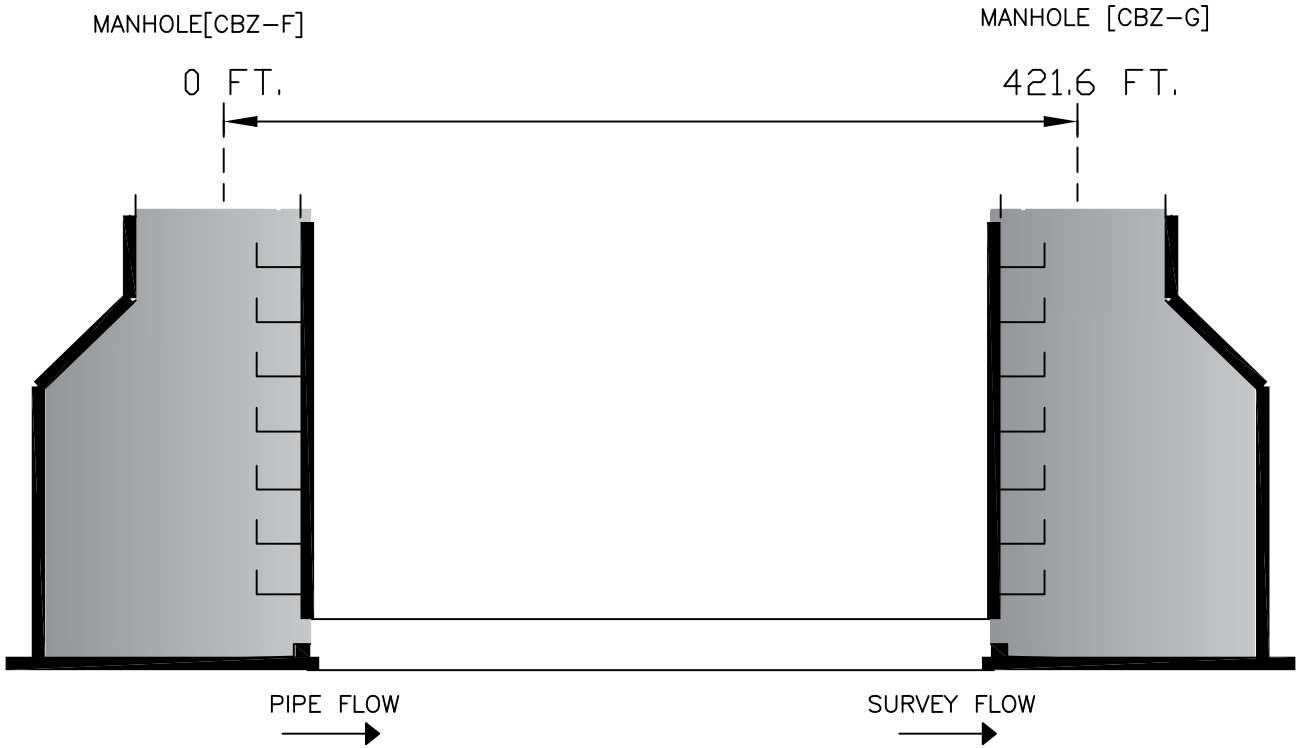
JOINT

FLOW

STRUCTURAL DEFECT CODING
*ABBREVIATION + STRUCT. DEFECT TYPE + SIZE OF DEFECT

C	CRACK
F	FRACTURE
B	BROKEN
H	HOLE
J	JOINT
D	DEFORMED
X	COLLAPSE
LF	LINING FEATURES
WF	WELD FAILURE
RP	POINT REPAIR
A	ACCESS POINT
V	VISIBLE
S	SURFACE DAMAGE

	ROOTS
F	FINE
M	MEDIUM
T	TAP
B	BALL
	JOINTS
JOS	OFFSET SMALL
JOM	OFFSET MEDIUM
JOL	OFFSET LARGE
	CRACKS
CL	LONGITUDINAL
CC	CIRCUMFERENTIAL
CM	MULTIPLE
CS	SPIRAL
CH	HINGE



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CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	DESC: CBZ-F - CBZ-G	DWG#: 1	2.5.2020

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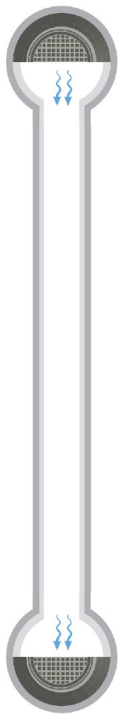
Defect Listing Plot with Images

Pipe Segment Refere...	City	Street	Material		Location C...	Pipe Use
	GALLUP	BUNDLE PAD	Ductile Iron Pipe			Stormwater
Upstream MH	Total Length	Year Constructed	Shape		Location Details	
CBZ-G			Circular			
Downsstream MH	Length surveyed	Year Renewed	Height	Width	Pipe Joint...	
CBZ-H	13		12	12		

SPR	0	MPR	0	PO Number	Customer
SPRI	0	MPRI	0		
QSR	0000	QMR	0000	Work Order Number	Purpose

OPR	Surveyed By	Direction	Date	Media label	
0	BJAMES	Downstream	20200130		
OPRI	Certificate Number	Pre-Cleaning	Time	Weather	
0	U-0317-07007227	No Pre-Cleaning	09:12		
Date Cleaned			End Time	Additional Info	
			09:16		



0.0 ft. Access Point Manhole

CBZ-G

0.0 ft. Miscellaneous Water Level

13.0 ft. Access Point Manhole

CBZ-H

LEGEND

COLLAPSE

CRACK

HOLE

TAP FACTORY

ROOTS

DEPOSITS

GRADE

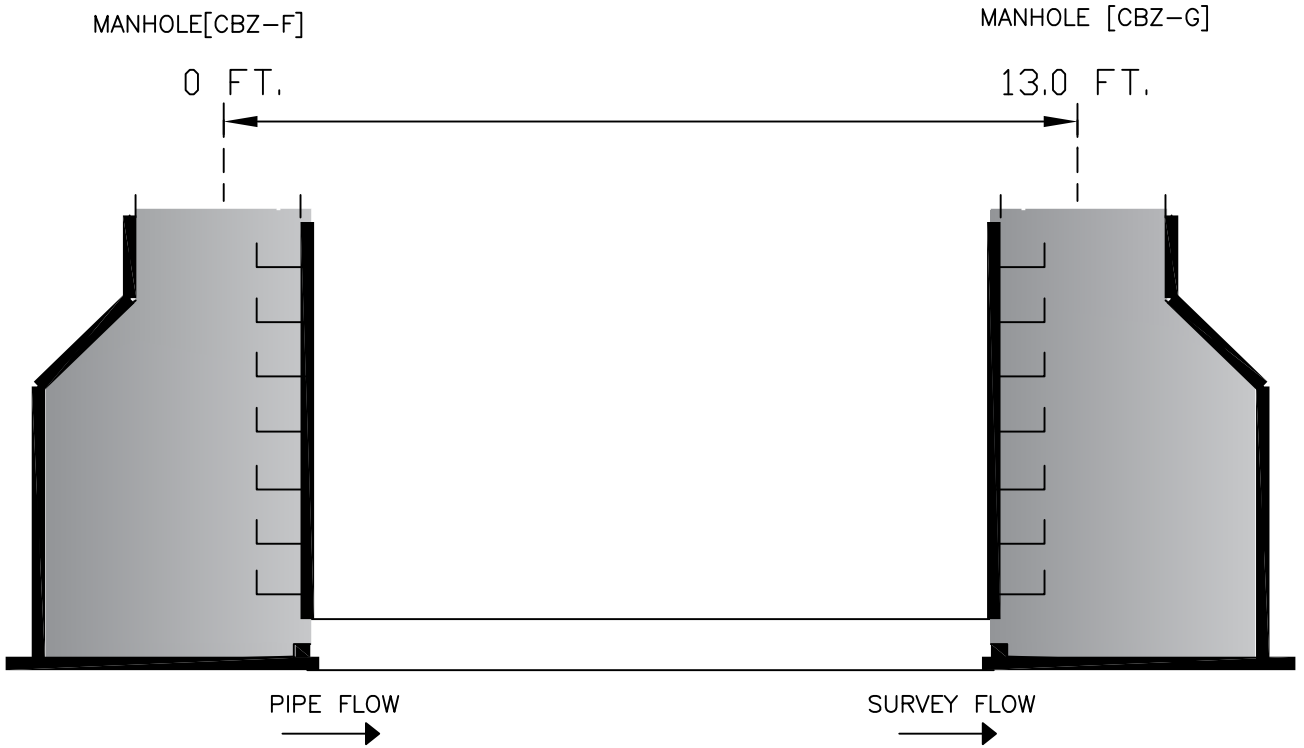
JOINT

FLOW

STRUCTURAL DEFECT CODING
*ABBREVIATION + STRUCT. DEFECT TYPE + SIZE OF DEFECT

C	CRACK
F	FRACTURE
B	BROKEN
H	HOLE
J	JOINT
D	DEFORMED
X	COLLAPSE
LF	LINING FEATURES
WF	WELD FAILURE
RP	POINT REPAIR
A	ACCESS POINT
V	VISIBLE
S	SURFACE DAMAGE

	ROOTS
F	FINE
M	MEDIUM
T	TAP
B	BALL
	JOINTS
JOS	OFFSET SMALL
JOM	OFFSET MEDIUM
JOL	OFFSET LARGE
	CRACKS
CL	LONGITUDINAL
CC	CIRCUMFERENTIAL
CM	MULTIPLE
CS	SPIRAL
CH	HINGE



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CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	DESC: CBZ-G - CBZ-H	DWG#: 1	2.5.2020

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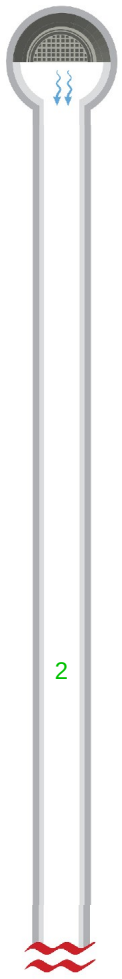
505-341-0109

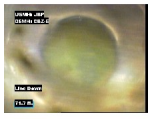
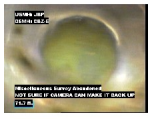
Defect Listing Plot with Images

Pipe Segment Refere...	City	Street	Material	Location C...	Pipe Use
	GALLUP	BUNDLE PAD	Ductile Iron Pipe		Stormwater
Upstream MH	**Total Length**	**Year Constructed**	**Shape**	**Location Details**	
JBP			Circular		
Downsstream MH	**Length surveyed**	**Year Renewed**	**Height / Width**	**Pipe Joint...**	
CBZ-E	71.7		8 / 8		

SPR	0	MPR	2	PO Number	Customer
SPRI	0	MPRI	2		
QSR	0000	QMR	2100	Work Order Number	Purpose

OPR	Surveyed By	Direction	Date	Media label	
2	BJAMES	Downstream	20200129		
OPRI	**Certificate Number**	**Pre-Cleaning**	**Time**	**Weather**	
2	U-0317-07007227	No Pre-Cleaning	10:26		
Date Cleaned			**End Time**	**Additional Info**	
			10:36		



0.0 ft.	Access Point Manhole		 START AT MANHOLE JBP
0.0 ft.	Miscellaneous Water Level		
31.4 ft.	Miscellaneous Water Level		
71.7 ft.	Line Down		
71.7 ft.	Miscellaneous Survey Abandoned		NOT SURE IF CAMERA CAN MAKE IT BACK UP

LEGEND

COLLAPSE

CRACK

HOLE

TAP FACTORY

ROOTS

DEPOSITS

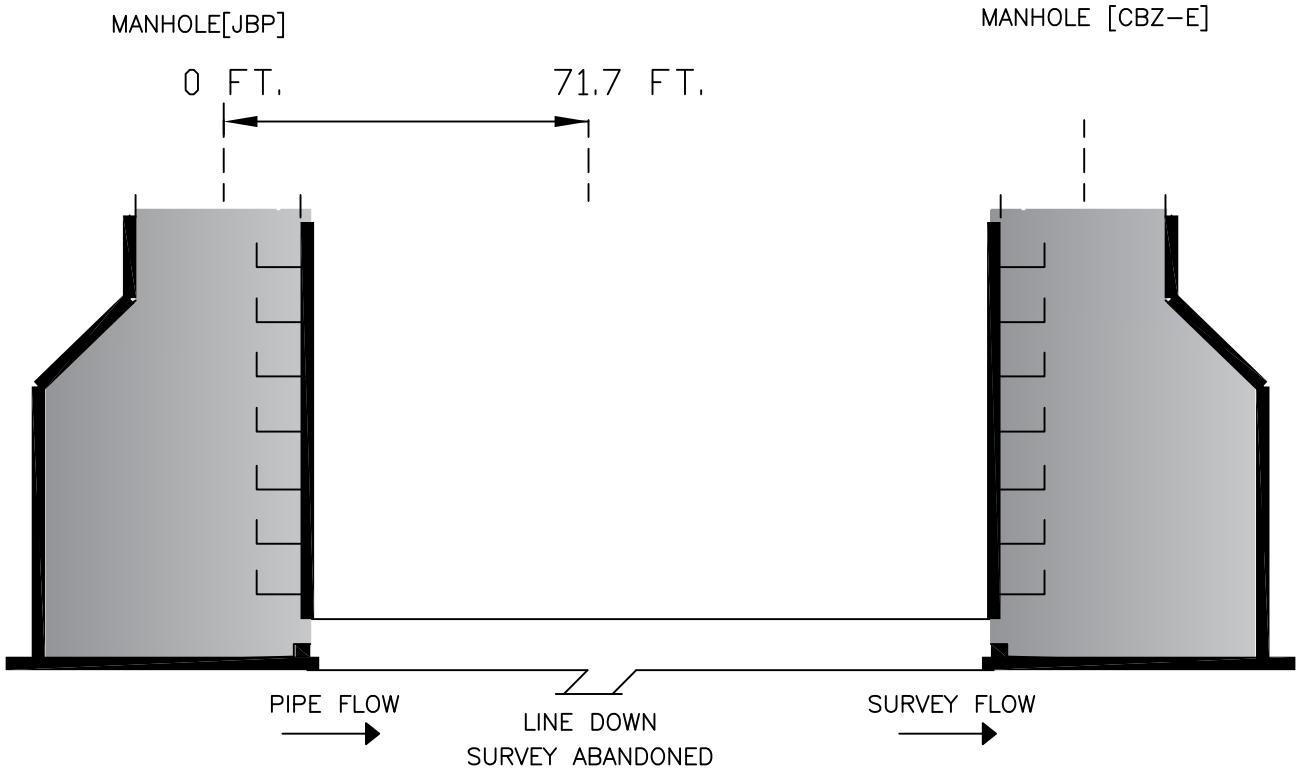
GRADE

JOINT

FLOW

STRUCTURAL DEFECT CODING
*ABBREVIATION + STRUCT. DEFECT TYPE + SIZE OF DEFECT

C	CRACK		ROOTS
F	FRACTURE	F	FINE
B	BROKEN	M	MEDIUM
H	HOLE	T	TAP
J	JOINT	B	BALL
D	DEFORMED		JOINTS
X	COLLAPSE	JOS	OFFSET SMALL
LF	LINING FEATURES	JOM	OFFSET MEDIUM
WF	WELD FAILURE	JOL	OFFSET LARGE
RP	POINT REPAIR		CRACKS
A	ACCESS POINT	CL	LONGITUDINAL
V	VISIBLE	CC	CIRCUMFERENTIAL
S	SURFACE DAMAGE	CM	MULTIPLE
		CS	SPIRAL
		CH	HINGE



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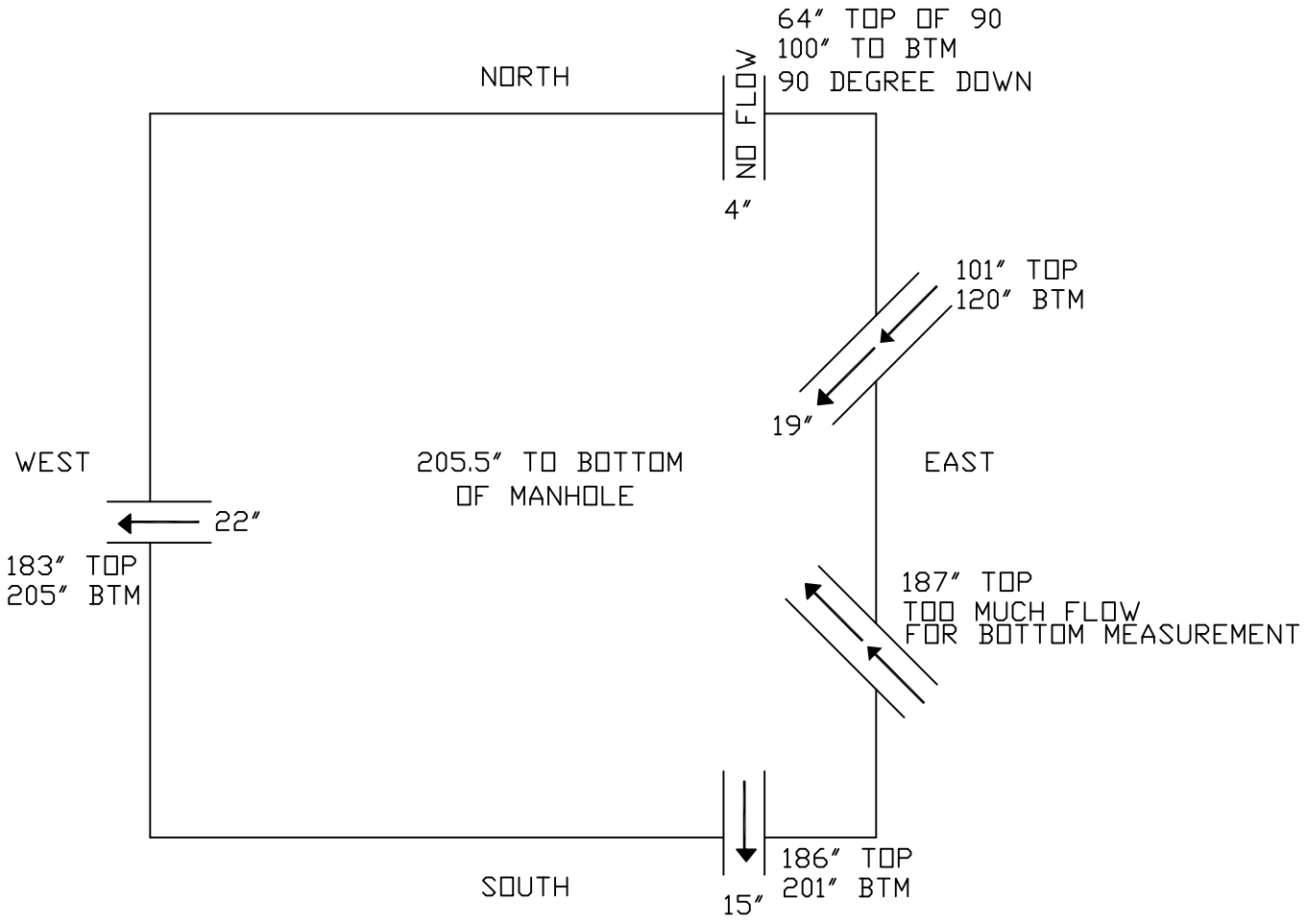
insta-pipe TRENCHLESS PIPE REPAIR

CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	DESC: JBP - CBZ-E	DWG#: 1	2.5.2020

UNKNOWN PROCESS 1



REVISIONS			
Rev. No.	DATE	BY	DESCRIPTION
0	02/05/2020	KC	GENERATED TO CAD

CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	DESC: UNKNOWN PROCESS LINE	DWG#: 1	2.5.2020

	REMOTE VISUAL INSPECTION – SEWER AND PROCESS LINES	
CLIENT: MARATHON	FACILITY: GALLUP NM	DATE: 2020.1.29
ID# UNKNOWN PROCESS 1	PHOTOLOG	SURVEYED BY: B. JAMES

UNIDENTIFIED PROCESS LINE 1
PHOTO 1

UNIDENTIFIED PROCESS LINE 1
PHOTO 2

UNIDENTIFIED PROCESS LINE 1
PHOTO 3

UNIDENTIFIED PROCESS LINE 1
PHOTO 4

	REMOTE VISUAL INSPECTION – STORMWATER AND PROCESS LINES	
CLIENT: MARATHON	FACILITY: GALLUP NM	DATE: 2020.1.29
ID# UNKNOWN PROCESS 1	PHOTOLOG	SURVEYED BY: B. JAMES

UNIDENTIFIED PROCESS LINE 1 PHOTO 5

UNIDENTIFIED PROCESS LINE 1 PHOTO 6

UNIDENTIFIED PROCESS LINE 1 PHOTO 7

UNIDENTIFIED PROCESS LINE 1 PHOTO 8

	REMOTE VISUAL INSPECTION – STORMWATER AND PROCESS LINES	
CLIENT: MARATHON	FACILITY: GALLUP NM	DATE: 2020.1.29
ID# UNKNOWN PROCESS 1	PHOTOLOG	SURVEYED BY: B. JAMES

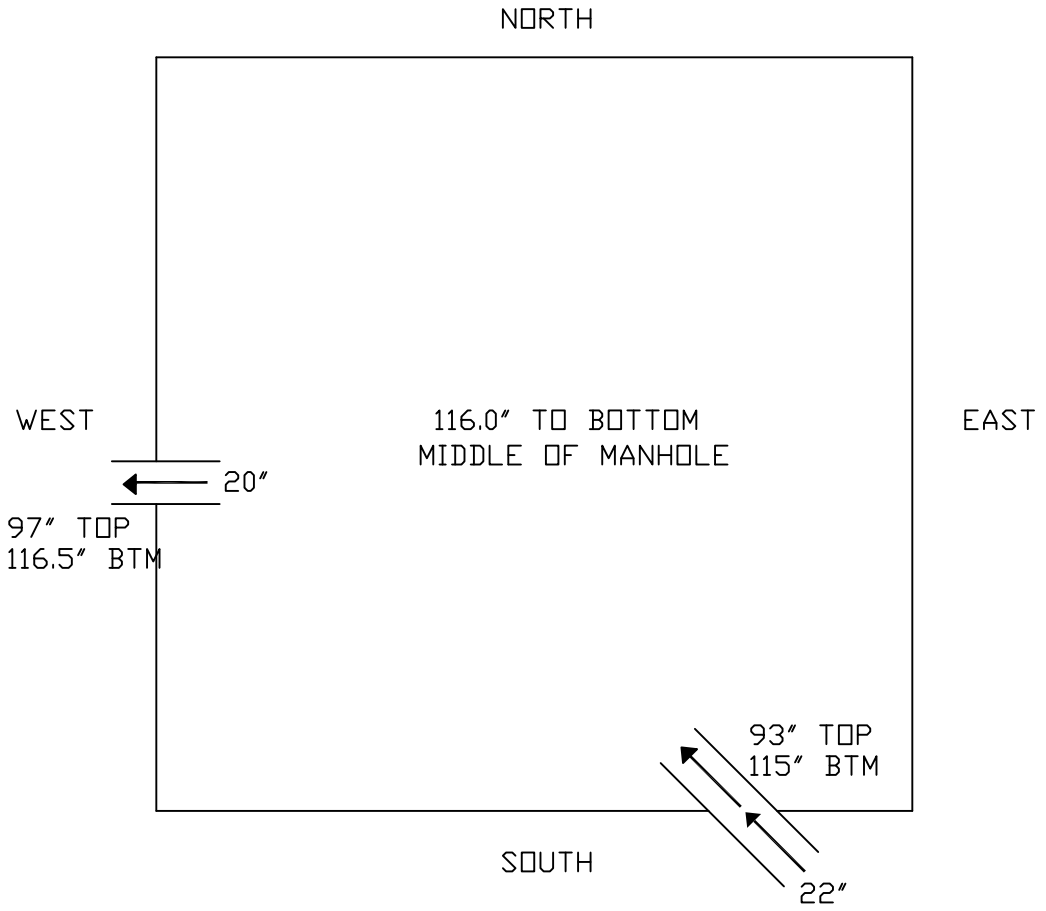
UNIDENTIFIED PROCESS LINE 1 PHOTO 9

UNIDENTIFIED PROCESS LINE 1 PHOTO 10

UNIDENTIFIED PROCESS LINE 1 PHOTO 11

UNIDENTIFIED PROCESS LINE 1 PHOTO 12

UNKNOWN STORMWATER 1



REVISIONS

Rev. No.	DATE	BY	DESCRIPTION
0	02/05/2020	KC	GENERATED TO CAD

CLIENT:	FACILITY:	DESCRIPTION:	DWG. NO.:	DWG. DATE:
MARATHON - GALLUP FACILITY	Gallup New Mexico	DESC: UNKNOWN STORM LINE	DWG#: 1	2.5.2020

	REMOTE VISUAL INSPECTION – STORMWATER AND PROCESS LINES	
CLIENT: MARATHON	FACILITY: GALLUP NM	DATE: 2020.1.29
ID# UNKNOWN STORM	PHOTOLOG	SURVEYED BY: B. JAMES

UNIDENTIFIED STORM LINE PHOTO 1

UNIDENTIFIED STORM LINE PHOTO 2

UNIDENTIFIED STORM LINE PHOTO 3

Appendix B - Bundle Pad Sewer Dye Test – Photographs

Appendix C - SOP – Soil Sampling

memorandum

To: Sampling Team Members
From: Project Manager
Date: September 10, 2021
Re: Standard Operating Procedure – Soil Sampling

1.0 INTRODUCTION

Soil sampling related to site characterization and site clean-up is expected to involve source sampling of potentially impacted soils for characterization and profiling. Soil sampling is expected to occur around the heat exchanger bundle pad area.

All personnel involved in soil sampling projects are required to review this Standard Operating Procedure (SOP) before sampling to ensure the continued generation of reliable data. This SOP is based on experience gained from collecting soil samples and the latest information available in guidance manuals. This SOP may be updated as additional experience and information are acquired.

2.0 PRE-FIELD ACTIVITIES

Several activities will be conducted prior to departure for the project site. A project team will be assigned and the members will begin coordinating the sample collection event with Marathon Petroleum Company. Field equipment will be checked and organized. Access to the areas to be sampled will be checked, and provisions made to pack the necessary equipment for delivery to the project site.

3.0 PREPARATION

The Project Manager will review the current sampling and analysis plans and work plans to determine if any documents need to be brought to the site during monitoring. The Project Manager will also evaluate whether any changes have been made in the sampling and analytical procedures and notify the appropriate personnel.

The Sampling Team Members will review available surface water level data before leaving for the sampling site. This preparation ensures that the proper equipment and personnel are available at the site. All field screening equipment will be inspected prior to departure, ensuring that it is in proper working order. For soil sampling, the only field monitoring equipment used will be a photoionization detector (PID) and it should be calibrated and operated and according to manufacturer's recommendations.

4.0 EQUIPMENT

The following equipment is recommended for soil sampling:

- Required personal protective equipment (PPE), listed in the site-specific health and safety plan (HASP)
- Soil sampling devices (i.e., hand auger)
- Sampling beaker, bottles, labels, and preservatives
- Gloves
- Chain-of-custody/sample-analysis-request forms
- PID
- Global Positioning System (GPS) unit
- Opaque Cooler(s) and bagged ice or frozen Blue Ice
- Detergent or solvent for cleaning monitoring equipment
- Brushes dedicated for decontamination
- Decontamination containers dedicated for wash, rinse 1, and rinse 2
- Paper towels
- Trash bags
- Field logbook

5.0 SAMPLE COLLECTION

A critical aspect of any sampling program is selection and implementation of an appropriate sampling technique. Selection of equipment and technique should be appropriate for the volume of material required and the type of analysis to be performed. In general, the sampling equipment and technique will be chosen to minimize, to the extent possible, the amount of handling a sample will undergo prior to analysis. In many cases, the material to be sampled will be easy to access, and simple "grab" samples collected using a shovel, trowel, or drive sampler are appropriate. In other cases, such as underwater or heavily saturated samples, the soils may be difficult to access, and sampling will involve the use of specialized soil sampling equipment. Specific analytical requirements and sampling frequencies are specified in the work plan.

Soil samples located in dry areas will be collected from representative locations using a decontaminated drive sampler equipped with clean brass or stainless steel sampling rings, a thin-walled tube sampler, or a shovel or hand trowel. The sampling device will be driven completely into the material manually or using a manually operated auger, drive hammer, or mallet. The sampling device will then be extracted from the material using a shovel or trowel as needed. If used, filled sampling rings or the thin walled tube will

then be removed from the sampling device and immediately sealed on both ends with teflon sheeting and plastic caps. Otherwise, the material will placed directly from the trowel or other appropriate sampling device into a clean glass jar. The jar will be filled completely to minimize headspace (by tamping during filling), and immediately sealed with a teflon-lined lid.

If necessary, several cores may be collected from each location to provide adequate sample volume for the laboratory. The sample containers will be labeled with endelible ink. Filled sample containers should be wiped dry and placed in a cooler with ice (or equivalent) for storage at the time of collection. Enough ice and protective packing material should be used to cool the samples to 4°C and ensure that the container remains intact prior to final packing and shipment.

Field screening may involve the use of a PID. In this case, material will be placed from the trowel or other appropriate sampling device into a bad. The PID will be inserted into the bag and the reading taken. All samples shall be screened at as close to the same temperature as possible to obtain consistent results. After collecting the reading, the material will be transferred from the bag into a clean glass jar as described above.

Sampling devices will be decontaminated between sampling locations using a four-stage decontamination system consisting of a two detergent/water washes and two deionized water rinses. Sample locations will be recorded with a GPS unit in order to accurately map the sampling locations.

Field logbooks, Soil Sampling Field Log, and photograph logs will provide a written record of field data gathered, field observations, field equipment calibrations, the samples collected for analysis, and sample custody. Color photographs will be used to substantiate and augment the field notes, if necessary. Field records will be maintained in the project file.

697-076-002

Appendix D - Boring Log – Field Form

Trihydro CORPORATION

Lithology Log Sheet ___ of ___

LOCID

Project Name	Project Number	Site ID

Drilling Company	Driller	Ground Elevation	Total Drilled Depth

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached

Type of Sampling Device	Water Level (bgs) First	Final

Sample Hammer Type	Driving Wt.	Drop	Geologist/Engineer	Checked by/Date

Weather	Other Personnel Present
Site Conditions	

Location Description (include sketch in field logbook)

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	ASTM Code	Lithology	Water Content	Estimate % of Gr	Sa	Fi	Remarks (Include all sample types, times, and depth, odor, organic vapor measurements, etc.)

Trihydro CORPORATION

Lithology Log (continued) Sheet ___ of ___

LOCID

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	ASTM Code	Lithology	Water Content	Estimate % of Gr	Sa	Fi	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)

ATTACHMENT B-2

(PLEASE SEE ATTACHED CD)

REDLINE

Heat Exchanger Bundle Pad Investigation Work Plan

WESTERN REFINING SOUTHWEST LLC
D/B/A MARATHON GALLUP REFINERY

Gallup, New Mexico

EPA ID# NMD000333211

September 2021

Revised February 2022

Executive Summary

The Marathon Gallup Refinery is submitting this work plan for soil investigation in the vicinity of the Heat Exchanger Bundle Pad (Bundle Pad). The New Mexico Environment Department (NMED) commented on elevated benzene concentrations in groundwater at monitoring well MKTF-16 in Comment 46 from the *Disapproval Annual Groundwater Monitoring Report Gallup Refinery – 2019* (dated November 23, 2020), which suggested the benzene source could be from leaks in the process sewer line near the Bundle Pad. Specifically, NMED Comment 46 requested an investigation into the integrity of the sewer lines in the area of the Bundle Pad.

Based on February 2020 process sewer video/photo inspections and March 2021 dye tests conducted near the Bundle Pad sewer, no sewer integrity issues were identified. The proposed work plan will investigate the presence of elevated ~~concentrations of benzene~~hydrocarbon-related constituents in monitoring well MKTF-16 by installing and sampling soil borings in the vicinity of MKTF-16 and around the Bundle Pad. Soil boring samples will be collected using a geoprobe direct-push drill rig ~~and analyzed for benzene~~.

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List of Acronyms

amsl	above mean sea level
bgs	below ground surface
~~BTEX~~BTEXN	benzene, toluene, ethylbenzene, xylenes, and ~~xylene~~naphthalene
COC	chain of custody
ft	feet
NMED	New Mexico Environment Department
PID	photoionization detector
ppm	parts per million
QA/QC	Quality Assurance / Quality Control
SSL	soil screening level
TPH	total petroleum hydrocarbons
VOC	volatile organic compound

Introduction

The Western Refining Southwest, LLC., D/B/A Marathon Gallup Refinery (the Refinery) is located approximately 17 miles east of Gallup, New Mexico along the north side of Interstate Highway I-40 (Figure 1). The physical address is I-40, Exit #39 Jamestown, New Mexico 87347. The Refinery property covers approximately 810 acres.

This work plan is for the investigation of soils around the Heat Exchanger Bundle Pad (Bundle Pad) and monitoring well MKTF-16. The New Mexico Environment Department (NMED) commented on elevated benzene concentrations in groundwater at monitoring well MKTF-16 in Comment 46 from the *Disapproval Annual Groundwater Monitoring Report Gallup Refinery – 2019* (dated November 23, 2020), which suggested the benzene source could be from leaks in the process sewer line near the Bundle Pad. Specifically, Comment 46 requested an investigation into the integrity of the sewer lines in the area of the Bundle Pad. Based on February 2020 process sewer video/photo inspections (Appendix A), no sewer integrity issues were identified. On March 19, 2021, a dye test was performed at the Bundle Pad sump. The inlets and outlet of the Bundle Pad sump were plugged and green fluorescent dye and water were added to fill the sump (photos included as Appendix B). The sump was inspected 24 hours later, Saturday, March 20, and no decrease in fluid level was noted.

This work plan will investigate the potential source of elevated ~~benzene concentrations~~hydrocarbon-related constituents in monitoring well MKTF-16 by collecting soil samples from soil borings in the vicinity of MKTF-16 and near the Bundle Pad. Soil samples will be collected using a geoprobe direct-push drill rig ~~and analyzed for benzene~~.

Site Conditions

The Refinery has been indefinitely idled since August 2020. Historically, the Refinery generally processed crude oil transported to the facility by pipeline or tanker truck. While operating, various process units were operated at the Refinery including crude distillation, reformer, fluidized catalytic cracker, alkylation, sulfur recovery, merox treater, and hydrotreater units. Refinery operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.

Surface Conditions

Local site topographic features include high ground in the southeast gradually decreasing to a lowland fluvial plain to the northwest. Elevations on the refinery property range from 6,860 feet (ft) above mean sea level (amsl) to 7,040 ft amsl. The Bundle Pad area is approximately 6,951 ft amsl.

Subsurface Conditions

The shallow subsurface soil (alluvium) is comprised of clay and silt with some inter-bedded sand layers. Beneath the alluvium is the Petrified Forest Member of the Chinle Group, which primarily consists of

interbedded mudstone, siltstone, and sandstone. The Alluvium/Chinle interface is as little as 15 ft below ground surface (bgs) to over 32 ft bgs.

Scope of Activities

The investigative activities detailed in this work plan will be completed to gain knowledge of the subsurface in the area of the Bundle Pad and help identify the source of benzene found in MKTF-16. Pending NMED approval, the Refinery anticipates investigation work to be completed during ~~2021~~2022.

Soil borings will be completed with a geoprobe direct-push drill rig at ~~eight~~14 locations around the Bundle Pad to a planned total depth of 15 ft bgs (Figure 2). Soil borings will be screened in the field for presence of volatiles using a photoionization detector (PID). If the PID indicates significant presence of volatile organic compounds (VOCs) (e.g., greater than 50 parts per million [ppm]) at the planned 15 ft bgs termination depth, the borehole will be extended until PID readings drop below 50 ppm. Note that visual and olfactory inspections will also be used to assess if the boring total depth is adequate for vertical delineation.

The total depth of the Bundle Pad sump and process sewer line in this area is approximately 12 ft bgs. Soil samples will be collected from 12 ft bgs, the bottom of the boring, and at depths where field screening indicates potential impacts. Soil samples will be analyzed for benzene ~~via Method 8260B. Analytical results will be compared to NMED Industrial Soil Screening Levels (SSL). ~~, ethylbenzene, toluene, xylene, and naphthalene (BETXN), as well as total petroleum hydrocarbons (TPH) gasoline range organics, TPH diesel range organics, and TPH oil range organics. The constituents were selected based on significant detection exceedances in groundwater at nearby monitoring well MKTF-16. Analytical results will be compared to NMED industrial/occupational soil screening levels (SSL) and construction worker SSLs.

~~Figure 2 also includes the proposed soil boring/sample locations for the Sour Naphtha Release Investigation. There are seven proposed borings from the intersection northwest of the Bundle Pad to MKTF-16. These sample locations have been proposed in the *Sour Naphtha Release Investigation Work Plan* to determine if the elevated benzene concentrations found in MKTF-16 are related to the 2017 Sour Naphtha release. The samples collected in the Sour Naphtha Investigation will include benzene and pertinent results will be reported alongside the Bundle Pad investigation results.~~

Investigation Methods

Soils obtained will be visually inspected and classified in general accordance with American Society for Testing and Materials D2487 (Unified Soil Classification System) and D2488 (Description and Identification of Soils). Detailed boring logs will be compiled in the field by qualified staff~~.~~, including the presence of moisture/water bearing zones. Samples will be field screened using a PID for evidence of organic volatiles. PID results will be recorded on the boring logs and used to determine additional sample intervals.

Sample Collection Procedures

Samples will be collected in accordance with the soil sampling Standard Operating Procedure (Appendix C). Details related to sample collection will be documented on the boring log field forms (Appendix D). General observations recorded on the field forms for each soil sample location will include sampling start and end times, weather, site conditions, sampling team members, and other personnel present. Sample-specific information will include field sample identification, time of sample collection, sample start and end depth, collection method, sample type (i.e., composite or aliquot), soil classification and characteristics, any deviations from or clarification of sampling procedures, and other observations.

PID readings will be collected on intervals corresponding with sample collection. Headspace vapor screening targets ~~volatile organic compounds~~VOCs and involves placing a soil sample in a plastic sample bag allowing space for ambient air. The container will be sealed and then shaken gently to expose the soil to the air trapped in the container. The sealed container will be allowed to rest while vapors equilibrate. Vapors present within the sample bag's headspace will then be measured by inserting the probe of the instrument in a small opening in the bag. The maximum value and the ambient air temperature will be recorded on the field boring or test pit log for each interval. Note that if samples are cold (i.e., below 32 degrees Fahrenheit) they will be sealed in airtight bags and warmed in a heated building and/or vehicle before screening.

After collecting the PID reading, sample jars will be filled, labeled, and placed in a cooler. Before shipment, each cooler will be packed with ice and a laboratory-provided trip blank. A chain of custody (COC) form will accompany each sample shipment. Coolers will be sealed and delivered to ~~Hall Environmental Laboratories (Hall).~~an appropriate analytical laboratory. A summary of the proposed sampling activities is provided below:

1. Installation of ~~eight~~fourteen soil borings, visual screening/logging, collection of PID readings for evidence of impacts, and collection of soil samples. Samples will be collected from:
    - 12 ft bgs (approximate depth of Bundle Pad sump and process sewer line)
    - The bottom of boring
    - Any additional intervals where field screening indicate impacted soils.
2. Submit samples to ~~Hall to be analyzed for benzene by Method 8260B~~analytical laboratory.
3. Compare analytical data with applicable NMED ~~Industrial~~ SSLs.

Data Quality and Validation

Quality assurance/quality control (QA/QC) samples will be collected during sampling to monitor the validity of the sample collection procedures. Field duplicates will be collected at a rate of 10% or at a minimum of 1 per day. Equipment blanks will be collected from re-usable equipment at a rate of 10% at a minimum of 1 per day. One trip blank per cooler will accompany the samples to the laboratory. The

field duplicates, equipment blank samples, and trip blanks will be submitted to the laboratory along with the soil samples. QA/QC samples will be recorded on the field forms and COCs. All data will undergo Tier II data validation.

Data Evaluation and Waste Management

The soil analytical results will be compared to applicable NMED Industrial SSLs. The results will be presented to NMED in an investigation report. Soil recovered during sampling will be placed in drums, labeled, and stored on the 90-Day Pad. Waste characterization will be conducted prior to disposal. Waste characterization analysis will include testing for Method 8260 - volatile organic compounds, Method 8270 - semi-volatile organic compounds~~-~~, and Resource Conservation and Recovery Act-8 Metals. Any wasted determined to be hazardous will be disposed of within 90 days.

Schedule

Pending NMED approval, the Refinery anticipates the investigation to be completed during ~~2021~~2022. Once the investigation has been completed, the Refinery will prepare an investigation report summarizing the sampling results and investigation conclusions within 120 days of the receipt of the analytical data.

References

~~Marathon. 2021. Sour Naphtha Release Investigation Work Plan, Western Refining Southwest LLC, Marathon Gallup Refinery, EPA ID #NMD000333211. September.~~

New Mexico Environment Department (NMED). 2020. Disapproval Annual Groundwater Monitoring Report Gallup Refinery – 2019. Western Refining Southwest LLC, Marathon Gallup Refinery, EPA ID #NMD000333211, HWB-WRG-20-013. November 23.

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CONDITIONS

Action 89738

CONDITIONS

Operator: Western Refining Southwest LLC 539 South Main Street Findlay, OH 45840	OGRID: 267595
	Action Number: 89738
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

Created By	Condition	Condition Date
scwells	Accepted for Record Retention Purposes-Only	11/23/2022