Superior Refining Company LLC

2407 Stinson Avenue Superior, WI 54880 Tel: (715) 398-3533

July 25, 2018

John Sager
Emergency Response Coordinator / Hydrogeologist
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
1701 North 4th Street
Superior, WI 54880

Re: #6 Fuel Oil Release SERTS ID 20180220NO16-1

Dear Mr. Sager,

Please find the attached report regarding the immediate action taken in response to the #6 Fuel Oil release reported the WDNR on February 20th, 2018 as required under NR 708.09(1). Based on the conclusions and recommendations of this report, we are requesting no further action for this release.

If you have any additional questions, please feel free to contact me at (715) 398-8434.

Sincerely,

Matt Turner
Environmental Technologist

Enclosure

Immediate Response Action Report

#6 Fuel Oil Release SERTS ID 20180220NO16-1

Prepared By:
Matt Turner
Superior Refining Company LLC
2407 Stinson Avenue
Superior, WI 54880
(715) 398-8434

7/25/2018

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

This report contains a summary of the immediate response actions at the Superior Refining Company LLC Superior, WI refinery in response to a #6 Fuel Oil release on February 20th, 2018. The site location is shown in Figure 1. The response was initiated on February 20th, 2018 after the release was discovered. The following report was prepared in accordance with Wisconsin Administrative Code NR 708 final report criteria under NR 708.09 for no further response action.

2.0 TYPE OF HAZARDOUS SUBSTANCE DISCHARGED, TOXICITY, MOBILITY AND VOLUME- NR 708.09 (1)(a)

The #6 fuel oil spill occurred in an area located at the rail loading dock between tracks 2 and 3. The total volume of the release was estimated to be 75 gallons, most of which entered spill containment. The 75-gallon total was calculated by applying the flow rate of the loading pump to the nine seconds it took for the pump to be shut off in response to the discharge. It was conservatively estimated that 10 gallons made its way out of the spill containment and onto a pervious surface. This total was calculated by measuring the affected pervious surface (9,216in^2) and applying a thickness of 0.25 inches to get a total of 2,304in^3, which is equivalent to 9.97 gallons. Please see Photos 6 & 7 in Appendix A for a visual representation of the product thickness. These photos indicate that the thickness is likely less than 0.25 inches in those specific areas, but it is expected that the product was not a uniform thickness throughout the affected pervious area. The 0.25-inch thickness was chosen as a conservative estimate for the entire affected pervious area.

The release had decreased mobility due to the cold air temperature at the time it occurred. Weather conditions are shown in appendix B. The spill did not reach any water bodies, and did not migrate from the impacted area. A site map is included in Figure 2. Spill site conditions are depicted in the photographs which are included in Appendix A. WTM coordinates of the spill are included in section 15.0.

3.0 DURATION OF DISCHARGE – NR 708.09(1)(b)

The duration of the discharge was nine seconds. Security cameras were able to capture the event on video and the exact duration was determined based on that evidence. The nine seconds of the discharge started when the rail car began to overflow and ended when the operator was able to shut the valve on the fill line, stopping the discharge.

4.0 TIME DISCHARGE WAS RESPONDED TO AND PROPERLY CONTAINED– NR 708.09(1)(c)

The discharged was responded to immediately due to an operator being present and able to stop the source of the discharge. The material that made its way out of the railcar traveled down the sides of the car to its underside and dripped into spill containment. Due to the cold air temperature on the day of the spill, the material wasn't able to flow down the drains in the spill containment in a timely fashion, causing some material to overflow the containment onto a pervious surface. On February 20th, 2018 cleanup of the spill was initiated by means of hand excavation.

5.0 MITIGATION EFFORTS THAT MAY HAVE ACCELERATED MIGRATION OF POLLUTION OR HAZARDOUS SUBSTANCES NR 708.09(1)(d)

Since such a small volume of product made its way to a pervious surface and ultimately a drain, cleanup of the material occurred quickly and completely in one attempt. None of the mitigation efforts used (i.e. placing sand on top of the material to keep it from spreading) accelerated the migration of the substance. In addition, the cold air and surface temperatures at the time of the release slowed the movement of the product once it came into contact with the ground.

6.0 WEATHER CONDITIONS – NR 708.09 (1)(e)

Weather conditions on the day of the release were typical for that time of year. The mean temperature was 14°F, there was a 13 mph NW wind, and there was 0.05 inches of measured precipitation. A summary of local weather conditions from February 20th, 2018 is located in Appendix B.

7.0 MIGRATION POTENTIAL OF THE CONTAMINATION – NR 708.09 (1)(f)

Migration of the contamination beyond its original extent is unlikely due to the small volume that was released, cold air and surface temperatures that slowed the movement of the liquid product, and the quick and thorough cleanup effort that was undertaken to address the contamination. Stormwater that flows through the area enters the same drain that the product entered and makes its way to the nearby No. 2 API separator. Free product can be recovered from the separator.

8.0 NATURE AND SCOPE OF IMMEDIATE ACTION CONDUCTED - NR 708.09 (1)(g)

The release resulted due to an operator leaving a fill arm unattended while loading railcars with #6 fuel oil. The railcar overfilled, spilled out the open man way on top of the car, traveled down the exterior of the car and dripped into the three track pan spill containments below the car. Each track pan is equipped with a drain that is manifolded to a common drain between the two tracks. The common drain runs to the

nearby No. 2 API separator. From there, free product can be recovered and any water present can be treated at the onsite waste water treatment plant. On February 20th, 2018 hand excavation of the visibly contaminated soil was both commenced and completed. The estimated volume of soil that was removed is 7-10 cubic feet. The excavated soil was brought to our "three sided building" where it was stored before sending it to a proper TSDF for disposal. The excavation took up an area approximately 40 square feet in total and had a few structural impediments present. The area was excavated to a depth between two and three inches as the product did not leech any deeper into the soil. Spill site conditions and remediation efforts are depicted in the photographs which are included in Appendix A. The area of the spill and excavation are depicted in Figure 2.

9.0 SAMPLING RESULTS - NR 708.09 (1)(h)

Soil samples were not taken to confirm that the site has been cleaned up. Since such a small volume of material was released and it's very dark in appearance, we are confident that we were able to excavate all of the impacted soil from the site.

10.0 VISUAL AND OLFACTORY EVIDENCE OF CONTAMINATION - NR 708.09 (1)(i)

Visual and olfactory evidence of the #6 fuel oil contamination was present upon arrival to the site and during the excavation. As #6 fuel oil is black in color, the most effective means to determine the extent of contamination is visually. The initial excavation of the contaminated material was able to capture all visual signs of contamination.

11.0 ACTUAL OR POTENTIAL ENVIRONMENTAL IMPACTS - NR 708.09 (1)(j)

The contaminated material collected during the excavation of the spill area was placed both into 55-gallon steel drums and in a contaminated soil storage building for bulk disposal. Disposal of the material in the 55 gallon drums occurred at the Clean Earth AES Environmental, LLC (EPA ID: KYD985073196) in Calvert City, KY. Disposal of the material kept in the contaminated soils building occurred at the SKB Shamrock Environmental Landfill located in Cloquet, MN. It is expected that the #6 fuel oil did not penetrate beyond the depth of the excavation due to visual observations after the release and excavation. Potential environmental impacts are minimal. The spill was contained on-site and did not run off into other areas, and was restricted to the area of the excavation; therefore, the actual or potential environmental impacts are minimal.

12.0 PROXIMITY OF CONTAMINATION TO RECEPTORS - NR 708.09 (1)(k)

Exposure via the groundwater pathway is strongly a function of the soil permeability. Groundwater velocities in the clay are on the order of 0.013 ft/yr. Petroleum compounds will also be naturally attenuated by retardation and biodegradation processes, thus will have transport velocities less than groundwater velocities. The closest groundwater receptor is Newton Creek, which is several hundred feet downgradient from the impacted area. Using a contaminant transport velocity of 0.013 ft/yr (assumes no retardation), it would take thousands of years for groundwater from this area to reach Newton Creek. In reality, the small amount of residual petroleum contaminants will very likely naturally attenuate (biodegraded or sorbed onto the aquifer matrix) as they are being transported and it is highly unlikely that any residual dissolved-phase compounds will ever reach Newton Creek. Based on the very low groundwater velocities and absence of any close proximity groundwater receptors, there is literally no groundwater exposure risk at the refinery.

13.0 PRESENT AND ANTICIPATED FUTURE LAND USE - NR 708.09 (1)(l)

The land where the release occurred is presently used as a tank perimeter dike for an oil refinery. The refinery was constructed in 1951 and has remained in the same use since that time. There is no anticipation the land will be used for another purpose in the future.

14.0 EVALUATE IF ROUTES OF EXPOSURE ARE PROTECTIVE AND ENVIRONMENT HAS BEEN RESTORED TO THE EXTENT PRACTICABLE – NR 708.09 (1)(m)

A good faith effort was undertaken to remove all newly contaminated material from the release site. No off site receptors were impacted by the release. Given the amount of #6 fuel oil released, the site conditions at the time of the release, and the confirmation sampling results, there is little chance the #6 fuel oil migrated laterally beyond what has been excavated. Confirmation samples indicate the spill has been remediated to below soil-to-groundwater residual contaminant.

15.0 OTHER RELEVANT INFORMATION – NR 708.09 (1)(n)

The site is located in the NW ¼ of the NW ¼ of Section 36, Township 49 North, Range 14 West, City of Superior, Douglas County, WI. The WTM coordinates for the spill site are 361856, 693025. A site vicinity map is included in Figure 1.

16.0 CONCLUSION AND RECOMMENDATIONS

Based the small amount of product that made its way to a pervious surface, the weather conditions during the release that prevented the product from penetrating the soil, and the immediate cleanup of visually impacted soil, the spill has been remediated to the extent practicable. Therefore, it is recommended that no further response action is necessary at the site and that the incident be closed. Upon closure, Husky will backfill the excavation with a sand/gravel mixture similar to the material in the surrounding area. Husky will also explore the option of completing the asphalt foundation so that the area underneath the loading rack is an impervious surface.

FIGURES

RR Sites Map

Figure 1 - Site Vicinity Map

Search...

Sign in

I want to...

1 X: 361855.84426
Y: 693025.04008

2015

2008

2010-2016

2010-2016

WTM ▲

X 361963.76272
Y 693116.19452

0 150 300ft

1:500

BTS - Wisconsin DNR


Affected Impervious Area

APPENDICES

Appendix A	Photographs
Appendix B	Weather Information
Appendix C	NR 706.05 Hazardous Substance Discharge Notification Form

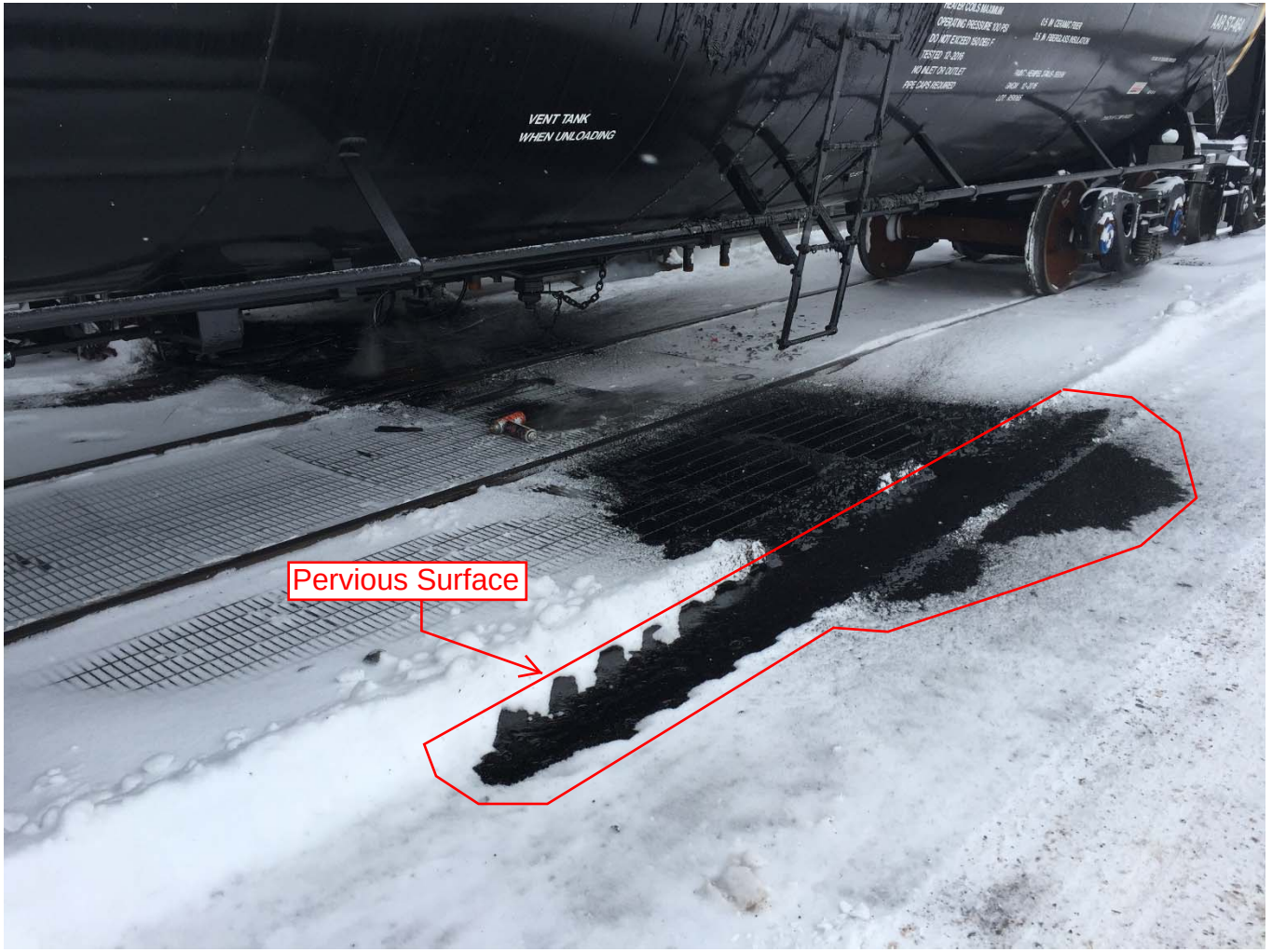

Photo 1: Looking southeast while standing on the west side of Track 3.

Photo 2: Looking east and standing on the west side of Track 3. The released product rolled down the side of the railcar and mostly dripped into containment.

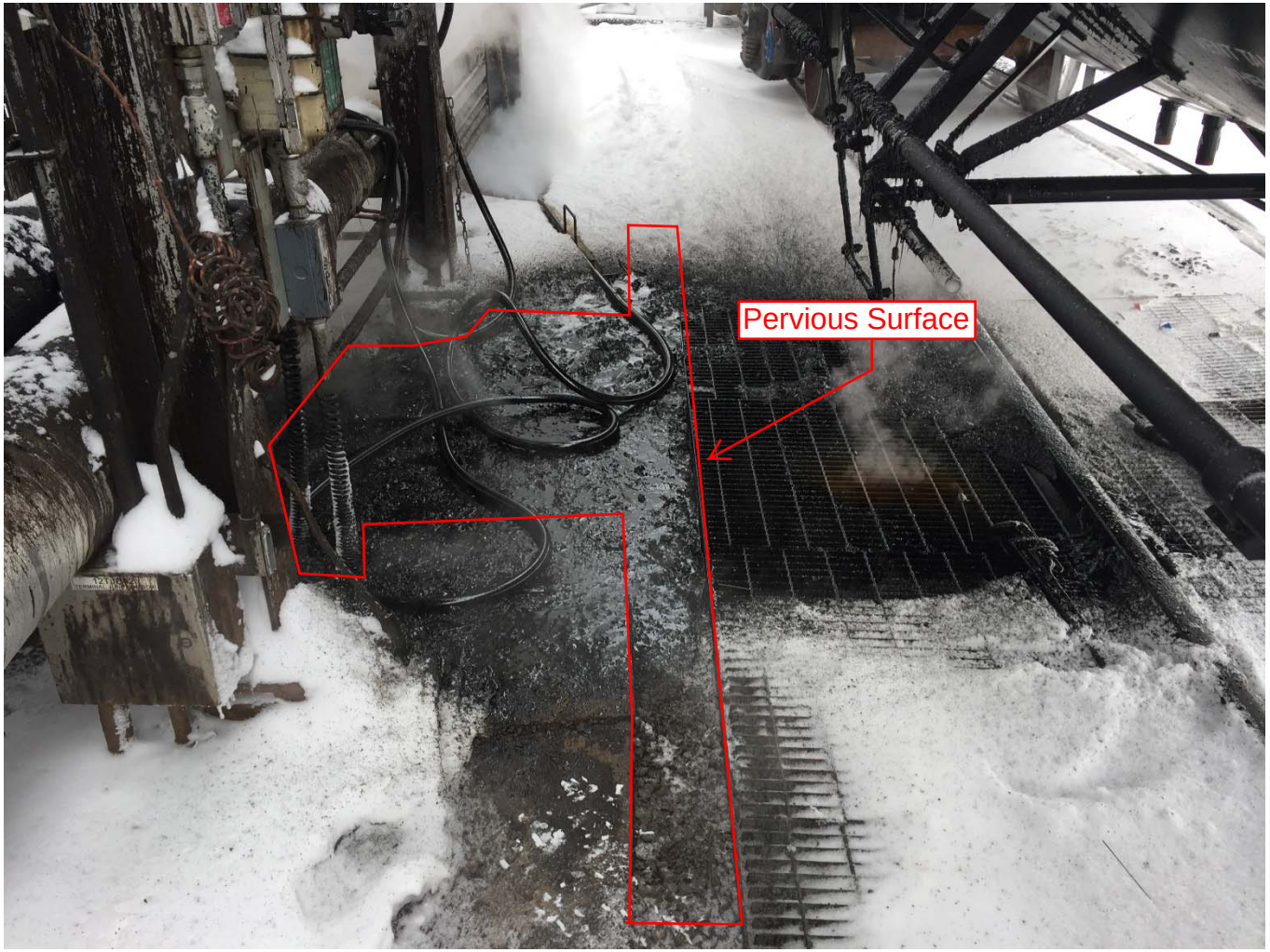

Photo 3: Looking south while standing on the east side of Track 3.

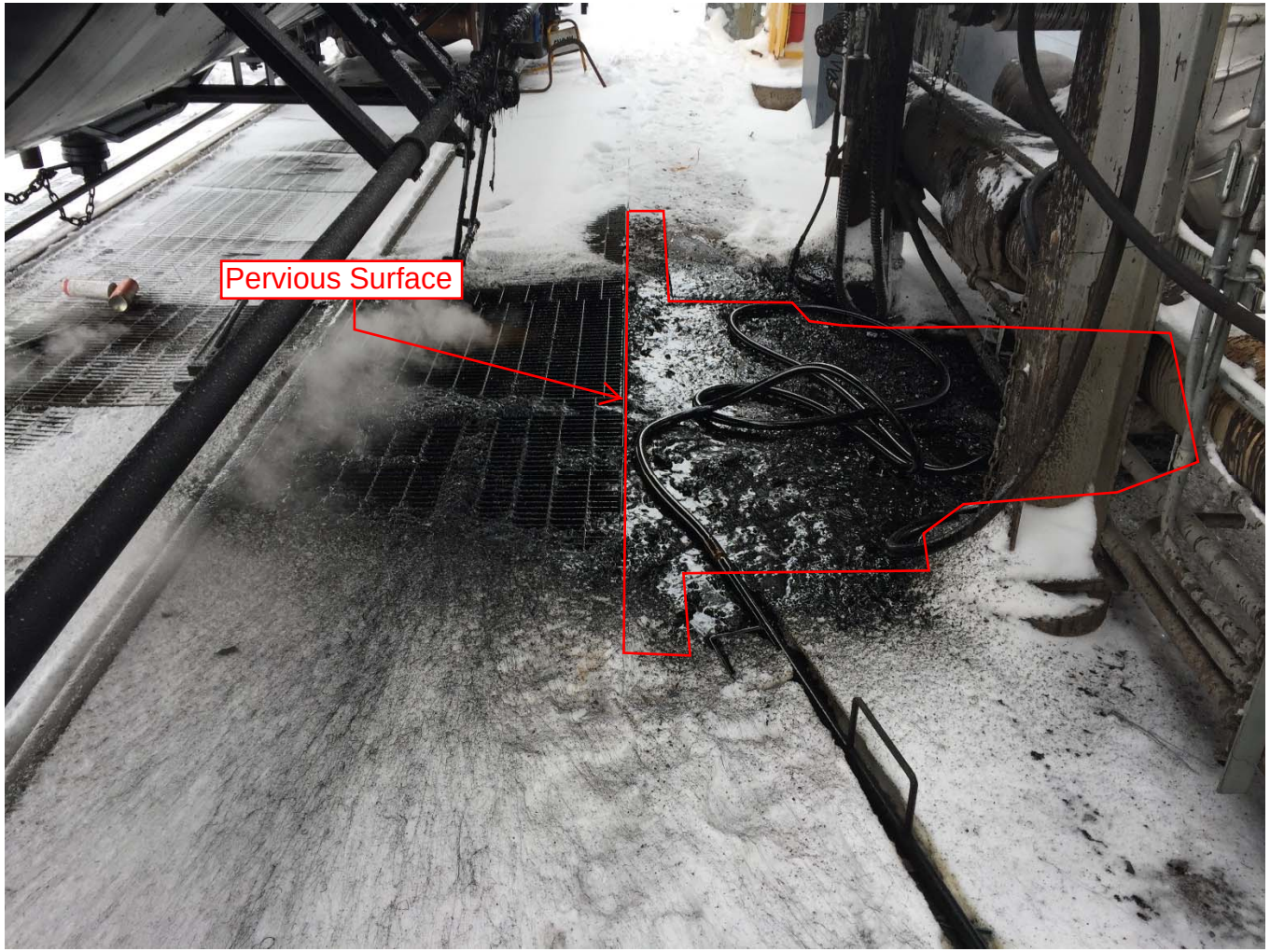

Photo 4: Looking north while standing on the east side of Track 3.

Photo 5: Looking west at the three “track pan” containments underneath the railcar on Track 3.

Photo 6: A gentle toe drag was done through the product to gauge its thickness.

Photo 7: Another surface scrape to estimate product thickness.

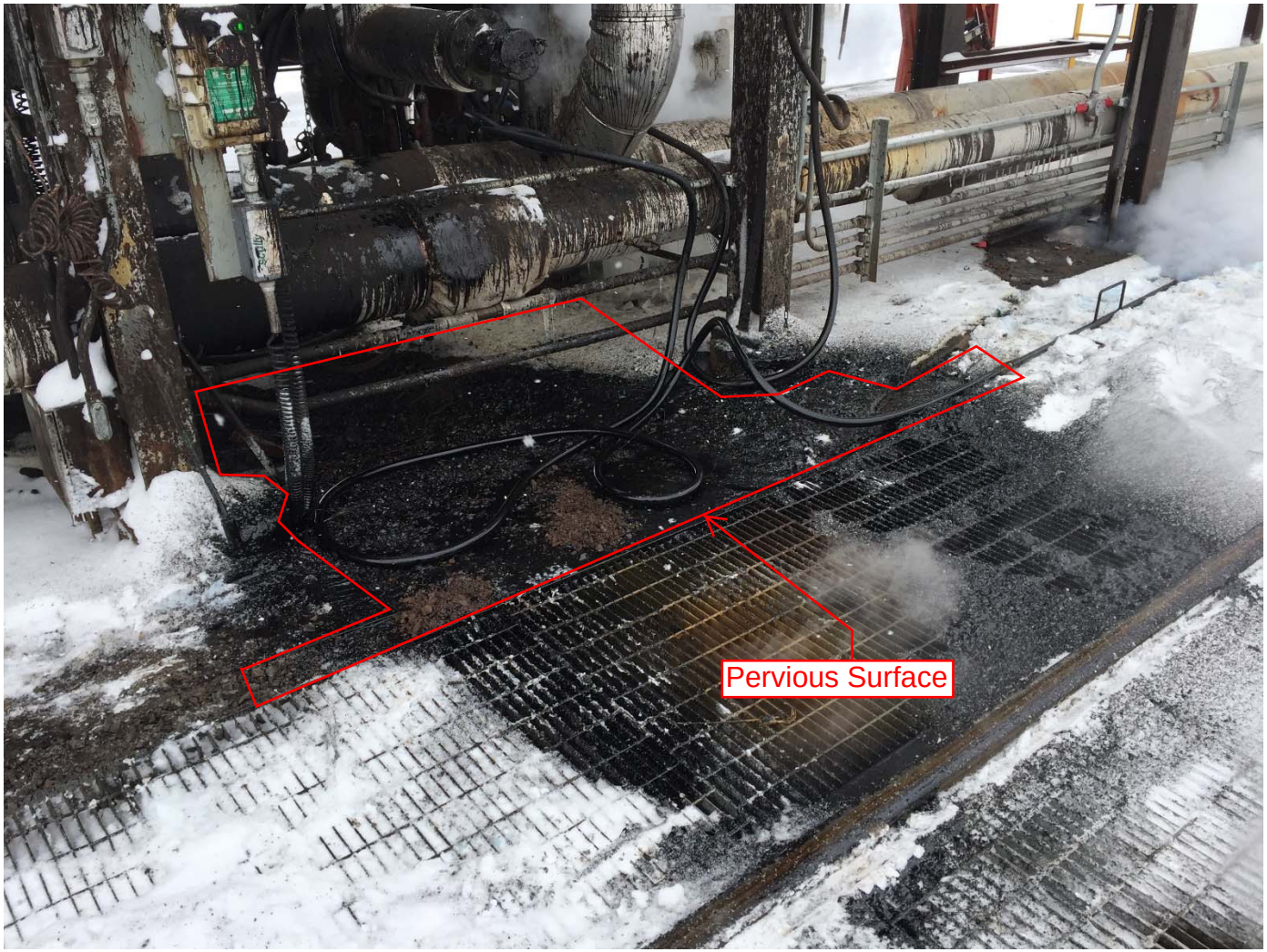

Photo 8: Looking southeast and standing where the railcar on Track 3 was parked.

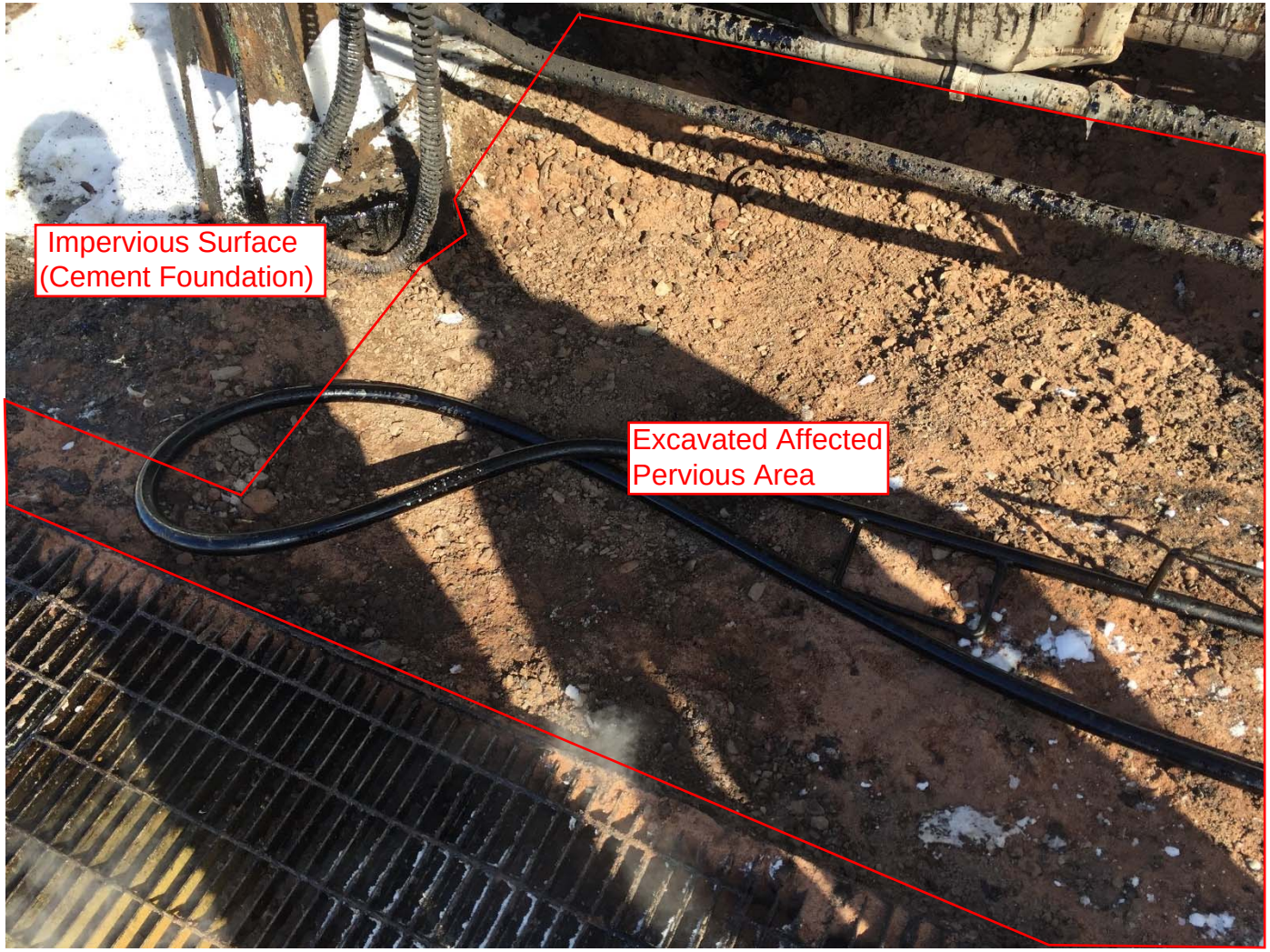

Photo 9: Looking east at the excavated affected area.

Appendix B - Weather Information

2/20/2018

Temperature	
Mean Temperature	**14** °F
Max Temperature	**21** °F
Min Temperature	**7** °F
Moisture	
Dew Point	**10** °F
Average Humidity	80
Maximum Humidity	93
Minimum Humidity	67
Precipitation	
Precipitation	**0.05** in
Sea Level Pressure	
Sea Level Pressure	**30.00** in
Wind	
Wind Speed	**13** mph (NW)
Max Wind Speed	**22** mph
Max Gust Speed	**31** mph
Visibility	**7** miles
Events	Snow

Hazardous Substance Discharge Notification Form - NR 706.05

Superior Refining Company LLC
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Refinery Map Coordinates: NW1/4, NW1/4, Sect. 36, T 49N, R 14N.

1) Reporting Information

Name:	Matt Turner	Phone:	715-398-8434
Date:	2/20/2018	Position:	Environmental Engineer

2) Discharge Information

Date:	2/20/2018	Time:	10:29
Amount Released:	Approximately 75 gallons	Duration:	9 seconds
Material/Product:	#6 Fuel Oil	Response Time:	Immediate
Specific Location:	#6 Oil loading dock on Track 3		
How was spill detected:	Operator filling the car saw product overflowing from the manway		
Cause:	Operator left the filling arm of the car unattended while he worked on a different car. The car overfilled and spilled into its spill containment, which overfilled and went onto pervious surface.		

3) Additional Information

Physical Characteristics:	Liquid fuel oil that hardened due to the cold air temperature
Chemical Properties:	Hydrocarbons
Possible Hazards:	None
Immediate Corrective Action/Clean-up:	Hand excavation commenced immediately
People / Companies Performing the Action:	Husky personnel; J.R. Jensen and In-Line contractors
Speed and Movement of Discharge (if any):	None
Actual/Potential Impacts to Human Health (if any):	None
Actual/Potential Impacts to Environment (if any):	None
Weather Conditions:	Temperature: 12 degrees F Precipitation: Light Snow Wind: 8mph NW
Agencies On-scene During Spill (if any):	None
Further action needed (if any):	None
Amount reaching Navigable Waters:	None
Total Oil Storage Capacity of Tanks/Lines Material was Discharged From:	Unknown
Adequate Secondary Containment:	Yes but the cold weather prevented proper draining function
Steps taken to Reduce Possibility of Recurrence:	Operators were reminded of working procedure and how complacency can lead to issues.
Enforcement Actions (if any):	N/A
Effectiveness of Monitoring Equipment (if any):	N/A

Photo 10: Looking east at the excavated affected area.