REPORT OF RBCA TIER 2 ASSESSMENT

Flying J Travel Plaza
4200 N Interstate 90 Service Road
Rapid City, South Dakota

AET Project No. P-0048949
SDDANR Spill No. 2025.152
SDDANR Tank Facility ID 02-00136
SDPRCF No. 8791

Date:
July 14, 2026

Prepared for:
M.G. Oil Company
1180 Creek Drive
Rapid City, South Dakota

Geotechnical • Materials
Forensic • Environmental
Building Technology
Petrography/Chemistry

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Rapid City, SD 57702
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July 14, 2026

M.G. Oil Company
1180 Creek Drive
Rapid City, South Dakota 57703

Attn: Mr. Dave Kulish
Email: dkulish@mgoil.com

RE: RBCA Tier 2 Assessment
Flying J Travel Plaza
4200 North Interstate 90 Service Road
Rapid City, SD 57701
AET Project No. P-0048949
SDDANR Spill No. 2025.152; SDDANR Tank Facility ID 02-00136; SDPRCF No. 8791

Dear Mr. Kulish:

American Engineering Testing, Incorporated (AET) has completed the Risk Based Corrective Action Tier 2 Assessment at the above-referenced site as per AET's proposal dated November 25, 2025, and signed authorization received on December 2, 2025.

After you have reviewed our report, please sign and date the attached "Approval for Release" form. Upon receiving the signed "Approval for Release", we will be forwarding copies of the report to the South Dakota Department of Agriculture and Natural Resources and the Petroleum Release Compensation Fund for their review.

If you have any questions, comments or need additional information, please feel welcome to contact us. AET appreciates the opportunity to have been of service to you on this project.

Sincerely,
American Engineering Testing

Jeremy J. Huot, CPRR
Environmental Project Manager
jhuot@teamaet.com
Office: (605) 388-0029

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APPROVAL FOR RELEASE

Project: RBCA Tier 2 Assessment
Flying J Travel Plaza
4200 North Interstate 90 Service Road
Rapid City, SD 57701
AET Project No. P-0048949
SDDANR Spill No. 2025.152
SDDANR Tank Facility ID 02-00136
SDPRCF No. 8791

Report: AET Report No. P-0048949.2

Date: July 14, 2026

As the addressee of the above referenced report and the client of record for the project, I hereby give my permission for the release of the report to the agencies referenced in the subject report.

Client: _____

Authorized Signature: _____

Typed Name: _____

Title: _____

Date: _____

Site Summary

Site Name **Flying J Travel Plaza** Department File No. **2025.152** Date **July 14, 2026**

Location (address**) 4200 North I-90 Service Road** City **Rapid City**

State **South Dakota** County **Pennington**

Latitude/Longitude **44.103538°, -103.149554°** Method (map, GPS, etc.) **Google Earth Pro Software**

Contamination Source **Underground Storage Tank and Distribution System**

Responsible Person (RP) **M.G. Oil Company** Consultant **American Engineering Testing, Inc**.

RP Mailing Addresses **1180 Creek Drive** City/State **Rapid City, South Dakota** Zip **57503**

Land Use: Residential, Industrial, Rural, Other **Commercial**

Distance to and Name of Closest Surface Water **0.75-mile northeast, Box Elder Creek.**

Depth/Distance to and Name of Closest Aquifer **1,624 feet to Dakota Aquifer.**

Distance/Depth to and Name of Closest Water Well **Review of DANR well log records indicate that one commercial water well may be located on the site. According to the well log, the well was drilled to an approximate depth of 1,920 feet below ground surface and is completed in the Dakota Aquifer (Inyan Kara Group), which first occurs at approximately 1,624 feet below ground surface. The log further documents the presence of thick intervals of clay and shale between the ground surface and the Dakota Aquifer, which would likely limit downward migration of water and petroleum contaminants to the aquifer.**

Distance to/Name of Well head or Source Water Protection Area **Project site is approximately one mile north of Zone A Source Water Protection Area.**

Environmental Media Impacted: **Not encountered during Tier 2 Assessment.**

Groundwater, Surface Water, Indoor Air, Utilities, Outdoor Air, Other: **Not encountered during Tier 2 Assessment.**

Was Free Phase Product Present? **Not encountered during Tier 2 Assessment.**

Utilities to be Investigated: Water, Sewer (Storm/Sanitary), Electrical, other: **None.**

Off Site Migration of Contamination (Yes/No) Direction **Not encountered during Tier 2 Assessment.**

Sensitive Receptors Within 500 feet of Plume (schools, homes, water bodies) **None identified in Receptor Evaluation.**

Type of Corrective Action: Excavation, Soil Vapor Extraction, Air Sparging, Bio-Venting, Monitoring, Engineering Control (Specify type): **No corrective active measure warranted at this time.**

Additional Information

Cubic Yards of soil Excavated/treated **1710.11 tons.**

Name of Landfarm/Landfill **Rapid City Landfill.**

Number of Monitoring Wells Installed **0** Number of Monitoring Wells Properly Closed **0**

Proposed Action: Closure/Inactive, Remediation, Eliminate Exposure Route, Monitoring **No Further Action.**

Product **Not applicable** Tank Bottoms **8 petroleum USTs** Contaminated Water **Not applicable**

*If gas or used oil tanks, document if hazardous waste generated: **No hazardous waste.**

Disposal of waste liquid(s): **Not Applicable** Disposal of tank bottoms: **Disposed of by system removal contractor.**

Signature of Responsible Person or Authorized Agent

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RBCA TIER 2 ASSESSMENT
FLYING J TRAVEL PLAZA
4200 NORTH INTERSTATE 90 SERVICE ROAD, RAPID CITY, SD
AET No. P-0048949

1.0 INTRODUCTION

1.1 Site Description

The physical location of the Flying J Travel Plaza (site) is 4200 North Interstate 90 (I-90) Service Road, Rapid City, South Dakota (SD). The approximate Public Land Survey System (PLSS) location of the site is described as NW¼ of the SW¼ of Section 27, Township 2 North, Range 8 East, Black Hills Principal Meridian, Pennington County, SD. The latitude/longitude of the site is 44.102905°, -103.149818° as determined using Google Earth Pro software. A topographic site location map and site sketch are presented as Figure 1 and Figure 2, Appendix A, respectively.

1.2 Background Information

Based on information provided by M.G. Oil Company (MG Oil) and records maintained by the SD Department of Agriculture and Natural Resources (DANR), the site formerly contained a large underground storage tank (UST) system consisting of multiple gasoline and diesel fuel tanks, including one 4,000-gallon E-85 gasoline UST, three gasoline USTs ranging from 12,000 to 20,000 gallons, four diesel fuel USTs ranging from 12,000 to 20,000 gallons, and a diesel exhaust fluid (DEF) UST. The facility is registered with DANR under Facility No. 02-00136.

The site has a documented history of petroleum releases and environmental investigations. Prior to this report, the most recent Risk-Based Corrective Action (RBCA) activities were performed at the site subsequent to a release associated with a failed gasoline product distribution line that was identified in September 2015 (DANR Spill Case No. 2015.191). As a result of the identified release, a RBCA Tier 2 Site Assessment was conducted between 2018 and 2020. That assessment included soil borings and groundwater sampling, which identified petroleum hydrocarbons in soil and groundwater

at concentrations below applicable Tier 1 Trigger and Action Levels and SD Groundwater Quality Standards (SDGWQS). Based on those findings, DANR issued a No Further Action (NFA) determination for the spill case on June 15, 2020.

More recently, extensive site redevelopment activities were undertaken, including removal of the petroleum and DEF UST systems. During UST system removal and associated excavation activities conducted in 2025, petroleum-impacted soils were encountered in multiple areas, including the former petroleum UST basin, DEF UST basin, distribution pump island locations, and distribution line trenches. In addition, free-phase petroleum product (free product) was observed on perched groundwater within both the DEF UST basin and the petroleum UST basin excavations. Although immediate mitigation measures were implemented at the site including removal of the recoverable free product observed within the UST basins and excavation/off-site disposal of approximately 1,710.11 tons of petroleum-impacted soil, laboratory analytical results confirmed that petroleum hydrocarbon concentrations exceeding DANR Tier 1 Trigger and/or Action Levels remain in subsurface soils at the site.

Following completion of the UST system removal activities, a UST System Removal Report documenting field observations, soil screening, laboratory results, and disposal activities was submitted to DANR (AET Report No. P-0043683 – September 15, 2025). Upon review of this report, DANR requested that additional RBCA evaluation be conducted. Specifically, DANR directed that a RBCA Tier 2 Assessment be completed to further evaluate remaining contamination, potential exposure pathways, and receptors that may be affected under current site conditions.

This RBCA Tier 2 Assessment has been prepared to evaluate potential human and environmental receptors in the vicinity of the site, remaining petroleum impacts, and potential exposure pathways identified within the RBCA Receptor Survey (AET Report P-48949.1).

1.3 Previous Studies

Previous environmental work performed at the site in association with DANR Spill ID 2025.152 has been presented in the reports listed in Table 1, below. Please refer to these reports for additional project information.

Table 1
Previous Documentation

Report Number	Date	Title
AET # P-0043683	09/15/2025	"Report of Underground Storage Tank System Removal, Flying J Travel Plaza, Rapid City, South Dakota"
AET # P-0048949.1	03/13/2026	"Report of RBCA Receptor Evaluation and Site Assessment Work Plan, Flying J Travel Plaza, Rapid City, South Dakota"

1.4 Site Topography

A review of the United States Geological Survey (USGS) topographic map for the Rapid City West Quadrangle (Figure 1) indicates that the site elevation is approximately 3,150 feet (ft) above mean sea level (AMSL). The site is primarily covered with concrete pavement. Based on interpretation of the topographic contours, surface water drainage in the vicinity of the site is anticipated to flow north/northeast toward Box Elder Creek which is located approximately 0.75 miles north of the site (and flowing east) at its nearest point. This assumption is derived from regional topography and does not account for potential alterations due to site grading or stormwater infrastructure.

1.5 Geology and Hydrology

Based on the SD Geological Survey's *Bedrock Geologic Map Showing Configuration of the Bedrock Surface in SD* (Tomhave and Schulz, 2004), the site is underlain by the Pierre Shale formation. This unit consists predominantly of blue-gray to dark-gray shale, ranging from fissile to blocky in texture. The formation includes persistent beds of bentonite, black organic shale, and light-brown chalky shale, with minor occurrences of sandstone and

conglomerate. Carbonate and ferruginous concretions are also abundant throughout the unit, which has an estimated thickness of up to approximately 1,000 ft.

Unconfined groundwater flow generally mimics surface topography; therefore, the regional groundwater flow direction is assumed to be north to northeast toward Box Elder Creek. Previous environmental assessment data indicates that shallow groundwater at the site typically occurs at depths of approximately 20 to 30 ft below grade (bg). During previous RBCA field investigation activities conducted in 2018, groundwater was encountered within this depth range at certain boring locations; however, other borings advanced to similar depths did not consistently intersect groundwater. This variability suggests that shallow groundwater at the site is limited in extent and likely discontinuous.

The restricted occurrence of groundwater can likely be attributed to the hydrogeologic characteristics of the Pierre Shale, which is commonly described as dense, clay-rich, and exhibiting very low permeability. Groundwater within this formation likely occurs primarily within weathered zones and fractures rather than within a laterally continuous porous aquifer. Consequently, groundwater movement is most likely highly restricted and likely fracture-controlled. Due to these poor hydraulic properties, the Pierre Shale is not utilized as a potable water source, and the primary drinking water aquifer in the site vicinity is the Dakota Aquifer (Inyan Kara Group), which occurs at depths of approximately 1,600 to 1,900 ft bg.

1.6 Purpose of Work

The purpose of the RBCA process was to identify possible receptors and exposure pathways present within the study area, and to evaluate potential risk to the receptors via exposure pathways from the petroleum hydrocarbons present at the site.

1.7 Scope of Work

The scope of work performed on this phase of the project consisted of:

1. advancing two soil borings in the vicinity of potential migration pathways to nearby receptors identified in AET Report No. P-0048949.1; the final number and locations

of the borings were refined in coordination with the SDDANR;

2. screening the soil samples recovered from the borings for the presence and concentration of organic vapors as indications of petroleum hydrocarbon impacts;

3. analyzing select soil samples recovered from the borings for the presence and concentration of total petroleum hydrocarbons as gasoline (TPH-G), total petroleum hydrocarbons as diesel (TPH-D), benzene, toluene, ethylbenzene and xylenes (BTEX), methyl-tertiary-butyl ether (MTBE), and naphthalene;

4. collecting field air screening data from the utility junction boxes located in the western portion of the site and screening the air for lower explosive limit (%LEL) and organic vapors to evaluate potential petroleum vapor migration through shallow buried utility conduits;

5. evaluating the potential sources, exposure pathways, and receptors relative to the site-specific data collected; and

6. preparing and submitting a report including data generated during our work on the project along with our conclusions and recommendations based on that data compared to the RBCA Site Conceptual Model.

2.0 PROJECT RESULTS

2.1 Subsurface Conditions

On June 5, 2026, AET personnel advanced two soil borings (SB-1 and SB-2) at the locations shown on Figure 2 (Appendix A) using the methods described in Appendix B. The borings were strategically located to assess the extent of potential petroleum hydrocarbon impacts between the identified source areas and potential exposure pathways. Boring locations and target depths were ultimately selected by the DANR following its review of AET Report No. P-0048949.1 and subsequent email correspondence with AET on May 1, 2026.

Soil profiles encountered in the borings are presented on the logs included in Appendix C. Subsurface conditions were generally consistent across the site. Both borings encountered a surface layer consisting of either concrete pavement and underlying base course material (SB-1) or topsoil (SB-2). Beneath the surface materials, the subsurface consisted primarily of weathered shale/fat clay that transitioned to unweathered shale at approximately 14 ft bg in SB-2. Upon encountering the competent unweathered shale,

sampler refusal occurred at approximately 17.5 feet bgs in SB-2, preventing further advancement of the boring.

2.2 Soil Sample Screening Results

Soil samples collected from the borings were screened for organic vapors using the methods described in Appendix B to assess the potential presence of petroleum hydrocarbons. The screening results are provided on the soil boring logs in Appendix C. No elevated organic vapor concentrations were detected during field screening.

2.3 Soil Sample Analytical Results

Select soil samples were collected from the soil borings and analyzed for the presence and concentrations of TPH-D, TPH-G, BTEX, MTBE, and naphthalene using methods described in Appendix B. The sample from SB-1 was collected at an interval corresponding to the approximate depths of the buried utilities located north of the building, including the potable water service line (approximately 6 to 8 ft bg) and the sanitary sewer line (approximately 6 to 10 ft bg). The sample selected for analysis from SB-2 was collected at the terminal depth of the boring to confirm vertical extent to ensure impacts related to those observed in the vicinity of the DEF UST during removal activities had not migrated west towards the municipal sanitary sewer line located west of the site beyond Elk Vale Road. Table 2, below, presents the analytical results and the laboratory report is included in Appendix E. For comparison, DANR Tier 1 Trigger/Action Levels for soils at petroleum release sites are also presented in Table 2. None of the target analytes were measured above the laboratory practical quantitation limits (PQLs) which are also below the applicable DANR RBCA Tier 1 Trigger/Action Levels.

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS[1]

Sample ID	Depth[2]	Benzene	Ethyl Benzene	MTBE	Naphthalene	Toluene	Xylenes	TPH-G	TPH-D
SB-1	6.0 – 10.0	<0.050[3]	<0.100	<0.100	<0.200	<0.100	<0.200	<10.0	<10.0
SB-2	15.0 – 17.5	<0.050	<0.100	<0.100	<0.200	<0.100	<0.200	<10.0	<10.0
Tier 1 Action Levels		**0.2**	**10**	**-**	**25**	**15**	**300**	**500[4]**	**500[4]**

[1] All values are in mg/kg, which is equivalent to parts per million (ppm), unless otherwise noted.
[2] Depths measured in feet below ground surface.
[3] "<" denotes analyte not detected at or above the PQL following the "less than" symbol.
[4] Total hydrocarbon concentration is considered a "trigger level" to require a more thorough evaluation of the site and is not intended to be a Tier 1 cleanup goal.

2.4 Utility Junction Box Air Screening

In addition to the soil sampling activities conducted at the site, AET collected field air screening data from two utility junction boxes located in the western portion of the site (Figure 2). Screening activities included measurements of %LEL using a multi-gas meter and organic vapor concentrations using a photoionization detector to assess the potential for petroleum vapor migration through shallow buried utility conduits. No %LEL readings were detected, and organic vapor concentrations were not measured above ambient background levels.

3.0 DISCUSSION

3.1 Receptor Evaluation and Identified Potential Exposure Pathways

As documented in the RBCA Receptor Evaluation and Site Assessment Work Plan (AET Report No. P-0048949.1), petroleum hydrocarbon impacts remaining at the site following UST system removal activities were associated with the former petroleum UST basin, former DEF UST basin, dispenser islands, and associated product piping. Based on the available data collected at that time, the presence of petroleum-impacted subsurface soil, observed free product on perched groundwater, and the potential for dissolved-phase petroleum impacts, warranted further evaluation of several potential exposure pathways.

The receptor evaluation concluded that four exposure pathways could not be eliminated without additional investigation:

- vapor intrusion to indoor air;
- vapors in underground utilities;
- soil in contact with or impacting a potable water line; and
- groundwater in contact with or impacting a potable water line.

To evaluate these potential pathways, the DANR directed that additional subsurface assessment be completed between the known source areas and identified receptors. Soil boring locations and target depths were subsequently selected by the DANR based on review of the receptor evaluation findings and the anticipated migration pathways identified in the RBCA Site Conceptual Model.

3.2 Evaluation of Subsurface Conditions and Soil Analytical Results

To address the potential exposure pathways, AET advanced two soil borings (SB-1 and SB-2) between the source areas and the identified potential receptors. Subsurface conditions encountered were generally consistent across the site, and groundwater was not encountered in either of the borings.

Field screening of soil samples did not indicate the presence of elevated organic vapors, and laboratory analytical results confirmed that petroleum-related constituents (TPH-D, TPH-G, BTEX, MTBE, and naphthalene) were not detected above laboratory PQLs in any submitted samples. Reported concentrations were also below applicable DANR RBCA Tier 1 Trigger/Action Levels.

These findings indicate that petroleum impacts previously identified during the UST system removal activities likely have not migrated laterally or to the depths evaluated in this investigation.

3.3 Evaluation of Vapor Intrusion and Underground Utility Pathways

The receptor evaluation identified vapor intrusion to indoor air and vapors in underground utilities as potential exposure pathways requiring further evaluation at the site.

To assess these pathways, SB-1 was advanced between the former pump island source area and the on-site building. SB-1 also served to assess potential lateral migration of petroleum impacts from the pump island source towards the sanitary sewer service line located near the northeast corner of the building (buried at 6-10 ft bg).

Field screening of the recovered soil samples at SB-1 did not identify any elevated organic vapor concentrations at any depth. Laboratory analytical results for one sample collected from 6-10 ft bg indicated that TPH-G, TPH-D, BTEX, and naphthalene were not detected above the laboratory PQLs which are all below the applicable DANR RBCA Tier 1 Trigger/Action Levels.

In addition, SB-2 was advanced between the former DEF UST basin source area and the sanitary sewer main located west of the site beyond Elk Vale Road (sewer main buried at approximately 37 ft bg).

Field screening of the recovered soil samples at SB-2 did not identify elevated organic vapor concentrations at any depth. Advancement of the boring was terminated at approximately 17.5 ft bg upon encountering sampler refusal within competent unweathered shale. Because the boring could not be advanced to the depth of the sewer main, a soil sample collected from the terminal interval (15.0-17.5 feet bg) was submitted for laboratory analysis to evaluate the potential vertical extent of petroleum impacts. Laboratory analytical results for the sample indicated that TPH-G, TPH-D, BTEX, and naphthalene were not detected above the laboratory PQLs which are all below the applicable DANR RBCA Tier 1 Trigger/Action Levels.

Supplemental field air screening was also conducted within utility junction boxes located in the western portion of the site. Screening results did not identify detectable %LEL readings or organic vapor concentrations above ambient background levels.

The absence of elevated organic vapor concentrations in soil, the lack of detectable petroleum hydrocarbon constituents at the evaluated depths, and the absence of detectable %LEL readings or elevated organic vapors within the utility junction boxes, indicate vapor intrusion to indoor air and vapors in underground utilities can be ruled out as viable exposure pathways under current site conditions.

3.4 Evaluation of Soil and Groundwater Impacts to Water Lines

The receptor evaluation identified the potential for petroleum-impacted soil and/or groundwater to be in contact with or impact a potable water infrastructure at the site to be a potential exposure pathway.

To assess these pathways, SB-1 was advanced between the former pump island source area and the potable water service line located north of the on-site building (buried at 6-8 ft bg).

Field screening of the recovered soil at SB-1 did not identify any elevated organic vapor concentrations at any depth. Laboratory analytical results for one sample collected from 6-10 ft bg indicated that TPH-G, TPH-D, BTEX, and naphthalene were not detected above the laboratory PQLs which are all below the applicable DANR RBCA Tier 1 Trigger/Action Levels. In addition, no groundwater was encountered at SB-1 which was advanced to a depth of 15 ft bg.

The absence of detectable petroleum impacts at depths corresponding to the potable water service line, combined with the lack of groundwater encountered during soil boring advancement, indicates that neither the soil-impacting-water-line pathway nor the groundwater-impacting-water-line pathway is complete.

3.5 Updated Site Conceptual Model

Based on the findings of the current investigation, the RBCA Site Conceptual Model has been refined. The additional subsurface assessment did not identify petroleum hydrocarbon impacts in the areas evaluated between the known sources and the potential exposure pathways identified during the receptor evaluation. Furthermore, groundwater was not encountered at the investigated locations.

The results of this investigation indicate that petroleum impacts remaining at the site are localized and do not extend along the migration pathways evaluated during this assessment. Consequently, the four exposure pathways identified in AET Report No. P-0048949.1 have been adequately assessed and can be eliminated as complete exposure pathways under current site conditions.

An updated RBCA Site Conceptual Model reflecting these findings is provided in Appendix D.

4.0 CONCLUSIONS

Based on the results of this assessment, the potential exposure pathways identified in the RBCA Receptor Evaluation and Site Assessment Work Plan (AET Report No. P-0048949.1) have been adequately evaluated. Soil borings advanced between the known source areas and potential receptors did not encounter groundwater and did not identify elevated organic vapor concentrations during field screening. Furthermore, laboratory analytical results for soil samples collected from locations intended to evaluate the identified migration pathways indicated that TPH-G, TPH-D, BTEX, and naphthalene were not detected above laboratory PQLs, all of which were below the applicable DANR RBCA Tier 1 Trigger/Action Levels.

Additional field screening conducted within utility junction boxes did not identify detectable combustible gases (%LEL) or organic vapor concentrations above ambient background levels.

Collectively, the absence of petroleum impacted soil at the approximate intervals of susceptible underground utilities, the lack of groundwater encountered, and the absence of detectable vapors within the utility infrastructure indicate that the potential exposure pathways identified during the receptor evaluation are not complete under current site conditions.

5.0 RECOMMENDATIONS

Based on the results of the completed assessment and updated Site Conceptual Model, AET concludes that the potential exposure pathways identified during the RBCA Tier 2 Receptor Evaluation have been sufficiently addressed.

No complete exposure pathways have been identified, and petroleum impacts are likely limited to the source areas due to the low permeability of the subsurface fat clay/shale at the site. Therefore, it is AET's opinion that no further investigation or corrective action is warranted at this time. AET recommends the DANR consider this site for No Further Action (NFA) determination.

AET recommends that this report be submitted to the DANR and SD Petroleum Release Compensation Fund (PRCF) for review.

6.0 STANDARD OF CARE

The recommendations contained in this report represent our professional opinions. These opinions were arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

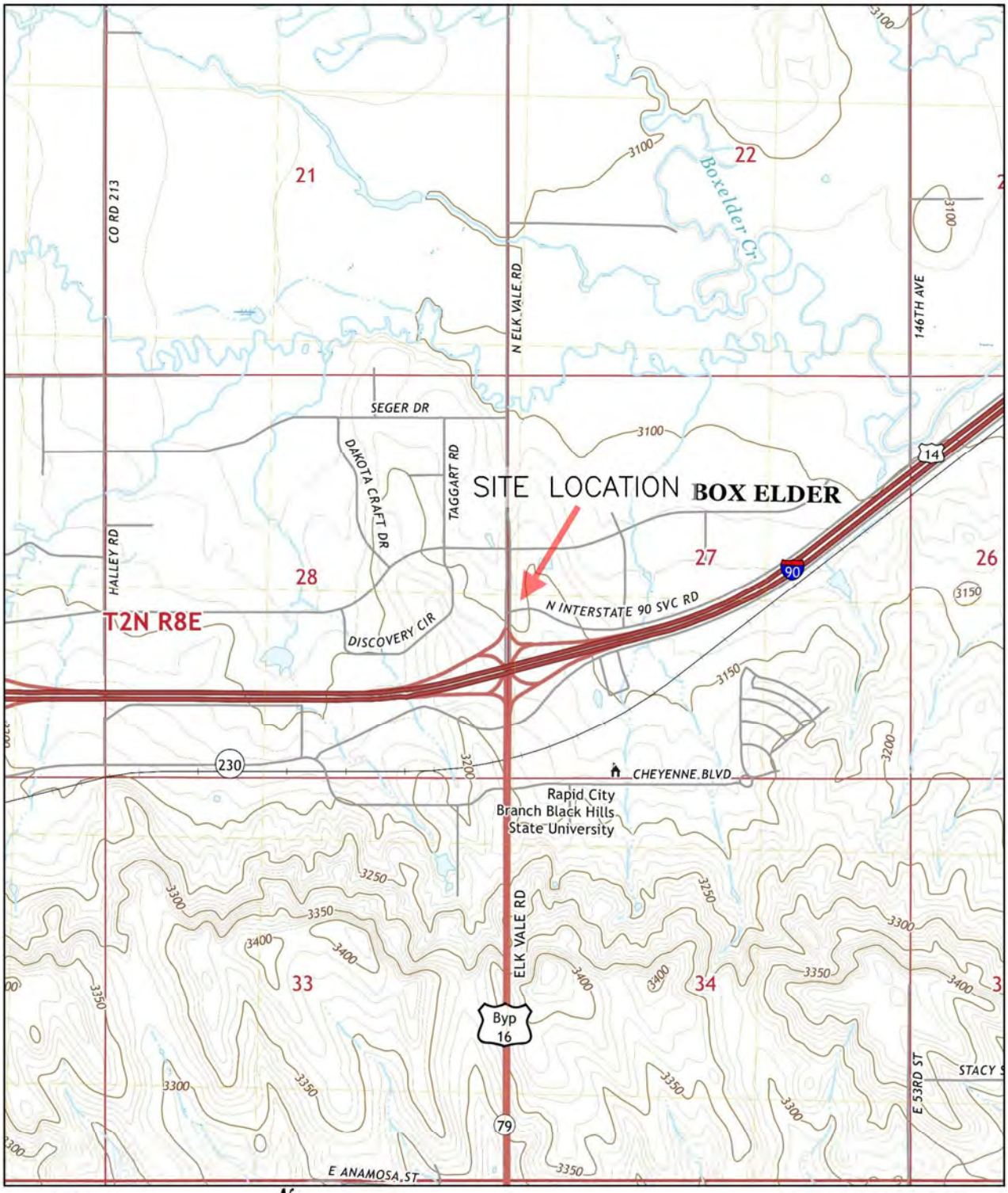
Report Prepared by:

Jeremy Huot, CPRR
Environmental Project Manager

Report Reviewed by:

Bradley Bishop, CPRR
Senior Environmental Project Manage

APPENDIX A
Figures



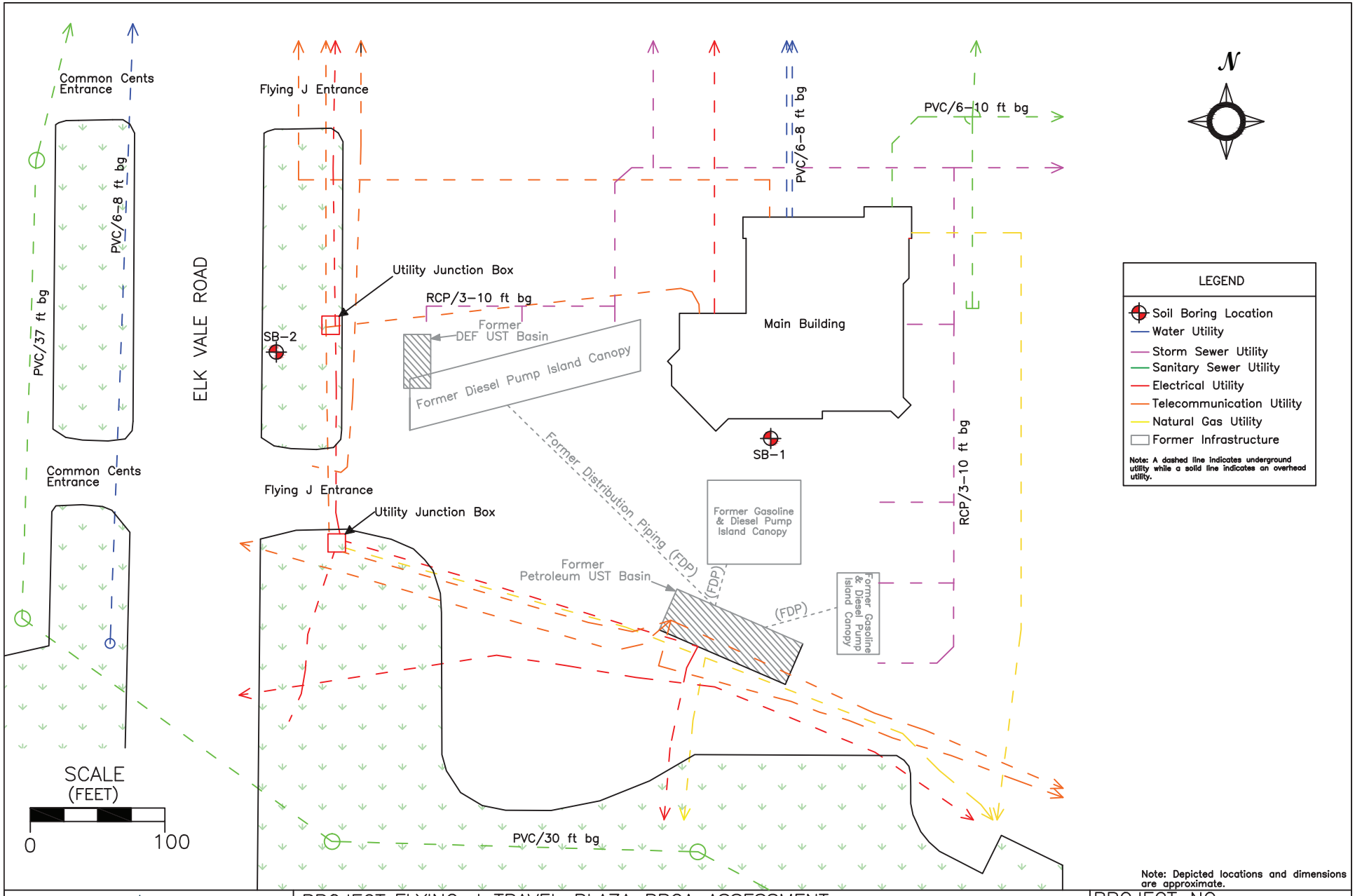
SCALE (FEET)

0 2,000

N

USGS TOPOGRAPHIC MAP
PROVIDED BY USGS DATABASE
DATED: 2021 SCALE: 1:24,000

AET	PROJECT: FLYING J RBCA ASSESSSMENT 4200 N I-90 SERVICE ROAD, RAPID CITY, SD		PROJECT NO.: P-0048949
	SUBJECT: SITE LOCATION TOPO MAP	DRAWN BY: JJH	DATE: MARCH 11, 2026
	SCALE: 1 INCH = 2,000 FEET	REVIEWED BY: BPB	FIGURE: 1



AET	PROJECT: FLYING J TRAVEL PLAZA RBCA ASSESSMENT 4200 N INTERSTATE 90 SERVICE ROAD, RAPID CITY, SD	PROJECT NO. P-0048949
	SUBJECT: SITE SKETCH WITH UTILITIES AND SOIL BORING LOCATIONS	DRAWN BY: JJH DATE: JULY 9, 2026
	SCALE: 1 INCH = 100 FEET	REVIEWED BY: BPB FIGURE: 2

APPENDIX B
Methodologies

METHODOLOGIES

Soil Boring Locations

The soil borings are placed at locations to determine the degree and extent of the petroleum impacts to the soil as the result of petroleum released from the Site distribution system. Additionally, borings/wells are placed at locations to evaluate exposure pathways within the extent of the petroleum contamination and determine potential impacts to receptors.

Direct Push Soil Borings

The direct push borings are performed using a Geoprobe®, Model 3100GT, using 2.25-inch outer diameter by 5 foot probe rods.

Direct Push Soil Sampling

Soil samples are collected using a 2.25 inch outside diameter by five-foot sample tube. For our work on this project, samples were collected on a continuous basis to the terminal depth of the borings. Soil samples are collected from the sample tube lined with a Geoprobe® PVC sample liner which is inserted into the sample tube for each five-foot sampling interval. The soil boring soil samples to be analyzed will be collected in 4-ounce, glass, soil jars with teflon-lined lids as appropriate.

Contamination Reduction

The Geoprobe®, probe rods, and samplers are steam cleaned prior to mobilization. The probe rods and samplers are decontaminated between borings with alconox water and brushes.

Soil Sample Screening

The soil samples are screened for the presence of organic vapors as an indication of hydrocarbon impacts using a Photoionization Detector (PID). This instrument provides readings in parts per million (ppm) equivalents of the calibration gas. The lower detectable limit is approximately 1 ppm.

The soil samples are collected in Whirl-pak® or Ziplock® baggies and taken to a well-ventilated area. The samples are allowed to equilibrate to room temperature. The samples are vigorously agitated for at least thirty seconds over a ten-minute headspace development period. In turn, each soil bag is punctured, the PID probe is quickly inserted through the plastic bag and the maximum meter response (within 2-5 seconds) is recorded. Erratic responses are discounted as a result of high organic vapor concentrations or conditions of elevated headspace moisture.

Utility Junction Box Air Screening

Air within select utility junction boxes was screened using a photoionization detector (PID) and a multi-gas meter. Flexible tubing was attached to the instruments and inserted into the junction boxes to obtain air samples. Organic vapor concentrations and combustible gas concentrations (%LEL) were recorded for each location.

METHODOLOGIES (continued)

Chain of Custody

Upon collection of a sample to be analyzed in the laboratory, a chain of custody log is initiated. The chain of custody log includes the following information: project, work order number, shipped by, shipped to, project manager, sampling point, location, field identification number, date taken, sample type, number of containers, analysis required and sampler's signature.

The chain of custody log is delivered with the samples to the laboratory. Upon arrival at the laboratory, the samples are checked in and custody of the samples signed over to the appropriate laboratory personnel. A copy of the chain of custody log is submitted to the project manager.

Chemical Analysis

The soil samples and tap water sample are analyzed for the presence and concentration of TPH-D, TPH-G, BTEX, MTBE, and naphthalene according to the appropriate Environmental Protection Agency (EPA) and/or California/United States Geological Survey (USGS) methods.

Soil Boring Abandonment

Following completion of field monitoring activities, the soil borings are abandoned in accordance with ARSD Chapter 74:02:04:69.

Reporting

Reports are prepared that 1) present and summarize the results of the work conducted, 2) include site location and study area maps, 3) give our opinion regarding the presence of petroleum hydrocarbons and the necessity for additional work, and 4) if the results of the study warrant additional work, recommend the scope of additional work.

APPENDIX C
Soil Boring Logs

SOIL BORING LOG

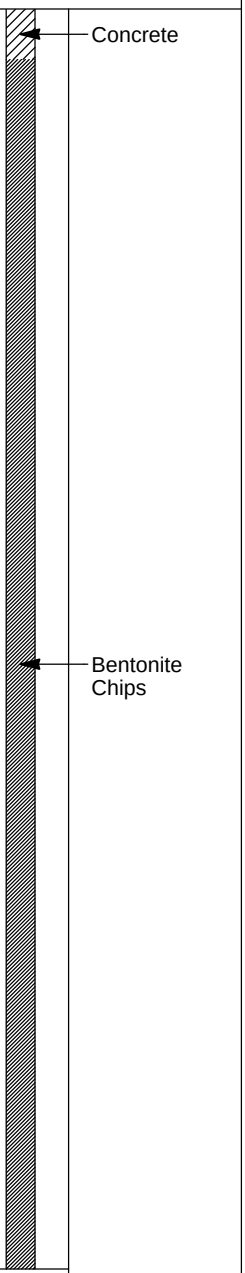
PROJECT NUMBER P-0048949
PROJECT NAME Flying J RBCA Tier 2 Assessment
LOCATION 4200 N I-90 Service Road, Rapid City, SD
DRILLING METHOD Continuous 2.25" Direct Push
SAMPLING METHOD Continuous 2.25" Direct Push
GROUND ELEVATION N/A
TOP OF CASING N/A
LOGGED BY JJH
REMARKS Lat/Long: 44.103254°, -103.149698°

BORING/WELL NUMBER SB-1
DATE DRILLED 06/05/2026
CASING TYPE/DIAMETER N/A
SCREEN TYPE N/A
PACKING TYPE N/A
GROUT TYPE N/A
DEPTH TO WATER (BTOC) N/A
GROUND WATER ELEVATION N/A

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	DEPTH (ft. BGL)	U.S.C.S.	MATERIAL DESCRIPTION
ND	--	30	DP S1	0		**Concrete**
				1	GPS	**Sandy Gravel**, red, moist (basecourse)
						Fat Clay, gray/brown, moist (weathered shale)
ND	--	30	DP S2	2		
				3		
				4		
ND	--	30	DP S3	5		
				6		
				7		
ND	--	30	DP S4	8	CH	
				9		
ND	--	30	DP S5	10		
				11		
				12		
ND	--	30	DP S6	13		
				14		
				15		End of Boring
				16		

GW LEVEL

BORING ABANDONMENT



SOIL BORING LOG

PROJECT NUMBER P-0048949 | **BORING/WELL NUMBER** SB-2
PROJECT NAME Flying J RBCA Tier 2 Assessment | **DATE DRILLED** 06/05/2026
LOCATION 4200 N I-90 Service Road, Rapid City, SD | **CASING TYPE/DIAMETER** N/A
DRILLING METHOD Continuous 2.25" Direct Push | **SCREEN TYPE** N/A
SAMPLING METHOD Continuous 2.25" Direct Push | **PACKING TYPE** N/A
GROUND ELEVATION N/A | **GROUT TYPE** N/A
TOP OF CASING N/A | **DEPTH TO WATER (BTOC)** N/A
LOGGED BY JJH | **GROUND WATER ELEVATION** N/A
REMARKS Lat/Long: 44.103428°, -103.151094°

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	GW LEVEL	BORING ABANDONMENT
ND	--	30	DP S1		0	CL		**Silty Lean Clay**, brown, moist		
					1			**Fat Clay**, gray/brown, moist (weathered shale)		
ND	--	30	DP S2		2					
					3					
					4					
ND	--	30	DP S3		5					
					6					
					7	CH				
ND	--	30	DP S4		8					
					9					Bentonite Chips
ND	--	30	DP S5		10					
					11					
					12					
ND	--	30	DP S6		13					
					14			**Fat Clay**, gray/brown, moist (unweathered shale)		
ND	--	30	DP S7		15					
					16	CH				
					17					
					18			End of Boring - Sampler Refusal		

AET_ENVI P-0048949.GPJ AET WITH PID INFO 7/9/26

APPENDIX D
RBCA Site Conceptual Model

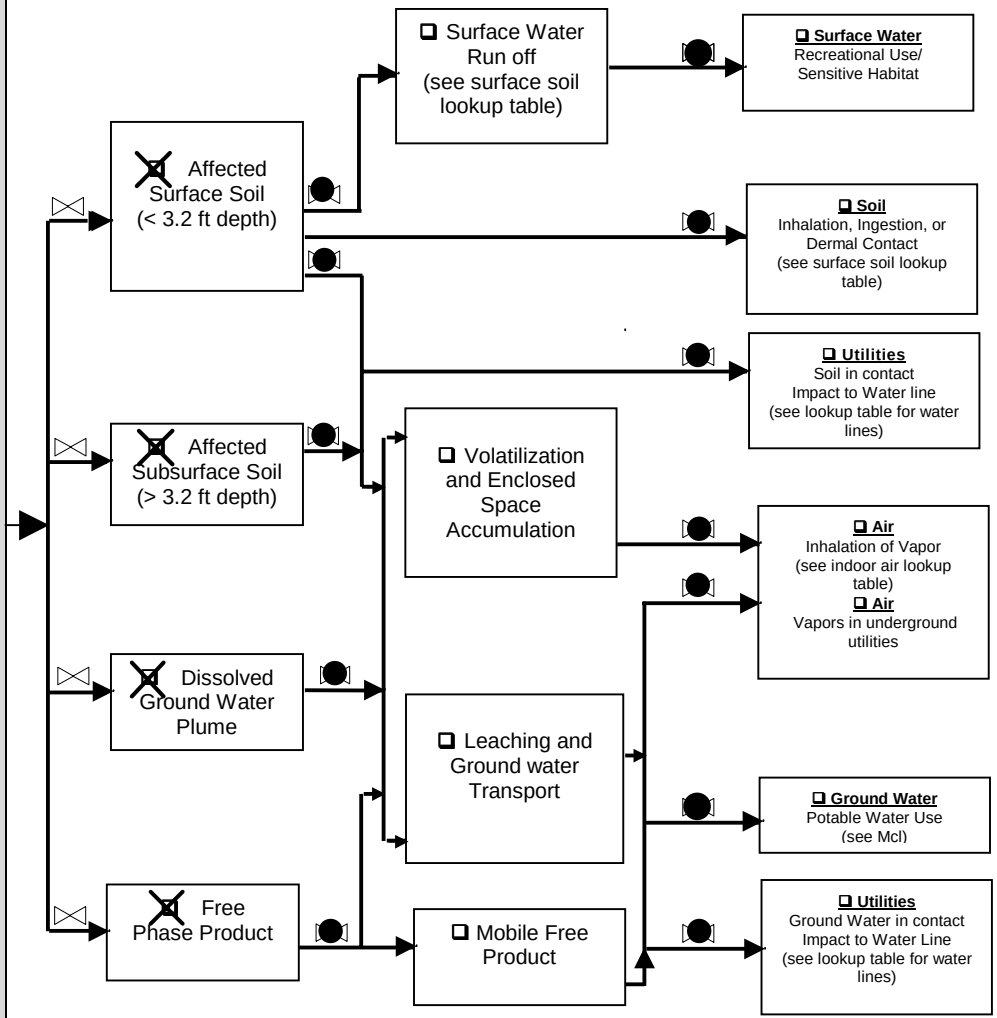
SOUTH DAKOTA DANR
RBCA SITE CONCEPTUAL MODEL SHEET

SITE NAME	Flying J Travel Plaza	**DATE COMPLETED**	July 9, 2026	**DANR SPILL #**
SITE LOCATION	4200 N Interstate 90 Service Road, Rapid City, SD	**COMPLETED BY**	Jeremy Huot, AET, Inc.	2025.152

Step 1 – Baseline Exposure: Fill in Box (❑) to identify applicable sources, transport mechanisms, and receptors.
Step 2 – Remedial Measures: Fill in shut-off valves (⋈) to indicate removal / remedial action, containment measure, or institutional controls to be used to "shut off" exposure pathway.

PRIMARY SOURCES

- ☒ **Storage Tanks**
- ☒ **Piping/ Pump Island**
- ❑ **Handling**
- ❑ **Transportation Accident**
- ❑ **Vandalism**
- ❑ **Transformer**
- ❑ **Sump Waste**
- ❑ **Drums**
- ❑ **Other**



POTENTIAL RECEPTORS

On-Site ❑ Residential ❑ Commercial ❑ Construction worker

On-Site ❑ Residential ❑ Commercial

Off-Site ❑ Residential ❑ Commercial

APPENDIX E
Laboratory Report

MIDCONTINENT
TESTING LABORATORIES, INC.

2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
(605) 348-0111 -- www.thechemistrylab.com

Sample Site:	SB-1 6-10'
Project Name:	Flying J Tier 2
Project Number:	P-0048949
Sampled:	06/05/26 at 09:00 AM by Jeremy Huot
Sample Matrix:	Soil

AET
1745 SAMCO ROAD
RAPID CITY, SD 57702

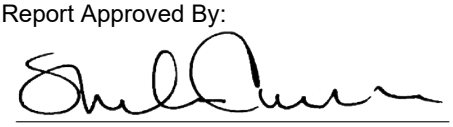
Lab ID#:	20260605541
Received:	06/05/26 at 11:28 AM by Ryan Bucy
Account:	W1202 - AET - Rapid City

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst	Date
Volatile								
Benzene	< 0.050	mg/kg	1	0.004	0.050	SW846 8021B-S	SAC	06/10/26
Ethylbenzene	< 0.100	mg/kg	1	0.004	0.100	SW846 8021B-S	SAC	06/10/26
Methyl tertiary-Butyl Ether	< 0.100	mg/kg	1	0.004	0.100	SW846 8021B-S	SAC	06/10/26
Naphthalene	< 0.200	mg/kg	1	0.018	0.200	SW846 8021B-S	SAC	06/10/26
Toluene	< 0.100	mg/kg	1	0.005	0.100	SW846 8021B-S	SAC	06/10/26
Xylenes(o,m,p)	< 0.200	mg/kg	1	0.008	0.200	SW846 8021B-S	SAC	06/10/26
Total Volatile Hydrocarbons								
TPH as Gasoline	< 10.0	mg/kg	1	1.12	10.0	SW846 8015B-S	SAC	06/10/26
Semi-Volatile								
TPH Diesel	< 10.0	mg/kg	1	4.24	10.0	SW846 8015B-S	SAC	06/10/26
Extraction								
Extraction TPH/SOC	1.00	none	1			SW846 3550	SAC	06/09/26

Quality Control Data

Parameter	Result	Limits	DF	Method	Analyst	Date
Surrogate Recovery-SV						
Ortho-Terphenyl	96.1 %	(56.49) - (126.6)	1	SW846 8015-S QC	SAC	06/10/26
Surrogate Recovery-Volatile						
4-Bromofluorobenzene	90.3 %	(39.97) - (186.2)	1	SW846 8021B QC	SAC	06/10/26
	- Result is within QC guidelines of 70 - 130%					

Report Approved By:



Report Approved On: 6/19/2026 3:37:32 PM

MIDCONTINENT
TESTING LABORATORIES, INC.

2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
(605) 348-0111 -- www.thechemistrylab.com

Sample Site:	SB-2 15-17.5'
Project Name:	Flying J Tier 2
Project Number:	P-0048949
Sampled:	06/05/26 at 10:10 AM by Jeremy Huot
Sample Matrix:	Soil

AET
1745 SAMCO ROAD
RAPID CITY, SD 57702

Lab ID#:	20260605542
Received:	06/05/26 at 11:28 AM by Ryan Bucy
Account:	W1202 - AET - Rapid City

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst	Date
Volatile								
Benzene	< 0.050	mg/kg	1	0.004	0.050	SW846 8021B-S	SAC	06/10/26
Ethylbenzene	< 0.100	mg/kg	1	0.004	0.100	SW846 8021B-S	SAC	06/10/26
Methyl tertiary-Butyl Ether	< 0.100	mg/kg	1	0.004	0.100	SW846 8021B-S	SAC	06/10/26
Naphthalene	< 0.200	mg/kg	1	0.018	0.200	SW846 8021B-S	SAC	06/10/26
Toluene	< 0.100	mg/kg	1	0.005	0.100	SW846 8021B-S	SAC	06/10/26
Xylenes(o,m,p)	< 0.200	mg/kg	1	0.008	0.200	SW846 8021B-S	SAC	06/10/26
Total Volatile Hydrocarbons								
TPH as Gasoline	< 10.0	mg/kg	1	1.12	10.0	SW846 8015B-S	SAC	06/10/26
Semi-Volatile								
TPH Diesel	< 10.0	mg/kg	1	4.24	10.0	SW846 8015B-S	SAC	06/10/26
Extraction								
Extraction TPH/SOC	1.00	none	1			SW846 3550	SAC	06/09/26

Quality Control Data

Parameter	Result	Limits	DF	Method	Analyst	Date
Surrogate Recovery-SV						
Ortho-Terphenyl	95.3 %	(56.49) - (126.6)	1	SW846 8015-S QC	SAC	06/10/26
Surrogate Recovery-Volatile						
4-Bromofluorobenzene	90.2 %	(39.97) - (186.2)	1	SW846 8021B QC	SAC	06/10/26
	- Result is within QC guidelines of 70 - 130%					

Report Approved By:



Report Approved On: 6/19/2026 3:37:32 PM

MIDCONTINENT
TESTING LABORATORIES, INC.

2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
(605) 348-0111 -- www.thechemistrylab.com

Lab Numbers: 20260605541 - 20260605542

QC Sample Report

Parameter	Lab#	QC Value	Smp Value	Spike	DF	Result	Limits	Method
Spike								
Benzene	0603556	0.890	< 0.050	1.00	1	89.0 %	(72.03) - (114.0)	SW846 8021B-S
Ethylbenzene	0603556	0.938	< 0.100	1.00	1	93.8 %	(77.31) - (117.6)	SW846 8021B-S
MTBE	0603556	0.906	< 0.400	1.00	1	90.6 %	(68.87) - (111.1)	SW846 8021B-S
Naphthalene	0603556	0.887	< 0.200	1.00	1	88.7 %	(55.64) - (135.9)	SW846 8021B-S
Toluene	0603556	0.945	< 0.100	1.00	1	94.5 %	(75.37) - (115.2)	SW846 8021B-S
Xylenes(o,m,p)	0603556	2.86	< 0.200	3.00	1	95.2 %	(75.28) - (119.6)	SW846 8021B-S
TPH Gas	0603552	97.4	< 10.0	100	1	97.4 %	(60.91) - (122.4)	SW846 8015B-S
Matrix Spike Duplicate								
Benzene	0603556	0.876	0.890		1	-1.59%	(-14.78) - (10.36)	SW846 8021B-S
Ethylbenzene	0603556	0.918	0.938		1	-2.16%	(-19.79) - (14.67)	SW846 8021B-S
MTBE	0603556	0.894	0.906		1	-1.33%	(-12.62) - (8.601)	SW846 8021B-S
Naphthalene	0603556	0.796	0.887		1	-10.8 %	(-32.31) - (30.06)	SW846 8021B-S
Toluene	0603556	0.928	0.945		1	-1.82%	(-18.80) - (15.11)	SW846 8021B-S
Xylenes(o,m,p)	0603556	2.81	2.86		1	-1.59%	(-17.61) - (13.89)	SW846 8021B-S
TPH Gas	0603552	97.0	97.4		1	-0.432%	(-16.99) - (11.73)	SW846 8015B-S
Duplicate								
TPH-Diesel	0608541	< 10.0	< 10.0		1	0.00%	(-36.63) - (41.41)	SW846 8015B-S
Initial Calibration Verification								
TPH-Diesel		870	1000		1	-13.0 %	(-37.45) - (25.82)	SW846 8015B-S
Continuing Calibration Verification								
Benzene		22.7	25.0		1	-9.03%	(-16.02) - (2.106)	SW846 8021B
Benzene		23.5	25.0		1	-6.01%	(-15.66) - (1.903)	SW846 8021B
Benzene		23.5	25.0		1	-6.07%	(-15.66) - (1.903)	SW846 8021B
Benzene		22.5	25.0		1	-9.91%	(-15.50) - (1.386)	SW846 8021B
Benzene		21.9	25.0		1	-12.4 %	(-15.50) - (1.386)	SW846 8021B
Benzene		23.2	25.0		1	-7.10%	(-15.50) - (1.386)	SW846 8021B
Ethylbenzene		23.6	25.0		1	-5.52%	(-12.24) - (5.441)	SW846 8021B
Ethylbenzene		24.4	25.0		1	-2.45%	(-12.41) - (5.315)	SW846 8021B
Ethylbenzene		25.3	25.0		1	1.18%	(-12.41) - (5.315)	SW846 8021B
Ethylbenzene		23.6	25.0		1	-5.47%	(-12.42) - (5.380)	SW846 8021B
Ethylbenzene		24.5	25.0		1	-2.11%	(-12.42) - (5.380)	SW846 8021B
Ethylbenzene		23.1	25.0		1	-7.62%	(-12.42) - (5.380)	SW846 8021B
MTBE		22.7	25.0		1	-9.22%	(-16.65) - (4.363)	SW846 8021B
MTBE		23.1	25.0		1	-7.79%	(-16.50) - (3.352)	SW846 8021B

Lab Numbers: **20260605541 - 20260605542**

Parameter	Lab#	QC Value	Smp Value	Spike	DF	Result	Limits	Method	
Continuing Calibration Verification									
MTBE		23.3	25.0		1	-6.95%	(-16.50) - (3.352)	SW846 8021B	
MTBE		22.9	25.0		1	-8.23%	(-15.19) - (0.9161)	SW846 8021B	
MTBE		22.0	25.0		1	-12.2 %	(-15.19) - (0.9161)	SW846 8021B	
MTBE		22.4	25.0		1	-10.5 %	(-15.19) - (0.9161)	SW846 8021B	
Naphthalene		24.0	25.0		1	-4.08%	(-33.94) - (17.32)	SW846 8021B	
Naphthalene		24.1	25.0		1	-3.70%	(-31.97) - (16.92)	SW846 8021B	
Naphthalene		30.7	25.0		1	22.9 %	(-31.97) - (16.92)	SW846 8021B	X
- Result within QC guidelines of +/- 30%.									
Naphthalene		24.9	25.0		1	-0.416%	(-36.23) - (25.70)	SW846 8021B	
Naphthalene		23.6	25.0		1	-5.76%	(-36.23) - (25.70)	SW846 8021B	
Naphthalene		23.4	25.0		1	-6.37%	(-36.23) - (25.70)	SW846 8021B	
Toluene		23.6	25.0		1	-5.48%	(-11.95) - (5.436)	SW846 8021B	
Toluene		24.4	25.0		1	-2.36%	(-12.20) - (5.384)	SW846 8021B	
Toluene		24.9	25.0		1	-0.484%	(-12.20) - (5.384)	SW846 8021B	
Toluene		22.5	25.0		1	-9.82%	(-12.14) - (5.320)	SW846 8021B	
Toluene		23.6	25.0		1	-5.72%	(-12.14) - (5.320)	SW846 8021B	
Toluene		22.9	25.0		1	-8.46%	(-12.14) - (5.320)	SW846 8021B	
Xylenes(o,m,p)		70.2	75.0		1	-6.43%	(-11.80) - (4.653)	SW846 8021B	
Xylenes(o,m,p)		82.9	75.0		1	10.5 %	(-12.33) - (4.755)	SW846 8021B	X
- Recovery was within 20% of expected value									
Xylenes(o,m,p)		72.4	75.0		1	-3.42%	(-12.33) - (4.755)	SW846 8021B	
Xylenes(o,m,p)		69.3	75.0		1	-7.57%	(-15.93) - (9.272)	SW846 8021B	
Xylenes(o,m,p)		71.4	75.0		1	-4.77%	(-15.93) - (9.272)	SW846 8021B	
Xylenes(o,m,p)		68.6	75.0		1	-8.53%	(-15.93) - (9.272)	SW846 8021B	
TPH Gas		1930	2000		1	-3.50%	(-22.33) - (15.75)	SW846 8015B	
TPH Gas		2380	2000		1	19.1 %	(-21.08) - (15.50)	SW846 8015B	X
- Sample matrix carry over. Additional CCV ran and within QC guidelines.									
TPH Gas		1940	2000		1	-3.14%	(-21.08) - (15.50)	SW846 8015B	
TPH Gas		2030	2000		1	1.44%	(-20.51) - (15.37)	SW846 8015B	
TPH Gas		1960	2000		1	-2.14%	(-20.51) - (15.37)	SW846 8015B	
TPH Gas		1910	2000		1	-4.45%	(-20.51) - (15.37)	SW846 8015B	
TPH-Diesel		1010	1000		1	1.10%	(-22.46) - (20.19)	SW846 8015B-S	
TPH-Diesel		1120	1000		1	11.9 %	(-22.46) - (20.19)	SW846 8015B-S	
Lab Control Spike									
Benzene		0.927	0.00	1.00	1	92.7 %	(74.34) - (116.9)	SW846 8021B-S	
Ethylbenzene		0.972	0.00	1.00	1	97.2 %	(77.31) - (122.4)	SW846 8021B-S	
MTBE		0.925	0.00	1.00	1	92.5 %	(63.76) - (124.7)	SW846 8021B-S	
Naphthalene		0.841	0.00	1.00	1	84.1 %	(51.16) - (115.5)	SW846 8021B-S	
Toluene		0.986	0.00	1.00	1	98.6 %	(76.42) - (121.2)	SW846 8021B-S	
Xylenes(o,m,p)		2.97	0.00	3.00	1	98.9 %	(78.21) - (119.9)	SW846 8021B-S	
TPH Gas		103	0.00	100	1	103.2 %	(77.68) - (121.5)	SW846 8015B-S	
TPH-Diesel		174	0.00	200	1	87.0 %	(60.74) - (98.66)	SW846 8015B-S	
Lab Reagent Blank									
Benzene		0.00	0.00		1	0	(-0.0082) - (0.0095)	SW846 8021B-S	

Lab Numbers: **20260605541 - 20260605542**

Parameter	Lab#	QC Value	Smp Value	Spike	DF	Result	Limits	Method
Lab Reagent Blank								
Ethylbenzene		0.00	0.00		1	0	(0.000) - (0.000)	SW846 8021B-S
MTBE		0.032	0.00		1	0.03169	(-0.0397) - (0.0797)	SW846 8021B-S
Naphthalene		0.00	0.00		1	0	(-0.0079) - (0.0092)	SW846 8021B-S
Toluene		0.023	0.00		1	0.02258	(-0.0313) - (0.0412)	SW846 8021B-S
Xylenes(o,m,p)		0.00	0.00		1	0	(-0.0519) - (0.0992)	SW846 8021B-S
TPH Gas		0.414	0.00		1	0.41365	(-1.742) - (3.187)	SW846 8015B-S
TPH-Diesel		0.00	0.00		1	0	(-4.629) - (7.018)	SW846 8015B-S

Approved By: 

Approved On: 06/19/2026 03:37 PM