



MORNINGSTAR
OPERATING

May 5, 2026

Montana Board of Oil and Gas Conservation
2535 St. Johns Avenue
Billings, MT 59102

Attn: Mr. John Gizicki
UIC Program Manager

RE: Application for UIC Permit and Authorization to Drill a Class II Injection Well
Location of proposed Disposal Well & Facility: Whiplash Vaira 4-2-h
Location: LOT 2, Section 4, Township 24N, Range 55E. P.M.M.
Richland County, Montana

Dear Mr. Gizicki,

MorningStar Operating, LLC (MorningStar) respectfully requests approval of an Underground Injection Control (UIC) permit for the referenced location and as described in the attached application. MorningStar intends to submit a Form 4 Sundry Notice request to convert the existing well to a salt water disposal well.

MorningStar has provided notice to the appropriate parties within ¼ mile area of review of the proposed well location and requests that the application be placed on the docket for the MBOGC hearing scheduled June 11, 2026. A public legal notice has been published in the Helena Independent Record and the Sidney Herald, publication dates May 2, 2026, and evidence and proof of publication is included in the UIC Application Exhibits.

If you have any questions concerning the enclosed application, please contact Amy Doebele at (435) 789-1017 or to Erin Donovan with MorningStar Operating, LLC at (817) 334-7871.

Sincerely,

Brodie Savage
Vice President – Northern Operations
MorningStar Operating LLC
bsavage@txopartners.com
(817) 334-7745

400 W 7TH STREET ★ FORT WORTH, TX 76102 ★
817.334.7800

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING

Underground Injection Control Application

Whiplash Vaira 4-2-H

Section 4 of T24N-R55E

Richland County, Montana

Board of Oil and Gas Conservation

Of the State of Montana

Docket No: TBD

June 11, 2026

RECEIVED

MAY 06 2026

**MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS**



MORNINGSTAR
OPERATING

Underground Injection Control (UIC) Permit Application

Whiplash Vaira 4-2-H Injection

The following report and justification are submitted in support of the application by MorningStar Operating, LLC to permit the conversion of the Whiplash Vaira 4-2-H, which is a Bakken producer, for the purpose of water injection into the Dakota/Lakota, as required by Rule 36.22.1403 of the Rules and Regulations of the Montana Board of Oil and Gas Conservation.

1 (a) Location of Injection Well:

The Whiplash Vaira 4-2-H well is herein proposed for conversion to a water injection well. This well was originally drilled horizontally to the Devonian Bakken formation in 2002. The Bakken was successfully produced from 2002 until economic limits were reached in 2025. Exhibit 1 shows the surface location and a circle of a quarter (1/4) mile or 1,320 feet radius representing the area of review (AOR).

Well Name	Footage Calls	Section Calls
Whiplash Vaira 4-2-H	260' FNL, 2080' FEL	E2 of Sec 4 of T24N R55E

1 (b) Location and Mechanical Condition of Wells within a Quarter Mile (1,320 feet) Area of Review (AOR) which Penetrate Injection Zone:

There are 2 producing wells with laterals penetrating the ¼ mile radius at around 9830' TVD in the Middle Bakken, the Burning Tree Luren 31-4-H (NWNWNW of section 31 of T25N R56E) and the Burning Tree Jessie 31-3-HID3, which are operated by Morning Star Operating, and whose surface holes are located 5554 feet to the northwest and 5290 feet to the north, respectively, of the proposed SWD. There are 3 producing wells penetrating the ½ mile radius, the Whiplash Chloe 4-11-HID3 (1350' west), Whiplash Gizmo 10-13-HSU (7329' southeast), Whiplash Betty 4-4-H (2672' west), and the Burning Tree Julson 31-16-H (2224' east northeast).

Well Name	Operator	Surface Hole Distance to Proposed Conversion (ft)
Burning Tree Luren 31-4-H	MorningStar	5554
Burning Tree Jessie 31-3-HID3	MorningStar	5290

1 (c) Location of all pipelines which will be used to transport fluids to the well:

Produced water from Bakken MorningStar Operating wells will be delivered to the location by truck.

If pipeline installations can be justified economically, MorningStar may opt to install transfer lines to minimize truck traffic on both county and lease roads, particularly from new development activity, for example. If this occurs, the lines would be flushed with

RECEIVED

MAY 06 2026



MORNINGSTAR
OPERATING

freshwater first and pressure tested prior to use. Meters would be assigned to all associated sites to verify shipment and injection water volumes are aligned.

1 (d) Area Producing Formations, Freshwater Aquifers, and Water Well Information:

There are two wells with laterals penetrating the ¼ mile area producing from an oil and gas zone, the afore mentioned Burning Tree Luren 31-4-H and the Burning Tree Jessie 31-3-HID3, and no water wells located within the ¼ mile AOR.

Fresh water well data was obtained from the Ground Water Information Center (MBMG Data Center) website [https:// https://mbmggwic.mtech.edu/](https://mbmggwic.mtech.edu/). There are no freshwater wells which are produced within the AOR of the proposed injector. Water wells located outside the AOR but in the general vicinity of the planned Whiplash Vaira 4-2-H have been drilled no deeper than 100 feet. See Exhibit 2 for their location.

Well Name	GWIC ID	Location	Use	Distance from Proposed SWD (ft)	Total Depth (ft)
Vaira Alfred	3019	Sec 4, T24N, R55E 47.8663, -104.6583	Stock water	1714	46
Vaira David	37219	Sec 3, T24N, R55E 47.863339, -104.656642	Unknown	2586	52

There is a very thin Glacial Till near the surface in this area, which normally does not produce much water.

There is an upper member of the Fort Union, the Tongue River, with water production normally less than 200 feet from the surface. There have been several shallow water wells drilled for stock water and domestic use that appear to be in this zone. There are not any of these wells in the ¼ mile AOR. There is a water quality sample taken at the Vaira Alfred well (GWIC ID 3019) in section 4 of T24N, R55E. Total dissolved solids for a sample taken in 2016 for this water well located approximately 1700' east of the Whiplash Vaira 4-2-H were 2533ppm (see Exhibit 3 for full analysis).

The Hell Creek and Fox Hills zones act as potential sources of freshwater as well. The depth to the Fox Hills-Lower Hell Creek Aquifer is approximately 1200 feet at the Whiplash Vaira 4-2-H per mapping work by Larry Smith entitled "Depth to the Fox Hills-Lower Hell Creek Aquifer, Lower Yellowstone River Area" published in MBMG's GWAA-Montana Ground-Water Assessment Atlas (1-B-03), 1998. Surface casing has been cemented to the surface in the wellbore to protect these shallow freshwater zones.

Any potential Underground Sources of Drinking Water (USDW) are protected from the proposed injection zone by surface casing set in the Whiplash Vaira 4-2-H to 1590' MD and cemented to surface. An intermediate 7-inch casing was set at 10260' MD (at

RECEIVED

MAY 06 2026



MORNINGSTAR
OPERATING

approximately 90°) and cemented with 670 sacks of cement. In December 2002, the 7” casing was perforated from 4,948’ – 5,250’ and squeezed with an additional 125 sacks of cement. In August 2008, the 7” casing was perforated from 4,946’ – 4,952’ and squeezed with an additional 25 sacks of cement. A CBL was ran 4/1/2026 which documents a TOC at 4,840’ MD. Tubing and an injection packer will result in further isolation of fresh USDW from produced water.

1 (e) Name and Geologic Description of Injection Zone:

DAKOTA AND LAKOTA SANDSTONE DESCRIPTION

The Whiplash Vaira 4-2-H will be completed for disposal into the Dakota and Lakota formations. The Dakota/Lakota in this well is comprised of fine to medium grained sandstone deposited in a channel environment as part of the Cretaceous system.

Formation	Lithology	TVD Top (ft)	TVD Base (ft)	Net pay (ft)	Pressure (PSI)	Porosity
Dakota	Sandstone	4993	5407	42	2172	21%
Lakota	Sandstone	5407	5479	29	2352	21%

Depth and net pay for each of the proposed injection zones are estimated from the Cement Bond Log with Gamma Ray ran August 20, 2002, on the Whiplash Vaira 4-2-H. The porosity is based on sonic log estimates from the following wellbores: R Fink 1-A (1/2 miles E), Boles 1-2 (1.5 miles E), Vaira 2-35X (2 miles NW), and Larson 18-1 (2.75 miles SW). The porosity was derived from a sonic log curve calculated using a consolidated sandstone matrix. Formation pressure was estimated using a water gradient of 0.435 psi/ft.

The upper confining formation for the proposed injection zone is the Cretaceous Skull Creek formation. It is comprised of clastic, shallow marine deposits composed of medium-dark gray shales, calcareous, micaceous, and glauconitic in part, interbedded with siltstones. The Skull Creek is 150 feet thick in this area.

The lower confining formation for the proposed injection zone is the Jurassic Morrison, Swift, and Rierdon formations. The aforementioned formations lie immediately below the Lakota and are primarily made up of transgressive-regressive, clastic, shallow marine deposits composed of dark gray-green shales, slightly calcareous, dark gray-green, waxy shales, and is commonly interbedded with glauconitic siltstones and sandstones with occasional carbonate packstones and grainstones. The lower confining interval is approximately 742 feet of impermeable rock facies.

The actual fracture gradients for these confining zones are unknown, but fracture gradients for the confining shale layers are known to be higher than those for the underlying sandstone injection zone.

Formation	Lithology	TVD Top (ft)	TVD Base (ft)	Thickness (ft)
Skull Creek	Shale	4843	4993	150

RECEIVED

MAY 06 2026



MORNINGSTAR
OPERATING

Mrsn/Swft/Rrdn	Shale	5479	6221	742
----------------	-------	------	------	-----

Considering the vertical distance to any USDW and the maximum feasible injection rate that could occur, the likelihood of a fracture extending from the proposed disposal zone to any USDW under any reasonable disposal conditions is considered low.

For proposed injection interval see Exhibit 4: Cross Section, Exhibit 5: Log of Injection Interval, and Exhibit 6A and 6B: Water Analysis of Injection Intervals.

1 (f) Additional Information on Producing Wells within the AOR:

There are no oil and gas wells producing with a surface hole or vertical penetration of the proposed disposal zone located within the AOR. There is one well with a surface hole within the ½ mile area, the Whiplash Chloe 4-11-HID3 with a TOC at 4700' MD from a CBL run March 15, 2010.

1 (g) Open Hole Logs:

Logs and geologic information of the Whiplash Vaira 4-2-H well are currently on file with the MBOGC. A cement bond log currently exists for the Whiplash Vaira 4-2-H with the top of cement at 4890' MD.

1 (h) Description of the Wellbore Construction:

The current configuration of the wellbore is as indicated on Exhibit 7. The well is currently producing from the Bakken formation. Surface casing was run to 1590' MD and cemented back to surface. Intermediate 7" casing was run to 10260' MD, where 670 sacks of cement were pumped through the 7" shoe and cement circulated up to ~5000'. The lateral was drilled to a TD of 15942' and cemented with 380 sks. The Lateral was completed with 2 fracture stimulation jobs in Sept and November 2002. In December 2002, Top of cement was remediated by perforating the 7" casing at 5248'-50', 5226'-28', 4,948'-50' and squeezing 125 sxs of cement with partial returns to surface and pressure testing. In August 2008, Top of cement was remediated again by perforating the 7" casing at 4,946'-52' and squeezing 25 sxs of cement and pressure testing.

The primary interval proposed for disposal will be the Dakota/Lakota. The well is currently producing. On April 1, 2026, MorningStar ran a CBL confirming top of cement at 4,840' from the August 2008 remedial cement job. For abandonment, MorningStar proposes to set a CICR in the 7" at 9525' MD above the top of liner, pump 40 sacks of cement below and spot 10 sacks of cement on top. Spot a 30-sack balanced plug over the Charles from 7659' to 7909' MD. The proposal also includes setting a CIBP at ~5650' MD with 6 sacks of cement on top. Pressure testing of the wellbore will be conducted. See Exhibit 8 for the proposed wellbore diagram.

The Dakota/Lakota section will be perforated. Water samples will be collected and tested for chlorides levels for UIC review and approval before converting to SWD. This

RECEIVED

MAY 06 2026



MORNINGSTAR
OPERATING

interval will likely be treated with a 15% HCl stimulation. Nickel plated packer and lined injection tubing will be utilized to mitigate corrosion. Packer fluid will be circulated behind the injection string in the 4.5"x7" annulus to also protect from corrosion. The 2 upper 7" casing cement remediation perforations will be isolated behind the injection packer, while the lowest set of perfs 5248'-50' will be re-perforated and used for Dakota Injection.

(i) Description of Injection Fluid:

The fluid to be injected will consist entirely of water produced from the Bakken formation in multiple offsetting MorningStar wells. The anticipated injection volumes will be in the range of 1500 to 3000 BWPD. Actual injection rates may vary. Volumes will be determined by the injection capacity tested during the Step-Rate test. Exhibit 9 is a representative analysis of Bakken formation water chemistry. No incompatibilities are expected.

Surface injection pressures will not be allowed to exceed a maximum set by MBOGC. Using the EPA accepted fracture gradient of 0.733 psi/ft and the following equation, an estimated maximum injection pressure is as follows:

$$IP_{max} = (FG) \cdot (D_{top}) - (SG) \cdot (0.433) \cdot (D_{top})$$

- Where: IP_{max} = Maximum Surface Injection Pressure (psi)
- FG = Assumed Fracture Gradient in Confining Zone = 0.733 psi/ft
- SG = Specific Gravity of Injection Fluid = 1.17
- D_{top} = Depth at top of injection zone (ft) = 5243

The computed maximum injection pressure would be:

$$= (0.733) \cdot (5243) - (1.17) \cdot (0.433) \cdot (5243) = \mathbf{1187 \text{ psi} = IP_{max}}$$

The computed maximum injection pressure for the Dakota/Lakota sand is 1187 psi. An injection step-rate test will be performed to determine the final injection pressures and volumes to ensure the formation parting pressure (i.e. fracture pressure) is not reached during injection operations.

1 (j) Names and addresses of the leasehold owners, including unleased mineral owners, and the surface owners within the area of review of the input well(s):

The names and addresses of lease hold and surface owners within the area of review for the proposed injection well are listed in Exhibit 10.

RECEIVED

MAY 06 2026



MORNINGSTAR
OPERATING

MorningStar Operating, LLC will notify leasehold owners, surface owners, and unleased minerals in accordance with 36.22.1410(1) notification requirements for an underground injection permit. Affidavit of Notification of Surface and Mineral Owners along with an example of the mailed notice is attached in Exhibit 11.

RECEIVED

MAY 06 2026



MORNING STAR
OPERATING

List of All Exhibits

- Exhibit 1 Map of General Area with Area of Review (AOR)
- Exhibit 2 Map of Fresh Water Wells within Area of Review (AOR)
- Exhibit 3 Fresh Water Sample Analysis
- Exhibit 4 Geologic Cross Section of the Proposed Injection and Confining Intervals
- Exhibit 5 Log of Injection Interval
- Exhibit 6A Water Analysis of Injection Interval – Lower Dakota
- Exhibit 6B Water Analysis of Injection Interval – Upper Dakota
- Exhibit 7 Current Wellbore Diagram
- Exhibit 8 Proposed Wellbore Diagram
- Exhibit 9 Bakken Water Analysis
- Exhibit 10 Surface and Mineral Owner List
- Exhibit 11 Affidavit of Notification to Surface and Mineral Owners
- Exhibit 12 Affidavit of Publication

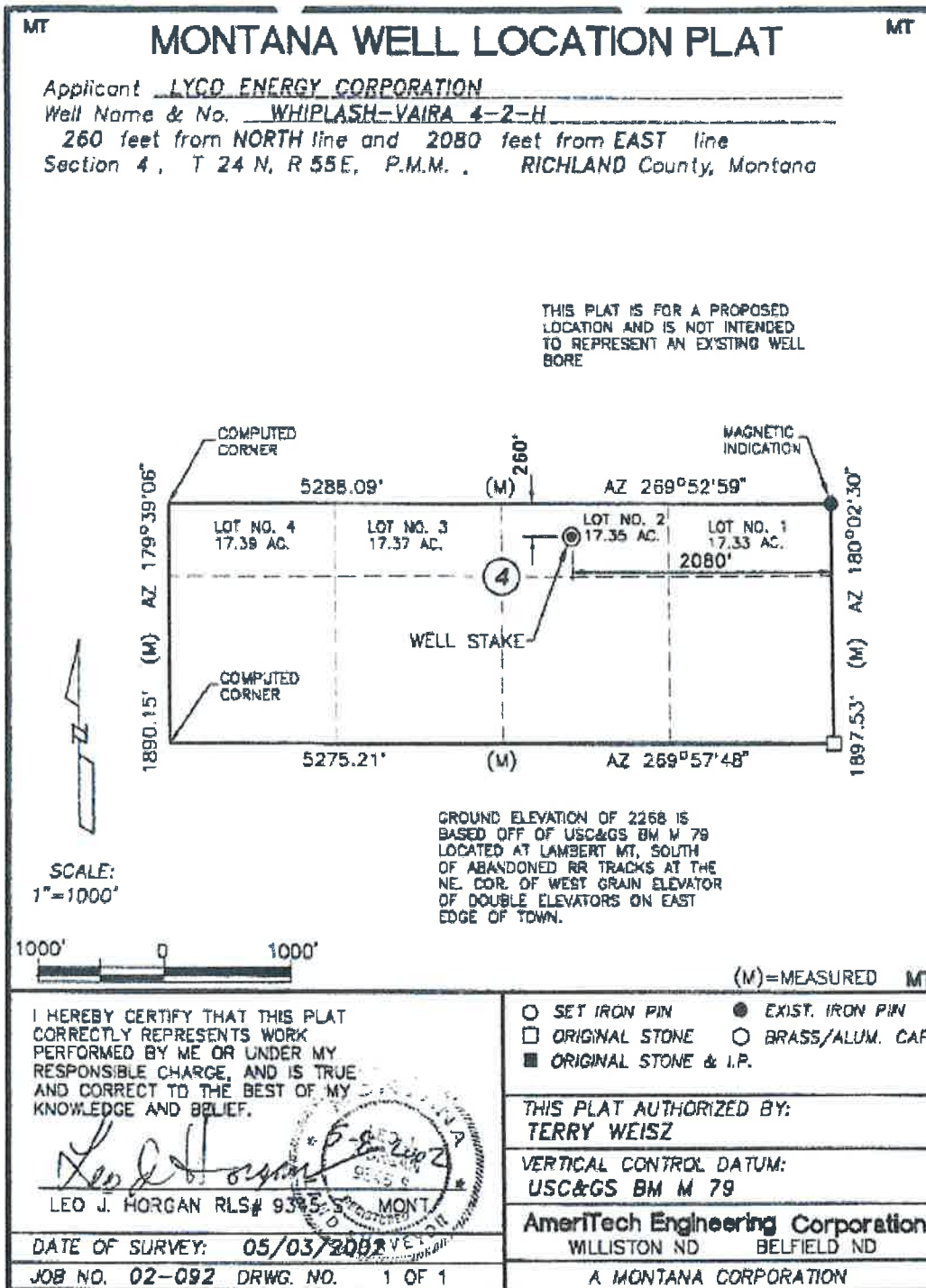
RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING



Map of General Area
Whiplash Vaira 4-2-H
Section 4 of T24N-R55E
Richland County, Montana

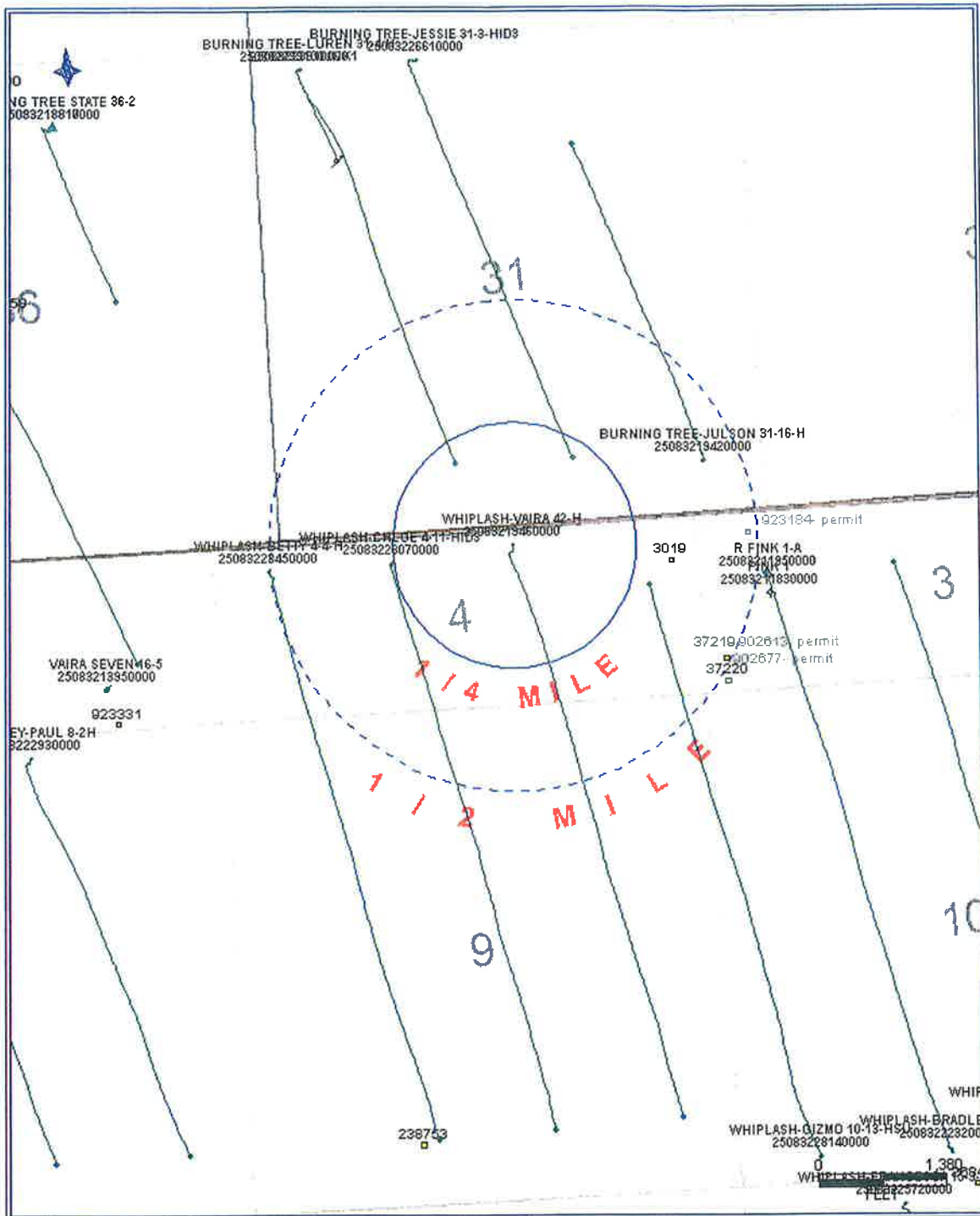
RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING



Map of Freshwater Wells

Whiplash Vaira 4-2-H

Section 4 of T24N-R55E

Richland County, Montana

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNING STAR OPERATING

Freshwater Sample Analysis
Whiplash Vaira 4-2-H
Richland County, MT

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS

4/23/26, 11:12 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report | V.12.2026

Ground-Water Information Center Water Quality Report
Report Date: 4/23/2026

Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT
Compare to Water Quality Standards

Location Information

Sample Id/Site Id: 1980Q2601 / 3019
Location (TRS): 24N 55E 04 DADD
Latitude/Longitude: 47° 51' 58" N 104° 39' 29" W
Datum: NAD27
Altitude: 2259
County/State: RICHLAND / MT
Site Type: WELL
Geology: 12STGRV
USGS 7.5' Quad: GLENDIVE
PWS Id:
Project: EMT_OG_2016

Sample Date: 9/8/1980 8:10:00 AM
Agency/Sampler: USGS / MET
Field Number: 1-149
Lab Date: 12/12/1980
Lab/Analyst: MBMG / FNA
Sample Method/Handling: PUMPED / 4220
Procedure Type: DISSOLVED
Total Depth (ft): 46
SWL-MP (ft): NR
Depth Water Enters (ft): 28

Major Ion Results

Table with 6 columns: Element, mg/L, meq/L, Element, mg/L, meq/L. Rows include Calcium, Magnesium, Sodium, Potassium, Iron, Manganese, Silica, Bicarbonate, Carbonate, Chloride, Sulfate, Nitrate, Fluoride, Orthophosphate.

Trace Element Results (µg/L)

Table with 4 columns: Element, Value, Element, Value, Element, Value, Element, Value. Rows include Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Bromide, Cadmium, Cerium, Cesium, Chromium, Cobalt, Copper, Gallium, Lanthanum, Lead, Lithium, Mercury, Molybdenum, Nickel, Niobium, Neodymium, Palladium, Praseodymium, Rubidium, Silver, Selenium, Strontium, Thallium, Thorium, Tin, Titanium, Tungsten, Uranium, Vanadium, Zinc, Zirconium.

Field Chemistry and Other Analytical Results

Table with 4 columns: Parameter, Value, Parameter, Value, Parameter, Value, Parameter, Value. Rows include Total Dissolved Solids, Sum of Diss. Constituents, Field Conductivity, Lab Conductivity, Field pH, Lab pH, Water Temp, Air Temp, Nitrate + Nitrite, Total Kjeldahl Nitrogen, Total Nitrogen, As(III), Field Hardness, Field Alkalinity, Alkalinity as CaCO3, Ryznar Stability Index, Sodium Adsorption Ratio, Langlier Saturation Index, Nitrite, Hydroxide, Lab, Dissolved Inorganic Carbon, Acidity to 4.5, As(V), Ammonia, T.P. Hydrocarbons, PCP, Phosphorus, TD, Field Nitrate, Field Dissolved O2, Field Chloride, Field Redox, Lab, Dissolved Organic Carbon, Lab, Total Organic Carbon, Acidity to 8.3, Total Susp Solids.

Additional Parameters

Sulfide Total(mg/L-S) L1

Sample Condition:

Field Remarks: SAMPLED AT WELL HEAD * OWNER: ALFRED VAIRA - FAIRVIEW MT *
Lab Remarks: FU ZN 11.3 MG/L *

Notes

Explanation: mg/L = milligrams per liter; µg/L = micrograms per liter; ft = feet; NR = No Reading in GWIC

Qualifiers: A = Hydride atomic absorption; E = Estimated due to interference; H = Exceeded holding time; J = Estimated quantity above detection limit but below reporting limit; K = Na+K combined; N = Spiked sample recovery not within control limits; P = Preserved sample; S = Method of standard additions; U = Undetected quantity below detection limit; * = Duplicate analysis not within control limits; ** = Sum of Dissolved Constituents is the sum of major cations (Na, Ca, K, Mg, Mn, Fe) and anions (HCO3, CO3, SO4, Cl, SiO2, NO3, F) in mg/L. Total Dissolved Solids is reported as equivalent weight of evaporation residue.

Disclaimer

These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.



MORNING STAR OPERATING

RECEIVED

MAY 06 2026

Freshwater Sample Analysis
Whiplash Vaira 4-2-H
Richland County, MT

MONTANA BOARD OF OIL & GAS CONSERVATION - BILLINGS

4/23/26, 11:11 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report | V.12.2026

Ground-Water Information Center Water Quality Report
Report Date: 4/23/2026

Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT
Compare to Water Quality Standards

Location Information

Sample Id/Site Id: 222012 / 3019
Location (TRS): 24N 55E 04 DADD
Latitude/Longitude: 47° 51' 58" N 104° 39' 29" W
Datum: NAD27
Altitude: 2259
County/State: RICHLAND / MT
Site Type: WELL
Geology: 125TGRV
USGS 7.5' Quad: GLENDIVE
PWS Id:
Project: EMT_OG_2016

Sample Dates: 8/22/2016 3:44:00 PM
Agency/Sampler: MBMG / BROWN, ALLISON
Field Number: 3019 D. VAIRA
Lab Date: 10/17/2016 6:36:46 AM
Lab/Analyst: MBMG / TIMMER, JACKIE
Sample Method/Handling: PUMPED / ru:1 ra:0 fu:2 fa:2
Procedure Type: DISSOLVED
Total Depth (ft): 46
SWL-MP (ft): NR
Depth Water Enters (ft): 28

Major Ion Results

Table with 6 columns: Ion Name, mg/L, meq/L, Ion Name, mg/L, meq/L. Includes Calcium, Magnesium, Sodium, Potassium, Iron, Manganese, Silica, Bicarbonate, Carbonate, Chloride, Sulfate, Nitrate, Fluoride, Orthophosphate, Total Cations, and Total Anions.

Trace Element Results (µg/L)

Table with 6 columns: Element Name, Value, Element Name, Value, Element Name, Value. Includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Bromide, Cadmium, Cerium, Cesium, Chromium, Cobalt, Copper, Gallium, Lanthanum, Lead, Lithium, Mercury, Molybdenum, Nickel, Niobium, Neodymium, Palladium, Praseodymium, Rubidium, Silver, Selenium, Strontium, Thallium, Thorium, Tin, Titanium, Tungsten, Uranium, Vanadium, Zinc, and Zirconium.

Field Chemistry and Other Analytical Results

Table with 3 columns: Parameter, Value, Parameter, Value, Parameter, Value. Includes Total Dissolved Solids, Sum of Diss. Constituents, Field Conductivity, Lab Conductivity, Field pH, Lab pH, Water Temp, Air Temp, Nitrate + Nitrite, Total Kjeldahl Nitrogen, Total Nitrogen, As(III), Field Hardness, Hardness as CaCO3, Field Alkalinity, Alkalinity as CaCO3, Ryznar Stability Index, Sodium Adsorption Ratio, Langlier Saturation Index, Nitrite, Hydroxide, Lab. Dissolved Inorganic Carbon, Acidity to 4.5, As(V), Ammonia, T.P. Hydrocarbons, PCP, Phosphorus, TD, Field Nitrate, Field Dissolved O2, Field Chloride, Field Redox, Lab. Dissolved Organic Carbon, Lab. Total Organic Carbon, Acidity to 8.3, and Total Susp Solids.

Sample Condition:

Field Remarks:
Lab Remarks:

Explanation: mg/L = milligrams per liter; µg/L = micrograms per liter; ft = feet; NR = No Reading in GWIC

Qualifiers: J = Estimated quantity above detection limit but below reporting limit; P = Preserved sample; S = Method of standard additions; U = Undetected quantity below detection limit; * = Duplicate analysis not within control limits; ** = Sum of Dissolved Constituents is the sum of major cations (Na, Ca, K, Mg, Mn, Fe) and anions (HCO3, CO3, SO4, Cl, SiO2, NO3, F) in mg/L. Total Dissolved Solids is reported as equivalent weight of evaporation residue.

Disclaimer

These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.



MORNING STAR
OPERATING

Freshwater Sample Analysis

Whiplash Vaira 4-2-H

Richland County, MT

4/23/2026, 11:13 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report | V.12.2026

Ground-Water Information Center

Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT

Isotope Tracer Report

Report Date: 4/23/2026

Location Information

Sample Id/Site Id: 222012 / 3019
Location (TRS): 24N 55E 04 DADD
Latitude/Longitude: 47° 51' 58" N 104° 39' 29" W
Datum: NAD27
Altitude: 2259
County/State: RICHLAND / MT
Site Type: WELL
Geology: 125TGRV
USGS 7.5' Quad: GLENDIVE
PWS Id:
Project: EMT_OG_2016

Sample Date: 8/22/2016 3:44:00 PM
Agency/Sampler: MBMG / BROWN, ALLISON
Field Number: 3019 D. VAIRA
Lab Date: 10/17/2016 6:36:46 AM
Lab/Analyst: MBMG / TIMMER, JACKIE
Sample Method/Handling: PUMPED / ru:1 ra:0 fu:2 fa:2
Procedure Type: DISSOLVED
Total Depth (ft): 46
SWL-MP (ft): NR
Depth Water Enters (ft): 28

Radon (Rn222 - pCi/L):	NR	Argon (Ar39):	NR
Carbon (C13):	NR	Silicon (Si32):	NR
Carbon (C14):	NR	Chlorine (Cl36):	NR
Tritium (H3 - TU):	NR	Lithium (Li6):	NR
H3/He3 Ratio:	NR	Krypton (Kr85):	NR
Deuterium (H2):	-153.000	Boron (B11):	NR
Oxygen (O18):	-19.900	Strontium (Sr87):	NR
Sulphur (S34):	NR	Chloro-fluorocarbon (CFC-11):	NR
Iodine (I129):	NR	Chloro-fluorocarbon (CFC-12):	NR
Nitrogen (N15):	NR	Chloro-fluorocarbon (CFC-113):	NR
Nitrogen (N15 of Nitrate):	NR	Oxygen (O18 of Nitrate):	NR
Sulphur (S34 of Sulfate):	NR	Oxygen (O18 of Sulfate):	NR

Sample Condition:
Field Remarks:
Lab Remarks:

Notes

Explanation: pCi/L = picocuries per liter; TU = Tritium Units; NR = No Reading in GWIC

Disclaimer

These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNING STAR
OPERATING

RECEIVED

Freshwater Sample Analysis
Whiplash Vaira 4-2-H
Richland County, MT

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

4/23/26, 11:12 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report (Outside Laboratory) | V.12.2026

Ground-Water Information Center	Organic Report
Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT	Report Date: 4/23/2026

Location Information

Sample Id/ Site Id	10360396002 / 3019	Sample Date	8/22/2016 3:50:00 PM
Location (TRS)	24N 55E 04 DADD	Agency/Sampler	PRIVATE / UNKNOWN
Latitude/Longitude	47.8663N -104.6583W	Field Number	
Datum	NAD27	Lab Name	PACE
Altitude	2259	Analyst	
County/State	RICHLAND / MT	Sample Method/ # Bottles	
Site Type	WELL	Sample Type	

Sample Information

COMPARISON REPORT

Type	Analyte	Value	Units	Qual	Method	MDL	MRL	Rec	Ext	Anl	Staff
	Total Extractable Hydrocarbons	ND	ug/L		MADEP EPH	69.8	202		9/1/2016 8:58:00 AM	9/1/2016	
	1-Chloro-octadecane (S)	83	%		MADEP EPH				9/1/2016 8:58:00 AM	9/1/2016	
	Methyl-tert-butyl ether	ND	ug/L		MADEP VPH	0.28	1			8/30/2016	
	Benzene	ND	ug/L		MADEP VPH	0.12	0.5			8/30/2016	
	Toluene	ND	ug/L		MADEP VPH	0.11	0.5			8/30/2016	
	Ethylbenzene	ND	ug/L		MADEP VPH	0.16	0.5			8/30/2016	
	m&p-Xylene	ND	ug/L		MADEP VPH	0.18	0.5			8/30/2016	
	o-Xylene	ND	ug/L		MADEP VPH	0.099	0.5			8/30/2016	
	Xylene (Total)	ND	ug/L		MADEP VPH	0.28	2			8/30/2016	
	Naphthalene	ND	ug/L		MADEP VPH	0.17	5			8/30/2016	
	Aliphatic, Adjusted(C05-C08)	ND	ug/L		MADEP VPH	1.9	20			8/30/2016	
	Aliphatic, Adjusted(C09-C12)	ND	ug/L		MADEP VPH	0.96	20			8/30/2016	
	Aromatic (C09-C10)	ND	ug/L		MADEP VPH	0.25	20			8/30/2016	
	Total Purgeable Hydro Carbons	ND	ug/L		MADEP VPH	1.8	20			8/30/2016	
	Aliphatic (C09-C12),Unadjusted	ND	ug/L		MADEP VPH	0.96	20			8/30/2016	
	Aliphatic (C05-C08),Unadjusted	ND	ug/L		MADEP VPH	1.9	20			8/30/2016	
	a,a,a-Trifluorotoluene (S)	102	%		MADEP VPH					8/30/2016	
	Ethane	ND	ug/L		RSK 175	0.87	10			8/29/2016	
	Ethene	ND	ug/L		RSK 175	0.77	10			8/29/2016	
	Methane	12.8	ug/L		RSK 175	0.49	10			8/29/2016	

Additional Information

Explanation: ND = Non-detect, value was below detection limit. NR = No Reading in GWIC
Disclaimer: These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.



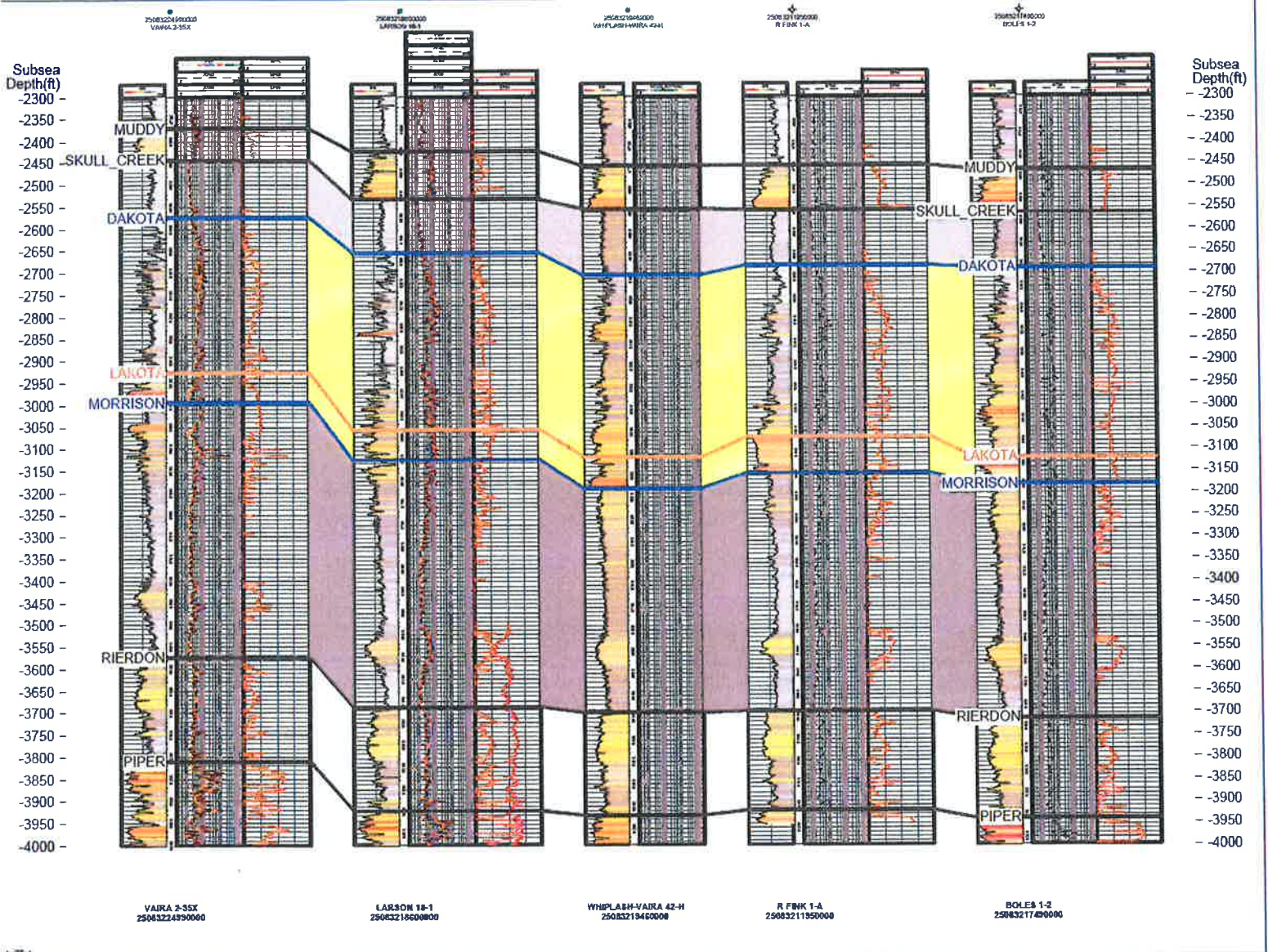
MORNINGSTAR
OPERATING

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

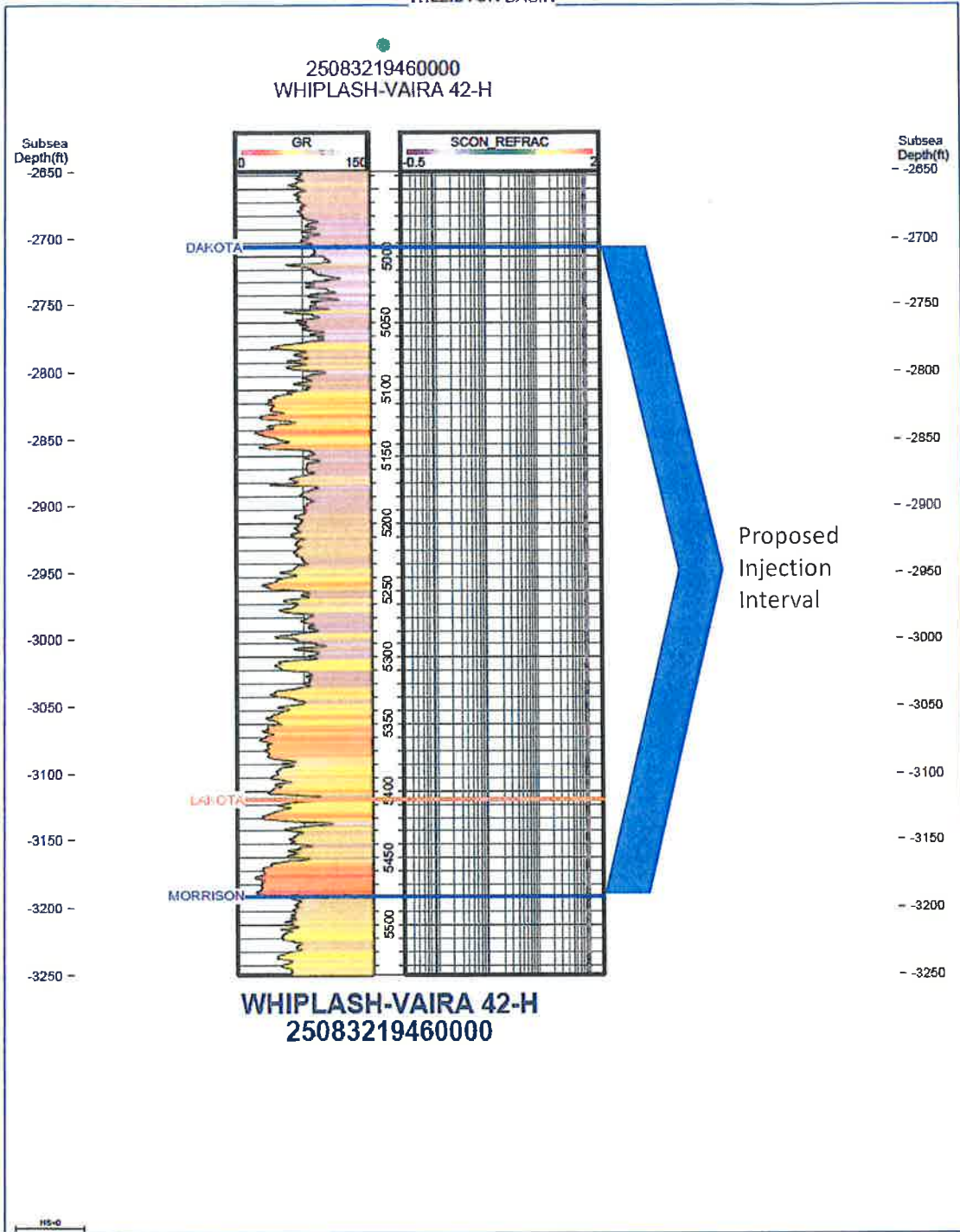
WILLISTON BASIN



Cross Section
Whiplash Vaira 4-2-H
Section 4 of T24N-R55E
Richland County, Montana



MORNINGSTAR
OPERATING
WILLISTON BASIN



Log of Injection Interval
Whiplash Vaira 4-2-H
Section 4 of T24N-R55E
Richland County, Montana

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING

Water Analysis of Injection Interval- Lower Dakota Whiplash Vaira 4-2-H Richland County, MT

SATHE ANALYTICAL LABORATORY, INC.

301 W. 2ND STREET

P.O. BOX 1597
WILLISTON, ND. 58850

701 572-3612

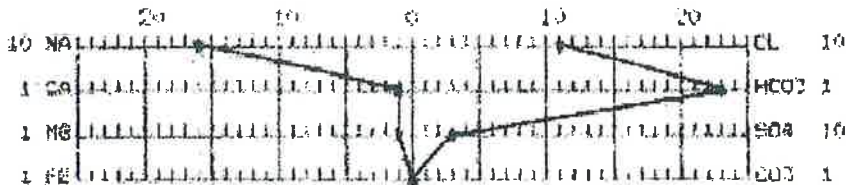
WATER ANALYSIS REPORT

OPERATOR: ENERPLUS RESOURCES L.P. DATE: 4/7/09
 WELL NO. LONG TREE EDNA 1-12 LAB NO.: W-07-1674
 FIELD: not listed FORMATION: Lower Dakota
 COUNTY: Richland INTERVAL: 3844 - 3847
 STATE: ND DST #:
 LOG: not listed SAMPLE: 11TH SWAB RUN-TOTAL 105 BBLs

CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
SODIUM	3580.0	155.7	CHLORIDE	3766.1	106.2
CALCIUM	29.6	1.3	CARBONATE	0.0	0.0
MAGNESIUM	11.4	0.9	BICARBONATE	1415.7	33.2
IRON	0.3	0.0	SULFATE	1532.2	31.9
POTASSIUM	17.4	0.4	NITRATE	0.0	0.0
BARIUM	0.0	0.0			
CHROMIUM	0.0	0.0			

SPECIFIC GRAVITY @ 77°F 1.0005 PH 7.59
 RESISTIVITY @ 77°F, ohm-meters 0.912 APCL (Calc.) 8210.7
 TOTAL DISSOLVED SOLIDS (Calc.) PPM 10302.5 HARDNESS SULFIDE MG

WATER ANALYTE PATTERN - MEQ/L



REMARKS - 11th RUN SWAB - TOTAL 105 BBL 4/7/09.
Received 4/7/09.

DISTRIBUTION OF RESULTS
Rocky Border -- Sidney MT.
Lynn Sundby -- Williston -- Williston ND.

RECEIVED

MAY 06 2006

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNING STAR OPERATING

Water Analysis of Injection Interval- Upper Dakota Whiplash Vaira 4-2-H Richland County, MT

SATHE ANALYTICAL LABORATORY, INC.

101 W. 2ND STREET

P.O. BOX 1507 WILLISTON, ND. 58801

701-572-3632

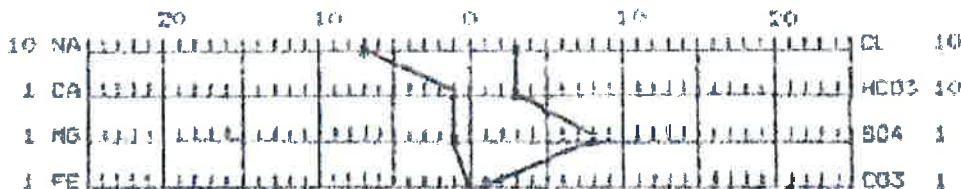
WATER ANALYSIS REPORT

OPERATOR: ENERFLUB L.P. DATE: 4/8/09
WELL NO: LONE TREE EDNA 1-10 LAB NO: W-09-1705
FIELD: not listed FORMATION: Upper Dakota
COUNTY: Richland INTERVAL: 3588-3608
STATE: MT DST #:
LOC: not listed SAMPLE RUN #16-SAMPLE 130 BBL5 BACK

Table with 6 columns: CATIONS, MG/L, MEQ/L, ANIONS, MG/L, MEQ/L. Rows include Sodium, Calcium, Magnesium, Iron, Potassium, Barium, Chromium, Chloride, Carbonate, Bicarbonate, Sulfate, Nitrate.

SPECIFIC GRAVITY @ 77°F 1.000 PH 7.80
RESISTIVITY @ 77°F, ohm-meters 1.369 NACl (Calc.) 1836.1
TOTAL DISSOLVED SOLIDS (Calc.) MG/L 5173.0 HYDROGEN SULFIDE NEG

WATER ANALYSIS FACTORS MEQ/L



REMARKS - Run #16 Sample 130 BBL5 Back. Received 4/8/09.

DISTRIBUTION OF RESULTS Rocky Gardner -- Sidney MT. Lynn Sundby -- Halliburton - Williston ND.

RECEIVED

MAY 06 2006

MONTANA BOARD OF OIL & GAS CONSERVATION - BILLINGS



Initial Wellbore Schematic

API# 25-083-21946

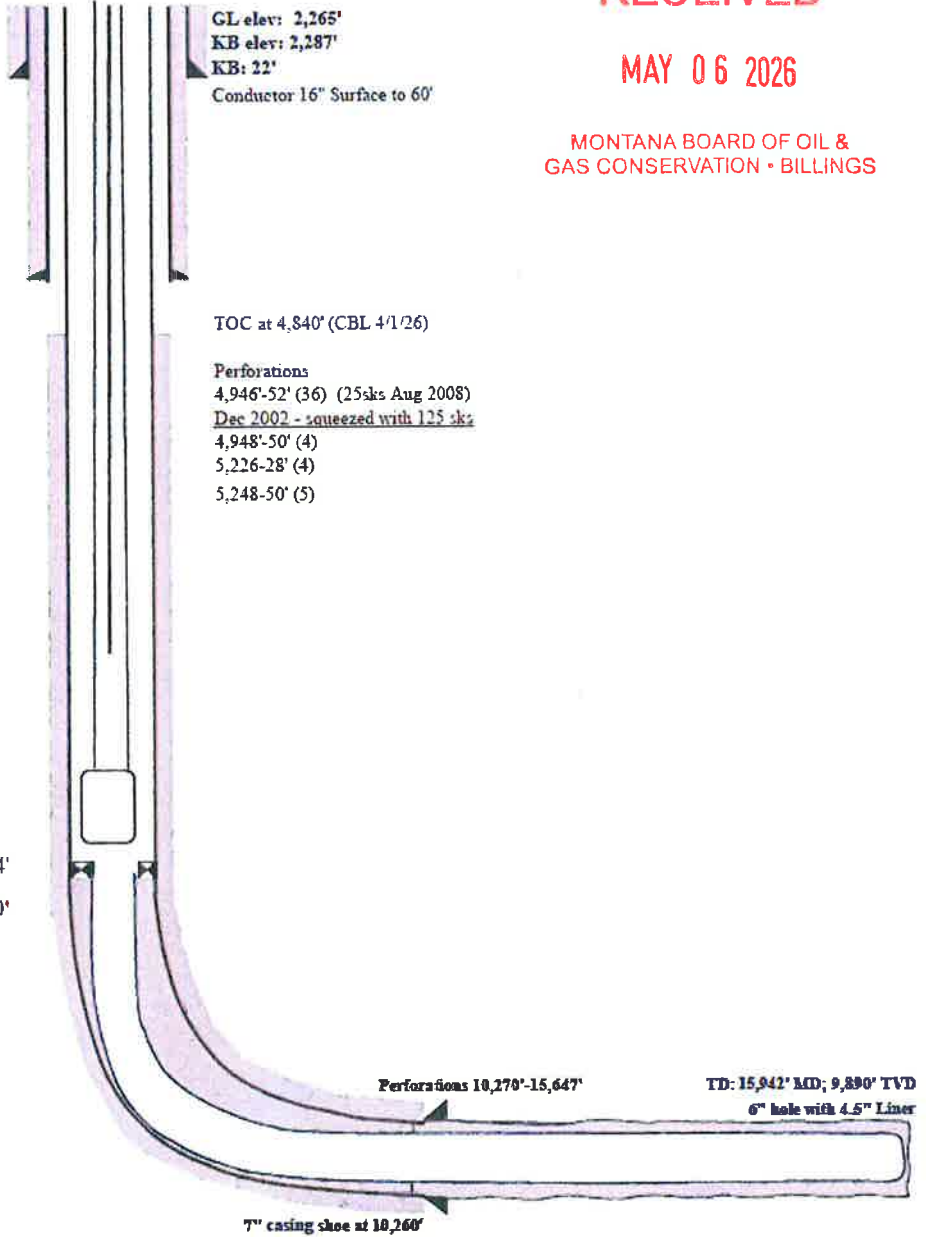
W2 E2 Lot 2 Section 04 - T24N - R55E
260 FNL, 2080 FEL

Surface casing:

9 5/8" 36# J-55 LT&C @ 1,590'
Cemented with 530 Sks

7" Intermediate Casing at 10,260'

7" 29# P-110 LTC to 10,260'
Cemented with 670 + 150 sks



RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

Current Wellbore Diagram
Whiplash Vaira 4-2-H
Section 4 of T24N-R55E
Richland County, Montana



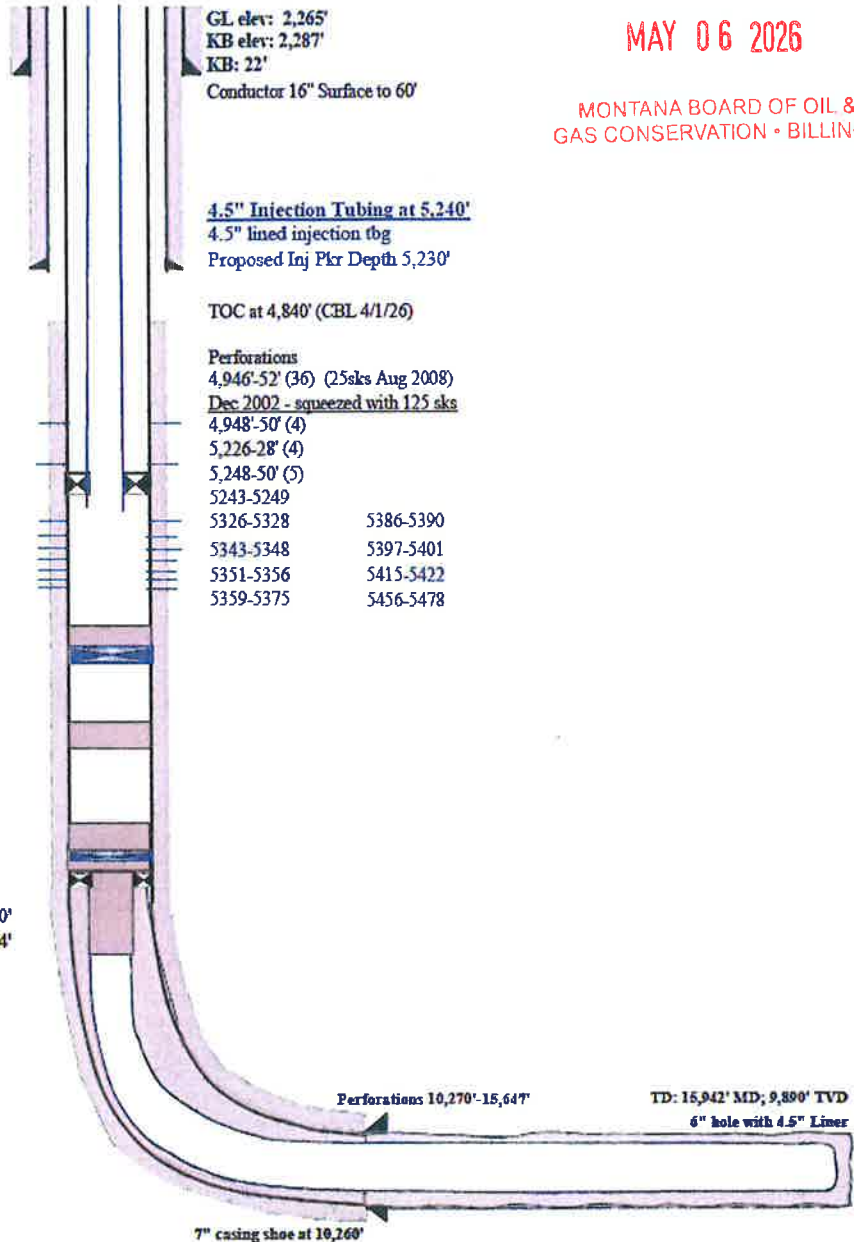
Proposed Wellbore Schematic

API# 25-083-21946

W2 E2 Lot 2 Section 04 - T24N - R55E
260 FNL, 2080 FEL

Surface casing:
9 5/8" 36# J-55 LT&C @ 1,590'
Cemented with 530 Sks

7" Intermediate Casing at 10,260'
7" 29# P-110 LTC to 10,260'
Cemented with 670 + 150 Sks



RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS

TOC @ 5,600'
6 sks of cement (50') (Class G + 35% silica)
CIBP at 5,650'

Top of Charles at 7,784' from DRL Report
Balanced Plug (7,659 -7,909')
30 sks balanced plug Class G + 35% silica

TOC @ 9,450'
10 sks of cement (75') (Class G + 35% silica)
CICR at 9,525'
40 sks of cement (768') (Class G + 35% silica)

KOP 9,300'
Top of 4.5" Liner @ 9,544'

Production Liner (9,544' - 15,942')
PBR 9,544'
Liner hanger
4 1/2" 11.6# N-80 / P-110 from 9,544' - 15,942'
Cemented with 380 Sks

Perforations 10,270'-15,647'

TD: 15,942' MD: 9,880' TVD
6" hole with 4.5" Liner

7" casing shoe at 10,260'

Proposed Wellbore Diagram
Whiplash Vaira 4-2-H
Section 4 of T24N-R55E
Richland County, Montana



MORNINGSTAR
OPERATING

RECEIVED

MAY 06 2016

Bakken Water Analysis
Whiplash Vaira 4-2-H

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



JACAM LABORATORIES

DownHole R_x
WATER CHEMISTRY

ENERPLUS RESOURCES	PEABODY-BAHLS 2-16H
KARSON KOSTELECKY	TREATER
RICHLAND MT	
Report Date: 01-14-2015	Sampled: 12-31-2014
Sample #: 2548	at 0000
Sample ID: 88871	

CATIONS

Calcium (as Ca)	13340
Magnesium (as Mg)	1235
Barium (as Ba)	12.79
Strontium (as Sr)	839.30
Sodium (as Na)	68441
Potassium (as K)	5068
Lithium (as Li)	50.41
Ammonia (as NH ₃)	0.00
Aluminum (as Al)	2.14
Iron (as Fe)	262.50
Manganese (as Mn)	7.98
Zinc (as Zn)	3.14
Lead (as Pb)	0.00

ANIONS

Chloride (as Cl)	156800
Sulfate (as SO ₄)	75.00
Bromine (as Br)	0.00
Dissolved CO ₂ (as CO ₂)	100.00
Bicarbonate (as HCO ₃)	73.20
Carbonate (as CO ₃)	0.00
Oxalic acid (as C ₂ O ₄)	0.00
Silica (as SiO ₂)	0.00
Phosphate(as PO ₄)	0.00
H ₂ S (as H ₂ S)	0.00
Fluoride (as F)	0.00
Nitrate (as NO ₃)	0.00
Boron (as B)	404.70

PARAMETERS

Calculated T.D.S.	236875
Molar Conductivity	408969
Resistivity	2.45
Sp.Gr.(g/mL)	1.16
Pressure(atm)	1.00
pCO ₂ (atm)	0.0220
pH ₂ S(atm)	0.00
Temperature (°F)	82.90
pH	5.94

COMMENTS

RICHLAND MT

JACAM LABORATORIES

205 S. Broadway • P.O. Box 96 • Sterling, KS 67579-0096



MORNINGSTAR
OPERATING

Surface and Mineral Owner List

Whiplash Vaira 4-2-H
Richland County, MT

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

Current Operators within AOR

MORNINGSTAR OPERATING LLC

Burning Tree Luren 31-4-H
25-083-22391

MORNINGSTAR OPERATING LLC

Burning Tree Jessie 31-3-HID3
25-083-22661

Surface Owners within AOR

Bud & Joe LLC
2535 Clearwater Way
Billings, MT 59105

Rodney Teigan
1203 Pershing St.
Eau Claire, WI 54701

Jay Julson
816 Larvik Lane
Stoughton, WI 53589

Delores Delmore
4712 Baker Road
Hopkins, MN 55343

Joni Peterson
S1005 Lees Valley Rd.
Mondovi, WI 54755

Kathy Marum
S 1638 State Rd. 88
Alma, WI 54610

Thomas Marum
S-643 Sand Road
Mondovi, WI 54755

John Marum
S-699 Turner Valley Rd.
Mondovi, WI 54755

Mary Marum
1715 Truax Blvd. Apt. #2
Eau Claire, WI 54703

J.O. Julson Heirs, Montana Land Irrevocable Trust
1527 W Vine St.
Eau Claire, WI 54703

William R. Sambolt and Nancy J. Pidgeon Sambolt,
Trustees of the William and Nancy
Sambolt Trust dated December 18, 2014 – 1/2 UDI
493 Apple Pine Cir.
Hudson, WI 54016

Mary Louise Dommer, Trustee of the Mary Louise
Dommer Revocable Trust dated
October 4, 2019 – 1/2 UDI
1527 W Vine St.
Eau Claire, Wisconsin 54703



MORNINGSTAR
OPERATING

Surface and Mineral Owner List
Whiplash Vaira 4-2-H
Richland County, MT

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

Mineral Interest Owners within AOR

ALVIN BUD VAIRA EDUCATIONAL
TRUST

PO BOX 1588,

BARBARA MONNIER

4713 FIRELANE RD,

ZEPHYRHILLS, FL, 33541

BETTY DOENIER

S 550 CO RD BB,

MONDOVI, WI, 54755

CELESTE KETCHUM

2800 ALEXANDER RD,

BILLINGS, MT, 59105

DARYL P VAIRA

13349 CO RD 324,

LAMBERT, MT, 59243

PATRICIA KAY IMSDAHL

309 PORTOFINO WAY,

CLOVERDALE, CA, 95425

DEBRA VAIRA

2535 CLEARWATER WAY,

BILLINGS, MT, 59105

DJANE C TEIGEN

W5930 NELSON RD,

MONDOVI, WI, 54755

GARY L JULSON

W 7885 W CEDAR RD,

MONDOVI, WI, 54755

HARVEY FAMILY TRUST

211 KINSEY CT,

EVANSVILLE, WI, 53536

ANNE M LINDQUIST

4309 SHARI ANN LN,

BROOKLYN PARK, MN, 55443

BARRY FJELSTAD

W22 616 CO RD H,

STRUM, WI, 54770

BLUE MESA MINERALS LLC

3549 ARBUCKLE DR,

PLANO, TX, 75075

CHARLENE S NETZER

12127 CO RD 348,

SIDNEY, MT, 59270

DAVID L TEIGEN

W4130 MAPLE RIDGE RD,

MONDOVI, WI, 54755

DAVID M VAIRA

32704 HWY 201,

LAMBERT, MT, 59243

DENNIS J TEIGEN

S13750 OAK CT,

ELEVA, WI, 54738

ELIZABETH SIKVELAND

1511 TWIN OAKS DR,

BILLINGS, MT, 59105

GILLETTE VAIRA

2449 EASTRIDGE DR,

BILLINGS, MT, 59102

HEART PLUS LLC

PO BOX 216,

LAMBERT, MT, 59243

APRIL E THOMPSON

1259 PARK AVE APT 24,

SAN JOSE, CA, 95126-2818

BECKY J HAMILTON

PO BOX 39396,

NINILCHIK, AK, 99639-0048

BRAD PULCZINSKI

2860 80TH AVE,

WOODVILLE, WI, 54028

CORY TEIGEN

5456 ONEIL RD,

MONDOVI, WI, 54755

DANIEL T TEIGEN

50813 N 3RD ST,

ELEVA, WI, 54738

PATRICK DELMORE

3328 BIRCH PL,

MINNETONKA, MN, 55305

DOREEN M VAIRA HERBERT

933 HWY 24N,

GLASGOW, MT, 59230

ELSIA PRISSEL

W6542 HWY 77,

MINONG, WI, 54859-8900

GREGORY R FJELSTAD

PO BOX 372,

STRUM, WI, 54770

JACQUELINE HALL

1316 MOSSMAN DR,

BILLINGS, MT, 59105



MORNINGSTAR
OPERATING

Surface and Mineral Owner List
Whiplash Vaira 4-2-H
Richland County, MT

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

JAMES A TEIGEN W 14271 ROSES RESORT RD, WEYERHOUSER, WI, 54895	JANICE K VAIRA-OPP 300 LYNDALE AVE, GLENDDIVE, MT, 59330-2829	JEFFERY T TEIGEN S 15095 ST RD 37, MONDOVI, WI, 54755
CLAYTON K VAIRA & JENIFER SUSAN VAIRA 1101 CEDAR AVE, SIDNEY, MT, 59270	CHERYL GARNER-VAIRA FKA CHERYL MILLER-GARNER 5602 S CAISSON WAY, MESA, AZ, 85212	NORTHEAST MONTANA LLP ATTN: PROSPECTOR OIL INC, PO BOX 1577 BILLINGS, MT, 59103-1577
JOAN O WEBER 4330 HERITAGE DR, EAU CLAIRE, WI, 54703	JOANIE MARUM S1005 LEES VALLEY RD, MONDOVI, WI, 54755-8330	JOHN E BIELEFELDT OR 5441 BENJAMIN ST, EAU CLAIRE, WI, 54703
JOHN E WONS 65 W 100 N #96, MEADOW, UT, 84644-7704	JOHN MARUM S 699 TURNER VALLEY RD, MONDOVI, WI, 54755	JOHN SCOTT 5170 W RIVER RD, WAUNAKEE, WI, 53597
JUDITH DIANNE SIMARD 125 GLENWOOD AVE, GLENDDIVE, MT, 59330	JUDITH FJELSTAD E5693 EVERGREEN RD, ELEVA, WI, 54738	KATHY MUELLER S1638 STATE RD 88, ALMA, WI, 54610
LARRY J VAIRA 2822 SARATOGA TRL, BILLINGS, MT, 59105	LARRY JULSON N47042 SEMINGSON RD, STRUM, WI, 54770	MARY ROBINSON 4117 BONNIE CT, EAU CLAIR, WI, 54701
MARION FERRANTE 4413 LAKESIDE DR, THE COLONY, TX, 75056	MARLYS T MARTEN N50751 COUNTY ROAD Y, ELEVA, WI, 54738-8991	MARY DOMMER 1527 W VINE ST, EAU CLAIRE, WI, 54703
LEWIS REV FAMILY TRUST OF 9/21/07 2101 WINDJAMMER WAY, ROWLETT, TX, 75088	WHITE ROCK OIL & GAS PARTNERS II-B LP 5810 TENNYSON PKWY STE 500, PLANO, TX, 75024	MICHAEL D DELMORE 11910 ISLETON AVE N, GRANT, MN, 55082
MORNINGSTAR OPERATING LLC 400 WEST 7TH ST, FORT WORTH, TX, 76102	NANCY J VAIRA 13449 CO RD 324, LAMBERT, MT, 59243-9420	NANCY PIDGEON SAMBOLT 493 APPLE PINE CIR, HUDSON, WI, 54016-8184



MORNINGSTAR
OPERATING

RECEIVED

Surface and Mineral Owner List

MAY 06 2026

Whiplash Vaira 4-2-H
Richland County, MT

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

NICK J VAIRA 26 HEATHER PL, GLASGOW, MT, 59230	NOBLE ROY ACCESS FUND VII LP PO BOX 660082, DALLAS, TX, 75266-0082	NOBLE ROY ACCESS FUND VIII LP PO BOX 660082, DALLAS, TX, 75266-0082
PATRICK VAIRA 32508 HWY 201, LAMBERT, MT, 59243	PEGGY A SIMONSON 1362 CARLI CT, CHIPPEWA FALLS, WI, 54729	PHILLIP SHANE IMSDAHL 2800 SHOW JUMPER LANE, RENO, NV, 89521
RANDY JULSON 6245 NAUGART DR, MERRILL, WI, 54452	RITA M IRRGANG 3216 HOPKINS CROSSROADS, MINNETONKA, MN, 55305	ROBERT C TEIGEN W 24053 MILAND RD, ELEVA, WI, 54738
RODNEY R TEIGEN S 13050 CO RD R, AUGUSTA, WI, 54722	ROGER FJELSTAD 3331 EDWARDS ST, EAU CLAIRE, WI, 54703	RYAN VAIRA 3275 PONY TRACKS DR, COLORADO SPRINGS, CO, 80922
SABRINA VAIRA ANDERSON PO BOX 400, FAIRVIEW, MT, 59221	SALLY L STEINKE 20770 57TH AVE, CADOTT, WI, 54727	SAVANNA CRAWFORD 2605 BENT TREE LN, ARLINGTON, TX, 76016
SHANE VAIRA 32458 COUNTY ROAD 130, RICHEY, MT, 59259	SHARON K BOE 26032 SOUTH EAST 192ND ST, MAPLE VALLEY, WA, 98038	SUE LYNN HOCHSTEIN 720 POOR VALLEY RD, RUTLEDGE, TN, 37861-4314
SWEARINGEN LLC 2503 KENCHESTER LOOP, WESLEY CHAPEL, FL, 33543	TAMARA I KOPP N 2330 870TH ST, ELK MOUND, WI, 54701	TANA KAY SIMARD PACHECO 10022 WESTSIDE CIRCLE, LITTLETON, CO, 80125
TERI LYN SUHR PO BOX 988, WELLINGTON, CO, 80549	THOMAS J TEIGEN S 407 HALVERSON VALLEY RD, MONDOVI, WI, 54755	THOMAS S MARUM S 643 SAND RD, MONDOVI, WI, 54755
TIMOTHY D & JEAN V VAIRA JTWROS PO BOX 585, TORI FJELSTAD N5670 230TH ST, MENOMONIE, WI, 54751	TIMOTHY J JULSON 808 ARENDALE CT, STOUGHTON, WI, 53589 TRAVIS SHAUN IMSDAHL 455 MALLARD DR, SANTA ROSA, CA, 95401	TIMOTHY VANCE IMSDAHL 1124 ENZOS WAY, WINDSOR, CA, 95492 TYLER ROSS SIMARD PO BOX 495, FORSYTH, MT, 59327



MORNINGSTAR
OPERATING

Surface and Mineral Owner List
Whiplash Vaira 4-2-H
Richland County, MT

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

UNITY LIMITED PARTNERSHIP

3225 HARROW DR,
BILLINGS, MT, 59102

WENDY KLEINSCHMIDT

152 W RIVERSIDE AVE,
MONDOVI, WI, 54755

UNITY LIMITED PARTNERSHIP

3225 HARROW DR,
BILLINGS, MT, 59102

WHITE ROCK OIL & GAS GP II LLC

5810 TENNYSON PKWY STE 500,
PLANO, TX, 75024

VICKI VAIRA

312 2ND AVE SW,
SIDNEY, MT, 59270

MARY E SWERDFIGER

1627 KENTUCKY AVE S,
ST LOUIS PARK, MN, 55426



MORNINGSTAR
OPERATING

Affidavit of Notification to Surface and Mineral Owners
Whiplash Vaira 4-2-H
Richland County, MT

BEFORE THE BOARD OF OIL AND GAS CONSERVATION OF THE STATE OF MONTANA

IN THE MATTER OF THE APPLICATION FOR MORNINGSTAR OPERATING LLC FOR THE HEARING OF ITS REQUEST FOR A UIC PERMIT FOR THE WHIPLASH VAIRA 4-2-4 WELL, 260' FNL 2080' FEL, SECTION 4, T24N, R55E, P.M.M. RICHLAND COUNTY, MONTANA, FOR THE PURPOSE OF WATER INJECTION

AFFIDAVIT OF NOTIFICATION

Date: May 5, 2026

State of Utah
County of Uintah

Amy Doebele, being first duly sworn, deposes and says:

That Notice of advising of MorningStar Operating LLC' application for UIC permit in the captioned matter, in the form attached as "Exhibit A", was mailed to each current operator, surface owner and lease owner within the area of review at the addresses shown in the exhibit attached to the Notice, by mailing a true copy thereof this 5th day of May, 2026, postage prepaid, First Class USPS Mail. This affidavit is given as evidence of compliance with A.R.M. 36.22.1410.

Amy Doebele
Amy Doebele
Authorized Agent

Subscribed and sworn before me on this 5 day of May, 2026.

Colby Dean Lyons
Notary Public of the State of Utah
My Commission Expires: 10-28-2026

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS





MORNINGSTAR
OPERATING

Affidavit of Publication – Helena Independent
Whiplash Vaira 4-2-H
Richland County, MT

Independent Record
AFFIDAVIT OF PUBLICATION

Helena Independent Record
2222 N. Washington St
Helena, Montana 59602
(123) 456-7890

State of New Jersey, County of Camden, ss:

Anjana Bhadoriya, being first duly sworn, deposes and says: That (s)he is a duly authorized signatory of Column Software, PBC, duly authorized agent of Helena Independent Record, a newspaper of general circulation published that is a "legal newspaper" as that is published daily in the City of Helena, in the County of Lewis and Clark, State of Montana, and has charge of the Advertisements thereof.

If this certification is for the State of Montana, I hereby certify that I have read sec. 18-7-204 and 18-7-205 MCA, and subsequent revisions, and declare that the price or rate charged the State of Montana for the publication for which claim is made in printed copy in the amount of \$163.300 is not in excess of the minimum rate charged any other advertiser for publication of advertisement, set in the same size type and published for the same number of insertions, further certify that this claim is correct and just in all respects, and that payment or credit has not been received.

PUBLICATION DATES: May 2 2026

NOTICE ID: 3ruxawgqj54HYjLi0Gr1

PUBLISHER ID: COL-MT-202657

NOTICE NAME: Morningstar Operating - Whiplash Vaira 4-2-H

Publication Fee: \$163.30

Anjana Bhadoriya

(S) (M) (D)

SHARONN E THOMAS-POPE
NOTARY PUBLIC
STATE OF NEW JERSEY
My Commission Expires January 23, 2027

VERIFICATION

State of New Jersey
County of Camden

Subscribed in my presence and sworn to before me on this: 05/05/2026

SM S. R. Poe

Notary Public

Notarized remotely online using communication technology via Proof.

Morningstar Operating - Whiplash Vaira 4-2-H
BEFORE THE BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

In the Matter of the application of
MorningStar Operating LLC
for a Class II Injection well permit.

NOTICE OF INTENTION TO APPLY FOR A CLASS II
INJECTION WELL PERMIT

1. Name and address of Applicant:

MorningStar Operating LLC
400 W 7 th Street
Fort Worth, TX 76102

2. Legal Description including County and Approximate Footages of Surface Location of Proposed Oil and Gas Well: (and projected bottom-hole location, if a directional or horizontal well)

Whiplash Vaira 4-2-H
Surface Hole: 260' FNL 2080' FEL
Lot 2, Section 4, Township 24 North, Range 55 East
Richland County, MT

3. Source of fluids to be injected

Produced water from Three Forks (Bakken) wells

4. Zone or formation into which injection will occur, including depth

Dakota/Lakota from 4,993 – 5,479' MD/TVD
Plugback depth – 5,600' MD/TVD

5. An aquifer exemption will be requested as part of the application since the proposed injection zone contains water with less than 10,000 ppm total dissolved solids.

Pursuant to Rules 36.22.1409, Administrative Rules of Montana, the Montana Board of Oil and Gas Conservation will hold a public meeting upon the application of MorningStar Operating LLC for a Class II underground injection permit for the well or project set forth above. Said hearing will be held at the Montana Board of Oil & gas Hearing Room at 2535 St. John's Ave. Billings, Montana, beginning at 9:00 am on Thursday, June 11, 2026.

May 2, 2026 COL-MT-202657 MNAXLP

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING

Affidavit of Publication – Sidney Herald
Whiplash Vaira 4-2-H
Richland County, MT

**SIDNEY
HERALD**

AFFIDAVIT OF PUBLICATION

Sidney Herald
310 2nd Ave NE
(406) 433-2403

I, Edmar Corachia, of lawful age, being duly sworn upon oath depose and say that I am an agent of Column Software, PBC, duly appointed and authorized agent of the Publisher of Sidney Herald, a publication that is a "legal newspaper" as that phrase is defined for the city of Sidney, for the County of Richland, in the state of Montana, that this affidavit is Page 1 of 2 with the full text of the sworn-to notice set forth on the pages that follow, and that the attachment hereto contains the correct copy of what was published in said legal newspaper in consecutive issues on the following dates:

PUBLICATION DATES:
May 2, 2026

Notice ID: HPUQgR0JJo7b8TLrhZPZ
Publisher ID: SHM000884
Notice Name: Morningstar Operating - Whiplash Vaira 4-2-H

PUBLICATION FEE: \$126.49

Request of
Alesha Jones

I declare under penalty of perjury and under the laws of the state of Montana that the foregoing is true and correct.

Edmar Corachia

Agent

SHARONN E THOMAS-POPE
NOTARY PUBLIC
STATE OF NEW JERSEY
My Commission Expires January 23, 2027

VERIFICATION

State of New Jersey
County of Camden

Signed or attested before me on this: 05/04/2026

SM S. & Poe

Notary Public
Notarized remotely online using communication technology via Proof.

BEFORE THE BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

In the Matter of the application of
MorningStar Operating LLC
for a Class II Injection well permit.

**NOTICE OF INTENTION TO APPLY FOR A CLASS II INJECTION
WELL PERMIT**

1. Name and address of Applicant:
MorningStar Operating LLC
400 W 7 th Street
Fort Worth, TX 76102

2. Legal Description including County and Approximate Footages of
Surface Location of Proposed Oil and Gas Well:
(and projected bottom-hole location, if a directional or horizontal
well)
Whiplash Vaira 4-2-H
Surface Hole: 260' FNL 2080' FEL
Lot 2, Section 4, Township 24 North, Range 56 East
Richland County, MT

3. Source of fluids to be injected
Produced water from Three Forks (Bakken) wells

4. Zone or formation into which injection will occur, including depth
Dakota/Lakota from 4,993 – 5,479' MD/TVD
Plugback depth – 5,600' MD/TVD

5. An aquifer exemption will be requested as part of the applica-
tion since the proposed injection zone contains water with less than
10,000 ppm total dissolved solids.
Pursuant to Rules 36.22.1409, Administrative Rules of Montana,
the Montana Board of Oil and Gas Conservation will hold a public
meeting upon the application of MorningStar Operating LLC for a
Class II underground injection permit for the well or project set forth
above. Said hearing will be held at the Montana Board of Oil & Gas
Hearing Room at 2535 St. John's Ave. Billings, Montana, beginning
at 9:00 am on Thursday, June 11, 2026.
Date: May 2, 2026
SHM000884

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



May 5, 2026

Mr. John Gizicki
Underground Injection Control (UIC) Program Director
Montana Board of Oil and Gas Conservation
2535 St. Johns Avenue
Billings, MT 59102

RE: Request for Aquifer Exemption
Whiplash Vaira 4-2-H located in Section 4 of T24N R55E
Richland County, Montana

Dear Mr. John Gizicki,

Please accept the Aquifer Exemption request to supplement the MorningStar Operating, LLC. Whiplash Vaira 4-2-H Disposal Application for the June 11, 2026, Montana Board of Oil and Gas hearing.

The Dakota/Lakota are being evaluated for injection. There is water data available on the Dakota/Lakota. The assumption is that an aquifer exemption will be required unless water quality data from the Whiplash Vaira 4-2-H indicates water from the injection zone is not acceptable as USDW. An aquifer exemption is required if the proposed injection zone contains water that is less than 10,000 ppm of total dissolved solids (TDS), and therefore defined as an Underground Source of Drinking Water (USDW).

Swab analysis from the Lakota Formation (noted as Lower Dakota in the water analysis report in Exhibit 6A) outside the area of review indicates the TDS is greater than 10,000 ppm. There is swab analysis from the Dakota Formation (noted as Upper Dakota in the water analysis report in Exhibit 6B) outside the area of review that indicates the TDS is less than 10,000 ppm but greater than 3,000 ppm. The TDS of the Dakota and Lakota will be confirmed with swab results upon completion. In addition to swab results, cost analysis data indicates that a Dakota/Lakota freshwater supply well in this area is unlikely. The basis of the exemption is that the Dakota/Lakota does not currently serve as a source of drinking water because the Dakota/Lakota is situated at a depth which makes recovery of water for drinking water purposes economically or technologically impractical.

Based on data from numerous published sources, two aquifers in the area meet the criteria of a USDW. These are shallow alluvium within the Tertiary Fort Union sandstone aquifer and the Cretaceous Fox Hills Hell Creek sandstone aquifer. Neither of these would be affected by injection into the proposed location. There are no water wells producing from any zone located within the ¼ mile area of review (AOR). There are 2 water wells, not within the ¼ mile AOR, but within ½ mile expanded view of the Whiplash Vaira 4-2-H. There are no water supply wells penetrating the Dakota/Lakota formation within ½ mile of the Whiplash Vaira 4-2-H, which is specifically requested information per 36.22.1418(1)(a).

RECEIVED

MAY 06 2026

Page | 1



To protect freshwater zones, drilling practices include drilling through these possible freshwater zones and setting surface casing. Surface casing is cemented to surface. There are only gamma ray logs that run through the Fox Hills formations due to this formation being isolated behind casing and cement. To supplement information on the depth of possible freshwater zones, MorningStar references Montana Bureau of Mines and Geology reports on groundwater for the area, namely, the mapping work by Larry Smith entitled “Depth to the Fox Hills-Lower Hell Creek Aquifer, Lower Yellowstone River Area” published in MBMG’s GWAA- Montana Ground-Water Assessment Atlas (1-B-03), 1998, which estimates the base of the Fox Hills at approximately 1400 to 1500 feet of depth in the Whiplash Vaira 4-2-H area. Underground sources of drinking water (USDW) TDS reports to the base of the Fox Hills are available in the area and show values less than 1200 mg/L.

The Dakota/Lakota are not used for USDW in this area due to the existence of shallower freshwater aquifers. Based on recent drilling estimates using a water well rig, the cost to drill a 1,500-foot water well with rathole through the Fox Hills including the pump is approximately \$569,000. The cost to drill and complete a 5900-foot Dakota/Lakota water well would require a full drilling rig and cost approximately \$1,499,000. There would also be additional costs to treat the Dakota/Lakota water, greatly exceeding the costs to treat the Fox Hills water. See Exhibits 7A and 7B.

The Environmental Protection Agency (EPA), in UIC guidance 34, states that the minimum data set needed for aquifer exemptions will include at least:

1. *All oil and gas boreholes within the area, all public and private water wells within the area and at least ¼ mile beyond the boundary of any existing wellhead protection areas, and the locations of all relevant water samples.*

- a. There are no water wells within ¼ mile of the proposed Whiplash Vaira 4-2-H injection location. Water wells located within ½ mile of the proposed location are listed below:

Well Name	GWIC ID	Location	Use	Distance from Proposed SWD (ft)	Total Depth (ft)
Vaira Alfred	3019	Sec 4, T24N, R55E 47.8663, -104.6583	Stock water	1714	46
Vaira David	37219	Sec 3, T24N, R55E 47.863339, -104.656642	Unknown	2586	52

- b. Water samples for the Dakota/Lakota formations are shown in Exhibit 6A and 6B.
 - c. There are no Dakota/Lakota oil producing wells within the ¼ mile or ½ mile area. See Exhibit 1A.
 - d. All water wells and producing wells within a ¼ mile and ½ mile area are shown on Exhibit 2A.
2. *Narrative description of the proposed exempted aquifer listing formation name, approximate depth or elevation, confining zone, as well as geological definition of the exempted area. Include adequate wireline logs to demonstrate vertical confinement from sources of drinking water.*

RECEIVED

MAY 06 2026



- a. The Whiplash Vaira 4-2-H may be completed into the Dakota and Lakota. See Exhibit 3A for a cross section of wireline logs showing the vertical confinement of the Dakota/Lakota formation and Exhibit 4A for available wireline logs of the injection interval.
- b. Water quality information for the proposed disposal zone in the immediate area of the Whiplash Vaira 4-2-H is not available. However, a water sample from the Dakota/Lakota in the RR Lonetree Edna 1-13 SWD located 6 miles west of the proposed disposal site had total dissolved solids between 5,173 to 10,352 mg/L, and water in the Whiplash Vaira 4-2-H is expected to be similar. The samples from the Lonetree Edna 1-13 were acquired by swab testing the interval and measuring the TDS for the interval. See Exhibit 6A and 6B. The Dakota (identified as Upper Dakota on the report) TDS lies between the 3,000 ppm and 10,000 ppm cutoff and will require an aquifer exemption.
- c. Proposed injection zones for the Whiplash Vaira 4-2-H SWD are as follows and can be viewed in the wellbore diagram in Exhibit 8B. Depths are shown below:

Formation	Lithology	TVD Top (ft)	TVD Base (ft)	Net pay (ft)	Pressure (PSI)	Porosity
Dakota	Sandstone	4993	5407	42	2172	21%
Lakota	Sandstone	5407	5479	29	2352	21%

Depth and net pay for each of the proposed injection zones are estimated from the Cement Bond Log with Gamma Ray ran April 1, 2026, on the Whiplash Vaira 4-2-H. The porosity is based on sonic log estimates from the following wellbores: R Fink 1-A (1/2 miles E), Boles 1-2 (1.5 miles E), Vaira 2-35X (2 miles NW), and Larson 18-1 (2.75 miles SW). The porosity was derived from a sonic log curve calculated using a consolidated sandstone matrix. Formation pressure was estimated using a water gradient of 0.435 psi/ft.

- d. The upper confining formation for the proposed injection zone is the Cretaceous Skull Creek formation. It is comprised of clastic, shallow marine deposits composed of medium-dark gray shales, calcareous, micaceous, and glauconitic in part, interbedded with siltstones. The Skull Creek is 150 feet thick in this area.

The lower confining formation for the proposed injection zone is the Jurassic Morrison, Swift, and Rierdon formations. The Swift lies immediately below the Lakota and is primarily made up of transgressive-regressive, clastic, shallow marine deposits composed of dark gray-green shales, slightly calcareous, dark gray-green, waxy shales, and is commonly interbedded with glauconitic siltstones and sandstones with occasional carbonate packstones and grainstones. The lower confining interval is approximately 742 feet of impermeable rock facies.

The actual fracture gradients for these confining zones are unknown, but fracture gradients for the confining shale layers are known to be higher than those for the underlying sandstone injection zone.

RECEIVED

MAY 06 2026



Formation	Lithology	TVD Top (ft)	TVD Base (ft)	Thickness (ft)
Skull Creek	Shale	4843	4993	150
Mrsn/Swft/Rrdn	Shale	5479	6221	742

Considering the vertical distance to any USDW and the maximum feasible injection rate that could occur, the likelihood of a fracture extending from the proposed disposal zone to any USDW under any reasonable disposal conditions is considered low.

3. *Thickness, area, and average porosity of the reservoir to be exempted. If the proposed UIC well within the exempted area is an SWD, calculate the volume of connate water that will be displaced by the injectate using the following formula (this pore volume figure is made part of the MBOGC permit for the included SWD well. For example, if the pore volume calculation shows the exempted aquifer to contain 5.0 million barrels within the exempted area, the UIC permit will terminate when the cumulative injected volume reaches 5.0 million barrels of saltwater).*

$$\text{Pore Volume (barrels)} = (\pi * r^2 * h * f) / 5.63$$

Where: r = radius of the exempted area, in feet (usually 1320')
 h = average thickness, in feet, of the proposed exempted aquifer
 f = average porosity, in decimal, of the proposed exempted aquifer

The computed pore volume would be:

$$\text{Dakota: } (\pi * 1320^2 * 42 * 0.21) / 5.63 = 8,575,470 \text{ barrels}$$

$$\text{Lakota: } (\pi * 1320^2 * 29 * 0.21) / 5.63 = 5,921,158 \text{ barrels}$$

$$\text{Radius of Emplacement Fluid} = (Q * t / (\pi * h * \text{porosity}))^{0.5}$$

Where: t = time, in days
 Q = injection rate, cubic feet per day

Assuming: Minimum Water Injection Rate 0 BWPD or 0 FT³/DAY
 Median Water Injection Rate 2000 BWPD or 11229 FT³/DAY
 Maximum Water Injection Rate 3500 BPWD or 19651 FT³/DAY
 Injection Period 18 YEARS or 6570 DAYS

RECEIVED

MAY 06 2026



Net Thickness 71 FEET
Average Porosity 21%

The computed radius of emplacement would be:

$$(11229 \times 6570 / (\pi \times 71 \times 0.21))^{0.5} = 1255 \text{ FT} = 0.24 \text{ miles}$$

4. *Water quality analysis of the aquifer for exemption. How was water quality determined?*
a. Water samples from the RR Lonetree Edna 1-13, located 7 miles southeast of the Whiplash Vaira 4-2-H were used. See Exhibit 6A and 6B for swab results of the water samples.

In addition to the technical data, the affidavits of notification to all concerned parties are attached as Exhibit 9A and 10A. Please contact us if there are any questions regarding this submission.

Sincerely,

Handwritten signature of Brodie Savage in blue ink.

Brodie Savage
Vice President- Operations
Engineering
817-334-7745
bsavage@txopartners.com

Handwritten signature of Erin Donovan in blue ink.

Erin Donovan
Manager- Geology
817-334-7871
edonovan@txopartners.com

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



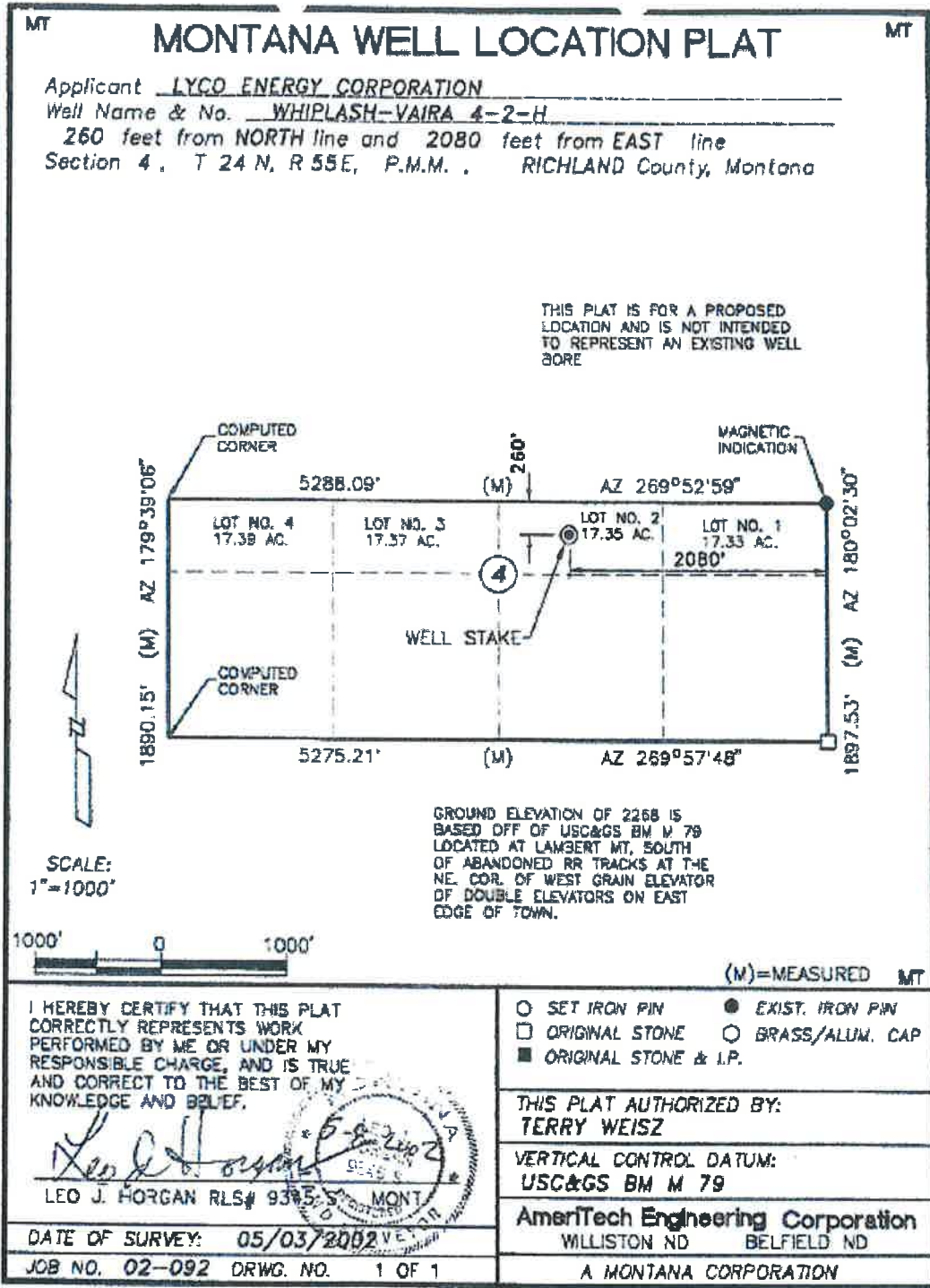
List of Exhibits

- Exhibit 1A Map of General Area
- Exhibit 2A Map of Freshwater Wells within Area of Review (AOR)
- Exhibit 3A Geologic Cross Section of the Dakota/Lakota
- Exhibit 4A Log of Injection Interval
- Exhibit 5A Water Well Sample Analysis
- Exhibit 6A Water Analysis of Injection Interval- Lower Dakota
- Exhibit 6B Water Analysis of Injection Interval- Upper Dakota
- Exhibit 7A Estimated Cost of Drilling 1,500-foot water well – Fox Hills
- Exhibit 7B Estimated Cost of Drilling 5,900-foot water well – Dakota/Lakota
- Exhibit 8A Current Wellbore Diagram
- Exhibit 8B Proposed Wellbore Diagram
- Exhibit 9A Surface and Mineral Owner List
- Exhibit 10A Affidavit of Notification to Surface and Mineral Owners
- Exhibit 11A Affidavit of Publication

RECEIVED
MAY 06 2026
MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING



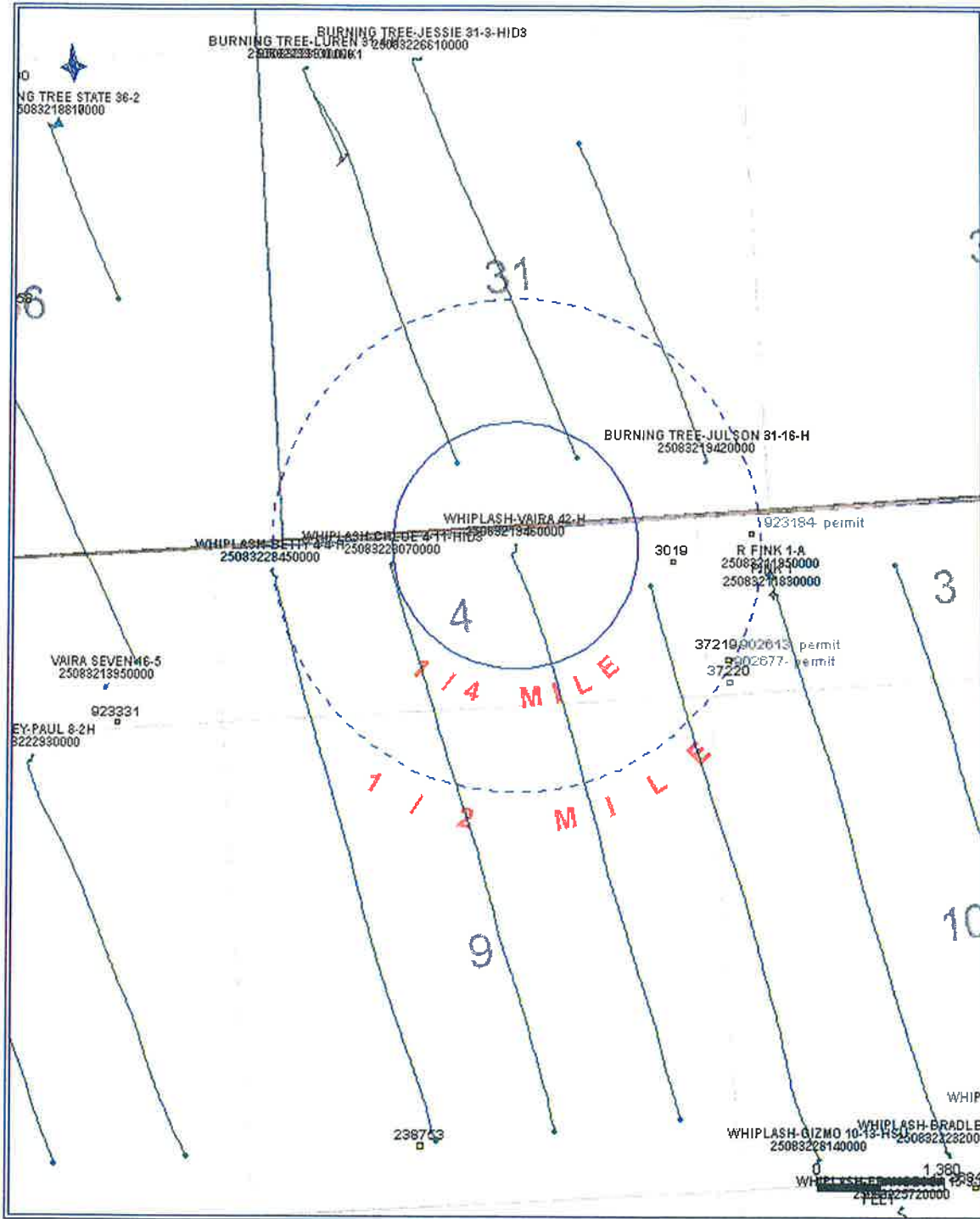
Map of General Area
Whiplash Vaira 4-2-H
Section 12 of T24N-55E
Richland County, Montana

RECEIVED

MAY 06 2026



MORNINGSTAR
OPERATING



Map of Freshwater Wells
Whiplash Vaira 4-2-H
Section 12 of T24N-55E
Richland County, Montana

RECEIVED

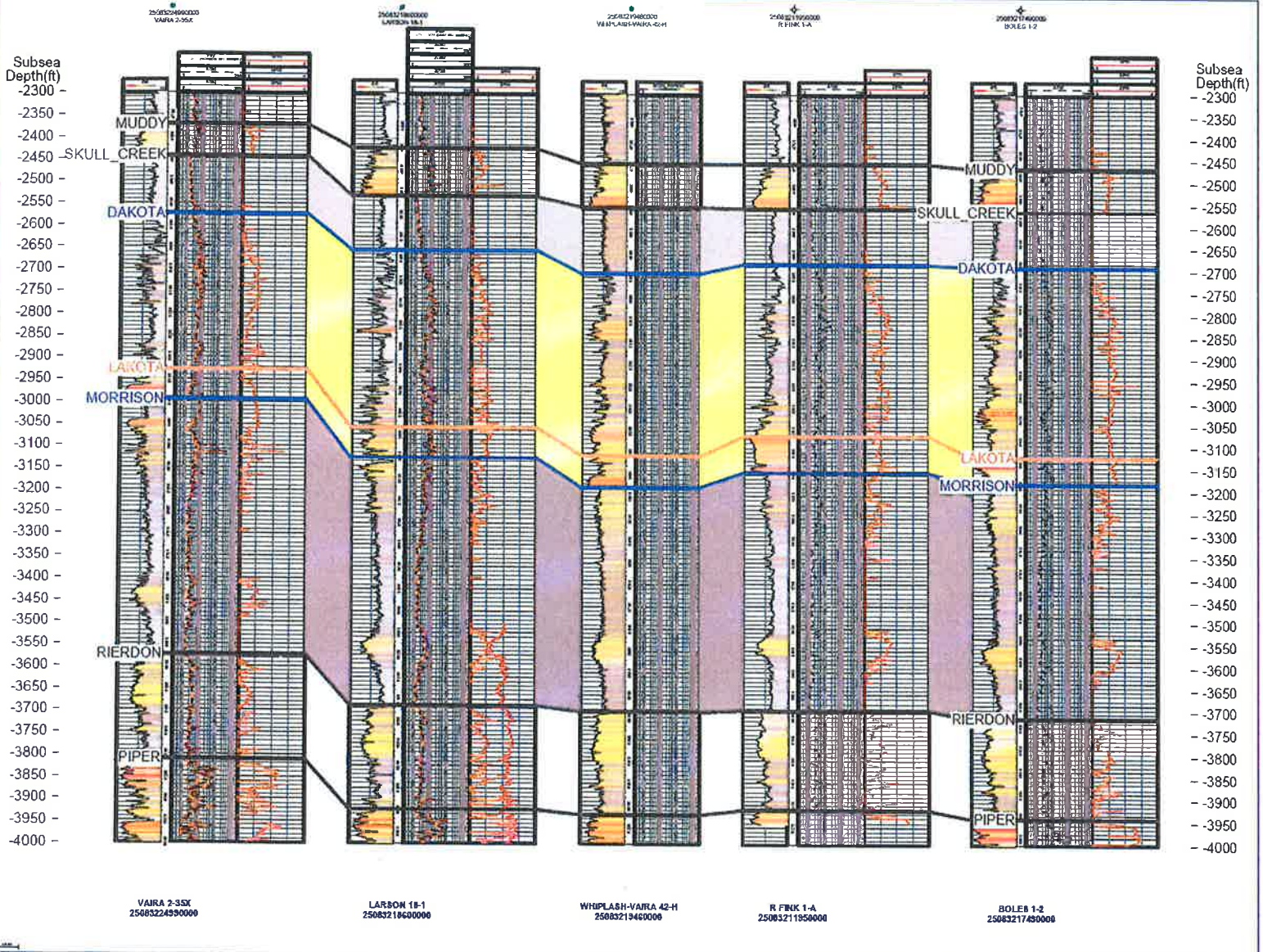
MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING

WILLISTON BASIN



Cross Section
Whiplash Vaira 4-2-H
Section 12 of T24N-55E
Richland County, Montana

RECEIVED

MAY 06 2026

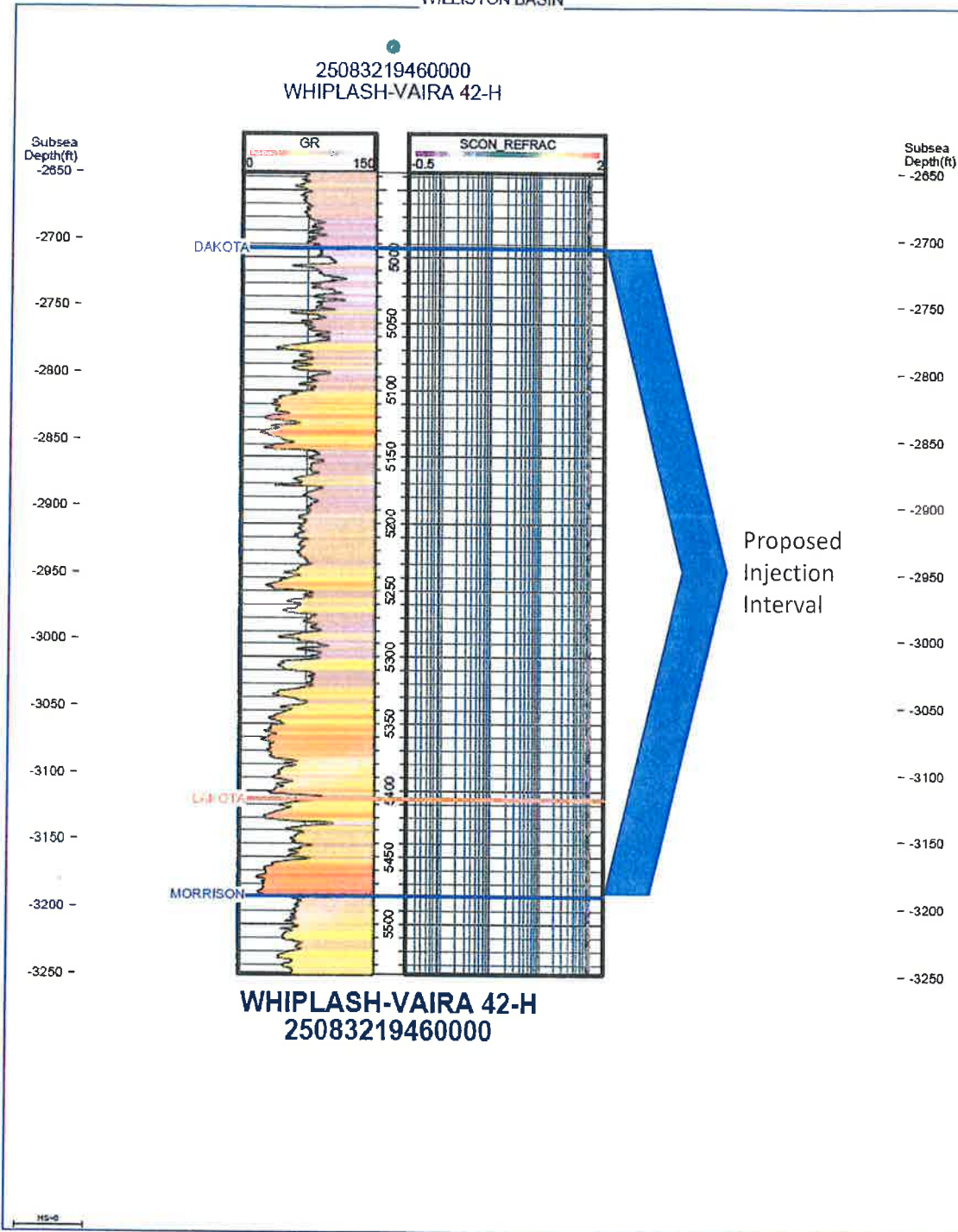
MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

Aquifer Exemption- Dakota/Lakota

Exhibit 3A



MORNINGSTAR
OPERATING
WILLISTON BASIN



Log of Injection Interval
Whiplash Vaira 4-2-H
Section 12 of T24N-55E
Richland County, Montana

RECEIVED

MAY 06 2026



MORNING STAR OPERATING

Freshwater Sample Analysis
Whiplash Vaira 4-2-H
Richland County, MT

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS

4/23/26, 11:12 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report | V.12.2026

Ground-Water Information Center Water Quality Report
Report Date: 4/23/2026

Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT
Compare to Water Quality Standards

Location Information

Sample Id/Site Id: 1980Q2601 / 3019
Location (TRS): 24N SSE 04 DADD
Latitude/Longitude: 47° 51' 58" N 104° 39' 29" W
Datum: NAD27
Altitude: 2259
County/State: RICHLAND / MT
Site Type: WELL
Geology: 125TGRV
USGS 7.5' Quad: GLENDIVE
PWS Id:
Project: EMT_OG_2016

Sample Date: 9/8/1980 8:10:00 AM
Agency/Sampler: USGS / MET
Field Number: 1-149
Lab Date: 12/12/1980
Lab/Analyst: MBMG / FNA
Sample Method/Handling: PUMPED / 4220
Procedure Type: DISSOLVED
Total Depth (ft): 46
SWL-MP (ft): NR
Depth Water Enters (ft): 28

Major Ion Results

Table with 6 columns: Ion Name, mg/L, meq/L, Ion Name, mg/L, meq/L. Includes Calcium, Magnesium, Sodium, Potassium, Iron, Manganese, Silica, Bicarbonate, Carbonate, Chloride, Sulfate, Nitrate, Fluoride, Orthophosphate.

Trace Element Results (µg/L)

Table with 6 columns: Element Name, Value, Element Name, Value, Element Name, Value. Includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Bromide, Cadmium, Cerium, Cesium, Chromium, Cobalt, Copper, Gallium, Lanthanum, Lead, Lithium, Mercury, Molybdenum, Nickel, Niobium, Neodymium, Palladium, Praseodymium, Rubidium, Silver, Selenium, Strontium, Thallium, Thorium, Tin, Titanium, Tungsten, Uranium, Vanadium, Zinc, Zirconium.

Field Chemistry and Other Analytical Results

Table with 3 columns: Parameter Name, Value, Parameter Name, Value, Parameter Name, Value. Includes Total Dissolved Solids, Sum of Diss. Constituents, Field Conductivity, Lab Conductivity, Field pH, Lab pH, Water Temp, Air Temp, Nitrate + Nitrite, Total Kjeldahl Nitrogen, Total Nitrogen, As(III), Field Hardness, Field Alkalinity, Ryznar Stability Index, Sodium Adsorption Ratio, Langlier Saturation Index, Nitrite, Hydroxide, Lab. Dissolved Inorganic Carbon, Acidity to 4.5, Ammonia, T.P. Hydrocarbons, PCP, Phosphorus, TD, Field Nitrate, Field Dissolved O2, Field Chloride, Field Redox, Lab. Dissolved Organic Carbon, Lab. Total Organic Carbon, Acidity to 8.3, Total Susp Solids.

Additional Parameters

Sulfide Total(mg/L-S) L1

Sample Condition:

Field Remarks: SAMPLED AT WELL HEAD * OWNER: ALFRED VAIRA - FAIRVIEW MT *
Lab Remarks: FU ZN 11.3 MG/L *

Notes

Explanation: mg/L = milligrams per liter; µg/L = micrograms per liter; ft = feet; NR = No Reading in GWIC

Qualifiers: A = Hydride atomic absorption; E = Estimated due to interference; H = Exceeded holding time; J = Estimated quantity above detection limit but below reporting limit; K = Na+K combined; N = Spiked sample recovery not within control limits; P = Preserved sample; S = Method of standard additions; U = Undetected quantity below detection limit; * = Duplicate analysis not within control limits; ** = Sum of Dissolved Constituents is the sum of major cations (Na, Ca, K, Mg, Mn, Fe) and anions (HCO3, CO3, SO4, Cl, SiO2, NO3, F) in mg/L. Total Dissolved Solids is reported as equivalent weight of evaporation residue.

Disclaimer

These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.



MORNING STAR
OPERATING

RECEIVED

MAY 06 2026

Freshwater Sample Analysis
Whiplash Vaira 4-2-H
Richland County, MT

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

4/23/26, 11:11 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report | V.12.2026

Ground-Water Information Center Water Quality Report
Report Date: 4/23/2026

Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT
[Compare to Water Quality Standards](#)

Location Information

Sample Id/Site Id: 222012 / 3019
Location (TRS): 24N 55E 04 DADD
Latitude/Longitude: 47° 51' 58" N 104° 39' 29" W
Datum: NAD27
Altitude: 2259
County/State: RICHLAND / MT
Site Type: WELL
Geology: 125TGRV
USGS 7.5' Quad: GLENDIVE
PWS Id:
Project: EMT_OG_2016

Sample Date: 8/22/2016 3:44:00 PM
Agency/Sampler: MBMG / BROWN, ALLISON
Field Number: 3019 D. VAIRA
Lab Date: 10/17/2016 6:36:46 AM
Lab/Analyst: MBMG / TIMMER, JACKIE
Sample Method/Handling: PUMPED / ru:1 ra:0 fu:2 fa:2
Procedure Type: DISSOLVED
Total Depth (ft): 46
SWL-MP (ft): NR
Depth Water Enters (ft): 28

Major Ion Results

	mg/L	meq/L		mg/L	meq/L
Calcium (Ca)	119.340	5.955	Bicarbonate (HCO3)	779.500	12.776
Magnesium (Mg)	123.230	10.141	Carbonate (CO3)	0.000	0.000
Sodium (Na)	549.800	23.916	Chloride (Cl)	8.720	0.246
Potassium (K)	7.230	0.185	Sulfate (SO4)	1,320.000	27.496
Iron (Fe)	13.684	0.490	Nitrate (as N)	<0.050 U	0.000
Manganese (Mn)	0.472 J	0.000	Fluoride (F)	0.300	0.016
Silica (SiO2)	6.100		Orthophosphate (as P)	0.160 J	0.000
Total Cations		40.833	Total Anions		40.533

Trace Element Results (µg/L)

Aluminum (Al):	<20.000 U	Cesium (Cs):	<1.000 U	Molybdenum (Mo):	<1.000 U	Strontium (Sr):	3,729.950
Antimony (Sb):	<1.000 U	Chromium (Cr):	<1.000 U	Nickel (Ni):	<1.000 U	Thallium (Tl):	<1.000 U
Arsenic (As):	<1.000 U	Cobalt (Co):	<1.000 U	Niobium (Nb):	<1.000 U	Thorium (Th):	<1.000 U
Barium (Ba):	7.940	Copper (Cu):	<5.000 U	Neodymium (Nd):	<1.000 U	Tin (Sn):	<1.000 U
Beryllium (Be):	<1.000 U	Gallium (Ga):	<1.000 U	Palladium (Pd):	<1.000 U	Titanium (Ti):	24.760
Boron (B):	556.380	Lanthanum (La):	<1.000 U	Praseodymium (Pr):	<1.000 U	Tungsten (W):	<1.000 U
Bromide (Br):	<50.000 U	Lead (Pb):	<0.600 U	Rubidium (Rb):	3.220 J	Uranium (U):	<1.000 U
Cadmium (Cd):	<1.000 U	Lithium (Li):	86.720 J	Silver (Ag):	<1.000 U	Vanadium (V):	<1.000 U
Cerium (Ce):	<1.000 U	Mercury (Hg):	NR	Selenium (Se):	<1.000 U	Zinc (Zn):	303.480
						Zirconium (Zr):	<1.000 U

Field Chemistry and Other Analytical Results

**Total Dissolved Solids (mg/L):	2533.11	Field Hardness as CaCO3 (mg/L):	NR	Ammonia (mg/L):	NR
**Sum of Diss. Constituents (mg/L):	2928.87	Hardness as CaCO3:	805.21	T.P. Hydrocarbons (µg/L):	NR
Field Conductivity (µmhos):	4212	Field Alkalinity as CaCO3 (mg/L):	NR	PCP (µg/L):	NR
Lab Conductivity (µmhos):	3375.6	Alkalinity as CaCO3 (mg/L):	639.73	Phosphorus, TD (mg/L):	<0.300 U
Field pH:	7.47	Ryznar Stability Index:	5.754	Field Nitrate (mg/L):	NR
Lab pH:	7.48	Sodium Adsorption Ratio:	8.4336	Field Dissolved O2 (mg/L):	0.400
Water Temp (°C):	11.7	Langlier Saturation Index:	0.863	Field Chloride (mg/L):	NR
Air Temp (°C):	NR	Nitrite (mg/L as N):	<0.050 U	Field Redox (mV):	-155.9
Nitrate + Nitrite (mg/L as N):	<0.200 U	Hydroxide (mg/L as OH):	0.000	Lab, Dissolved Organic Carbon (mg/L):	NR
Total Kjeldahl Nitrogen (mg/L as N):	NR	Lab, Dissolved Inorganic Carbon (mg/L):	NR	Lab, Total Organic Carbon (mg/L):	NR
Total Nitrogen (mg/L as N):	2.230	Acidity to 4.5 (mg/L CaCO3):	NR	Acidity to 8.3 (mg/L CaCO3):	NR
As(III) (ug/L):	NR	As(V) (ug/L):	NR	Total Susp Solids (mg/L):	NR

Sample Conditions:
Field Remarks:
Lab Remarks:

Explanation: mg/L = milligrams per liter; µg/L = micrograms per liter; ft = feet; NR = No Reading in GWIC

Qualifiers: J = Estimated quantity above detection limit but below reporting limit; P = Preserved sample; S = Method of standard additions; U = Undetected quantity below detection limit; * = Duplicate analysis not within control limits; ** = Sum of Dissolved Constituents is the sum of major cations (Na, Ca, K, Mg, Mn, Fe) and anions (HCO3, CO3, SO4, Cl, SiO2, NO3, F) in mg/L. Total Dissolved Solids is reported as equivalent weight of evaporation residue.

Disclaimer

These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.



MORNING STAR
OPERATING

Freshwater Sample Analysis

Whiplash Vaira 4-2-H

Richland County, MT

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

4/23/26, 11:13 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report | V.12.2026

Ground-Water Information Center

Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT

Isotope Tracer Report

Report Date: 4/23/2026

Location Information

Sample Id/Site Id: 222012 / 3019
Location (TRS): 24N 55E 04 DADD
Latitude/Longitude: 47° 51' 58" N 104° 39' 29" W
Datum: NAD27
Altitude: 2259
County/State: RICHLAND / MT
Site Type: WELL
Geology: 125TGRV
USGS 7.5' Quad: GLENDIVE
PWS Id:
Project: EMT_OG_2016

Sample Date: 8/22/2016 3:44:00 PM
Agency/Sampler: MBMG / BROWN, ALLISON
Field Number: 3019 D. VAIRA
Lab Date: 10/17/2016 6:36:46 AM
Lab/Analyst: MBMG / TIMMER, JACKIE
Sample Method/Handling: PUMPED / ru:1 ra:0 fu:2 fa:2
Procedure Type: DISSOLVED
Total Depth (ft): 46
SWL-MP (ft): NR
Depth Water Error (ft): 28

Radon (Rn222 - pCi/L):	NR	Argon (Ar39):	NR
Carbon (C13):	NR	Silicon (Si32):	NR
Carbon (C14):	NR	Chlorine (Cl36):	NR
Tritium (H3 - TU):	NR	Lithium (Li6):	NR
H3/He3 Ratio:	NR	Krypton (Kr85):	NR
Deuterium (H2):	-153.000	Boron (B11):	NR
Oxygen (O18):	-19.900	Strontium (Sr87):	NR
Sulphur (S34):	NR	Chloro-fluorocarbon (CFC-11):	NR
Iodine (I129):	NR	Chloro-fluorocarbon (CFC-12):	NR
Nitrogen (N15):	NR	Chloro-fluorocarbon (CFC-113):	NR
Nitrogen (N15 of Nitrate):	NR	Oxygen (O18 of Nitrate):	NR
Sulphur (S34 of Sulfate):	NR	Oxygen (O18 of Sulfate):	NR

Sample Condition:
Field Remarks:
Lab Remarks:

Notes

Explanation: pCi/L = picocuries per Liter; TU = Tritium Units; NR = No Reading in GWIC

Disclaimer:

These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.



MORNING STAR
OPERATING

RECEIVED

MAY 06 2026

Freshwater Sample Analysis
Whiplash Vaira 4-2-H
Richland County, MT

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

4/23/26, 11:12 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report (Outside Laboratory) | V.12.2026

Ground-Water Information Center	Organic Report
Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT	Report Date: 4/23/2026

Location Information

Sample Id/Site Id	10360396002 / 3019	Sample Date	8/22/2016 3:50:00 PM
Location (TRS)	24N 55E 04 DADD	Agency/Sampler	PRIVATE / UNKNOWN
Latitude/Longitude	47.8663N -104.6583W	Field Number	
Datum	NAD27	Lab Name	PACE
Altitude	2259	Analyst	
County/State	RICHLAND / MT	Sample Method/# Bottles	
Site Type	WELL	Sample Type	

Sample Information

COMPARISON REPORT

Type	Analyte	Value	Units	Qual	Method	MDL	MRL	Rec	Ext	Anl	Staff
	Total Extractable Hydrocarbons	ND	ug/L		MADEP EPH	69.8	202		9/1/2016 8:58:00 AM	9/1/2016	
	1-Chloro-octadecane (S)	83	%		MADEP EPH				9/1/2016 8:58:00 AM	9/1/2016	
	Methyl-tert-butyl ether	ND	ug/L		MADEP VPH	0.28	1			8/30/2016	
	Benzene	ND	ug/L		MADEP VPH	0.12	0.5			8/30/2016	
	Toluene	ND	ug/L		MADEP VPH	0.11	0.5			8/30/2016	
	Ethylbenzene	ND	ug/L		MADEP VPH	0.16	0.5			8/30/2016	
	m&p-Xylene	ND	ug/L		MADEP VPH	0.18	0.5			8/30/2016	
	o-Xylene	ND	ug/L		MADEP VPH	0.099	0.5			8/30/2016	
	Xylene (Total)	ND	ug/L		MADEP VPH	0.28	2			8/30/2016	
	Naphthalene	ND	ug/L		MADEP VPH	0.17	5			8/30/2016	
	Aliphatic, Adjusted(C05-C08)	ND	ug/L		MADEP VPH	1.9	20			8/30/2016	
	Aliphatic, Adjusted(C09-C12)	ND	ug/L		MADEP VPH	0.96	20			8/30/2016	
	Aromatic (C09-C10)	ND	ug/L		MADEP VPH	0.25	20			8/30/2016	
	Total Purgeable Hydro Carbons	ND	ug/L		MADEP VPH	1.8	20			8/30/2016	
	Aliphatic (C09-C12),Unadjusted	ND	ug/L		MADEP VPH	0.96	20			8/30/2016	
	Aliphatic (C05-C08),Unadjusted	ND	ug/L		MADEP VPH	1.9	20			8/30/2016	
	a,a,a-Trifluorotoluene (S)	102	%		MADEP VPH					8/30/2016	
	Ethane	ND	ug/L		RSK 175	0.87	10			8/29/2016	
	Ethene	ND	ug/L		RSK 175	0.77	10			8/29/2016	
	Methane	12.8	ug/L		RSK 175	0.49	10			8/29/2016	

Additional Information

Explanation: ND = Non-detect, value was below detection limit. NR = No Reading in GWIC
Disclaimer: These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.



MORNINGSTAR
OPERATING

Water Analysis of Injection Interval- Lower Dakota
Whiplash Vaira 4-2-H
Richland County, MT

SATHI ANALYTICAL LABORATORY, INC.

301 W. 2ND STREET

P.O. BOX 1597
WILLISTON, ND. 58801

701 572-3670

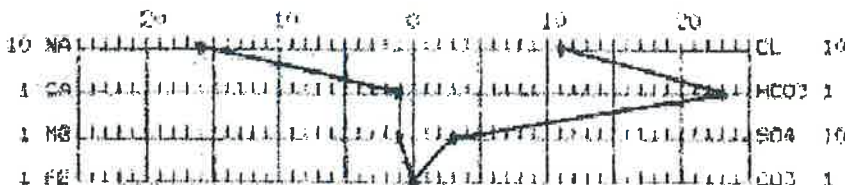
WATER ANALYSIS REPORT

OPERATOR: ENERPLUS RESOURCES L.P. DATE: 4/7/09
WELL NO. LONG TREE EDNA 1-12 LAB NO.: W-09-1694
FIELD: not listed FORMATION: Lower Dakota
COUNTY: Richland INTERVAL: 3844 - 3864'
STATE: MT ISE #:
LDC: not listed SAMPLE: 11TH SWAB RUN-TOTAL 105 BBL

CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
SODIUM	3580.0	155.7	CHLORIDE	3764.1	196.2
CALCIUM	29.6	1.3	CARBONATE	0.0	0.0
MAGNESIUM	11.4	0.5	BICARBONATE	1415.7	68.2
IRON	0.5	0.0	SULFATE	1522.2	71.9
POTASSIUM	17.4	0.4	NITRATE	0.0	0.0
BARIUM	0.0	0.0			
CHROMIUM	0.0	0.0			

SPECIFIC GRAVITY @ 77°F 1.000 FH 7.55
RESISTIVITY @ 77°F, ohm-cmeters 0.912 MCL (Calc.) 6210.2
TOTAL DISSOLVED SOLIDS (Calc.) MG/L 10350.0 HYDROGEN SULFIDE NEG

WATER ANALYTIC PATTERN - PPM/L



REMARKS - 11th RUN SWAB - TOTAL 105 BBL 4/6/09.
Received 4/7/09.

DISTRIBUTION OF RESULTS
Rocky Border -- Sidney MT.
Lynn Sundry -- Halliburton -- Williston ND.

RECEIVED

MAY 06 2026



MORNING STAR
OPERATING

Water Analysis of Injection Interval- Upper Dakota
Whiplash Vaira 4-2-H
Richland County, MT

SATHE ANALYTICAL LABORATORY, INC.

101 W. 2ND STREET

P.O. BOX 1577
WILLISTON, ND. 58801

701-572-3632

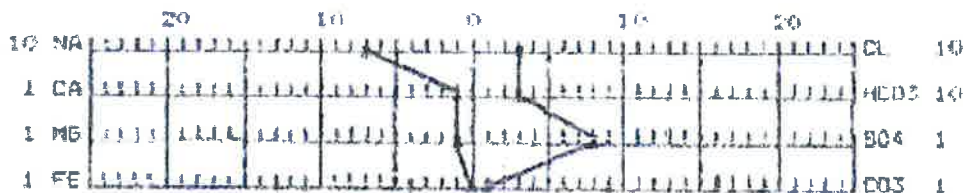
WATER ANALYSIS REPORT

OPERATOR: ENERPLUS L.P. DATE: 4/8/09
 WELL NO. LONE TREE EDNA 1-10 LAB NO.: W-09-1705
 FIELD: not listed FORMATION: Upper Dakota
 COUNTY: Richland INTERVAL: 5388-5408
 STATE: MT DST #:
 LOG: not listed SAMPLE RUN #16-SAMPLE 130 BBLS BACK

CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
SODIUM	1680.0	75.1	CHLORIDE	1114.7	31.4
CALCIUM	14.8	0.7	CARBONATE	31.5	1.1
MAGNESIUM	7.6	0.7	BICARBONATE	1925.1	31.8
IRON	1.2	0.1	SULFATE	791.2	8.1
POTASSIUM	9.9	0.3	NITRATE	0.0	0.0
BARIUM	0.0	0.0			
CHROMIUM	0.0	0.0			

SPECIFIC GRAVITY @ 77°F 1.000 PH 7.80
 RESISTIVITY @ 77°F, ohm-centers 1.549 NaCl (Calc.) 1839.1
 TOTAL DISSOLVED SOLIDS (Calc.) MG/L 5173.0 HYDROGEN SULFIDE NEG

WATER ANALYSIS FACTORIN MG/L



REMARKS - Run #16 Sample 130 BBLS Back.
Received 4/8/09.

DISTRIBUTION OF RESULTS
Rocky Border -- Sidney MT.
Lynn Sundby -- Halliburton - Williston ND.

RECEIVED

MAY 06 2006



MORNINGSTAR
OPERATING

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION - BILLINGS

AUTHORITY FOR EXPENDITURE - D&C

Company MorningStar Operating, LLC AFE # _____ CCN _____ Date 1/10/2025
 Lease Name Elm Coulee Water Well Well # 1 API # _____
 S-T-R _____ Surv/Abs _____ Field/Area Elm Coulee
 County Richland State Montana
 Project Drill and Complete a water well to 1,500'
 Proj Form _____ Proj TD 1500

2250		INTANGIBLE		TOTAL
1000	LOCATION / ROADS / PITS	\$150,000		\$150,000
1002	LAND DAMAGES / LEGAL WORK/ SURVEYING	\$25,000		\$25,000
1100	DRILLING - FISHING TOOLS & SERVICE			\$0
1301	DRILLING - RENTAL TOOLS & EQUIPMENT - SURFACE	\$20,000		\$20,000
1302	DRILLING - RENTAL TOOLS & EQUIPMENT - SUBSURFACE	\$4,000		\$4,000
1500	MUD / CHEMICALS	\$15,000		\$15,000
1600	DRILLING - ENGINEERING / SUPERVISION	\$15,000		\$15,000
1601	DRILLING - CONTRACT LABOR			\$0
2000	DRILLING RIG	\$125,000		\$125,000
2003	DRILLING - TRUCKING / HOT SHOT (TANGIBLES ONLY)			\$0
2004	DIRECTIONAL TOOLS & SERVICE			\$0
2007	RIG MOB / DEMOB			\$0
2102	DRILLING - FLUID DISPOSAL / SOLIDS CONTROL			\$0
2201	OPEN HOLE LOGS / CORES / FORMATION EVALUATION			\$0
3000	DRILL BITS			\$0
3100	OVERHEAD			\$0
3900	DRILLING - WATER & WATERLINES	\$15,000		\$15,000
3901	DRILLING - POWER & FUEL	\$10,000		\$10,000
4001	SURFACE / INTERMEDIATE - CASING CREWS, TOOLS & TONGS			\$0
4002	SURFACE / INTERMEDIATE - CEMENT & CEMENTING SERVICES			\$0
8000	MUD LOGGING UNIT			\$0
2260			TANGIBLE	TOTAL
1201	CONDUCTOR PIPE			\$0
1101	SURFACE CASING			\$0
1102	INTERMEDIATE CASING			\$0
1300	CASING HEAD		\$7,500	\$7,500
TOTAL COST IF DRY HOLE		\$379,000	\$7,500	\$386,500
2250		INTANGIBLE		TOTAL
1101	COMPLETION - FISHING TOOLS & SERVICES			\$0
1303	COMPLETION - RENTAL TOOLS & EQUIPMENT - SUBSURFACE			\$0
1304	COMPLETION - RENTAL TOOLS & EQUIPMENT - SURFACE			\$0
1501	COMPLETION - WATER / COMPLETION FLUIDS / CHEMICALS / TRACERS			\$0
1602	COMPLETION - ENGINEERING / SUPERVISION			\$0
1603	COMPLETION - CONTRACT LABOR			\$0
2100	COMPLETION UNIT			\$0
2101	COMPLETION - TRUCKING / HOT SHOT			\$0
2200	CASED HOLE WIRELINE SERVICES			\$0
2400	STIMULATION SERVICES			\$0
2401	COMPLETION - FLUID DISPOSAL			\$0
2402	COMPLETION - FRAC TANK RENTALS			\$0
2403	FLOWBACK			\$0
3301	PUMP TRUCKS & SERVICES			\$0
4003	PRODUCTION - CEMENT & CEMENTING SERVICES	\$30,000		\$30,000
4004	PRODUCTION - CASING CREWS, TOOLS & TONGS	\$7,500		\$7,500
4200	WELL TESTING			\$0
9000	FILL PITS & DRESS LOCATION			\$0
2260			TANGIBLE	TOTAL
1103	PRODUCTION CASING / LINER		\$50,000	\$50,000
1200	TUBING		\$10,000	\$10,000
1301	TUBING HEAD / X-MAS TREE		\$10,000	\$10,000
1401	SUBSURFACE EQUIPMENT / PACKER			\$0
1501	ARTIFICIAL LIFT EQUIPMENT / SUBPUMP / PUMPING UNIT		\$50,000	\$50,000
1502	TANKS / WALKS / STAIRWAYS			\$0
1503	SEPARATION EQUIPMENT / GAUGES - PROD FACILITY			\$0
1601	ELECTRICAL		\$25,000	\$25,000
1700	MEASUREMENT EQUIPMENT			\$0
1701	AUTOMATION EQUIPMENT			\$0
8000	FLOWLINES & FITTINGS			\$0
TOTAL COST TO COMPLETE & EQUIP		\$37,500	\$145,000	\$182,500
TOTAL WELL COST		\$416,500	\$152,500	\$569,000



MORNINGSTAR
OPERATING

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

AUTHORITY FOR EXPENDITURE - D&C

Company MorningStar Operating, LLC	AFE #	CC#	Date 1/10/2025
Lease Name Elm Coulee Water Well	Well # 1	API #	
S-T-R	Surv/Abs	Field/Area Elm Coulee	
County Richland	State Montana		
Project Drill and Complete a water well to 5,900'			
Proj Form		Proj TD 5,900'	

2250		INTANGIBLE		TOTAL
1000	LOCATION / ROADS / PITS	\$250,000		\$250,000
1002	LAND DAMAGES / LEGAL WORK / SURVEYING	\$25,000		\$25,000
1100	DRILLING - FISHING TOOLS & SERVICE			\$0
1301	DRILLING - RENTAL TOOLS & EQUIPMENT - SURFACE	\$50,000		\$50,000
1302	DRILLING - RENTAL TOOLS & EQUIPMENT - SUBSURFACE	\$20,000		\$20,000
1500	MUD / CHEMICALS			\$0
1600	DRILLING - ENGINEERING / SUPERVISION	\$30,000		\$30,000
1601	DRILLING - CONTRACT LABOR			\$0
2000	DRILLING RIG	\$300,000		\$300,000
2003	DRILLING - TRUCKING / HOT SHOT (TANGIBLES ONLY)			\$0
2004	DIRECTIONAL TOOLS & SERVICE			\$0
2007	RIG MOB / DEMOB			\$0
2102	DRILLING - FLUID DISPOSAL / SOLIDS CONTROL	\$40,000		\$40,000
2201	OPEN HOLE LOGS / CORES / FORMATION EVALUATION			\$0
3000	DRILL BITS			\$0
3100	OVERHEAD			\$0
3900	DRILLING - WATER & WATERLINES	\$25,000		\$25,000
3901	DRILLING - POWER & FUEL	\$25,000		\$25,000
4001	SURFACE / INTERMEDIATE - CASING CREWS, TOOLS & TONGS	\$7,500		\$7,500
4002	SURFACE / INTERMEDIATE - CEMENT & CEMENTING SERVICES	\$30,000		\$30,000
8000	MUD LOGGING UNIT			\$0
2260			TANGIBLE	TOTAL
1201	CONDUCTOR PIPE			\$0
1101	SURFACE CASING		\$83,000	\$83,000
1102	INTERMEDIATE CASING			\$0
1300	CASING HEAD		\$7,500	\$7,500
TOTAL COST IF DRY HOLE		\$802,500	\$90,500	\$893,000
2250		INTANGIBLE		TOTAL
1101	COMPLETION - FISHING TOOLS & SERVICES			\$0
1303	COMPLETION - RENTAL TOOLS & EQUIPMENT - SUBSURFACE			\$0
1304	COMPLETION - RENTAL TOOLS & EQUIPMENT - SURFACE			\$0
1501	COMPLETION - WATER / COMPLETION FLUIDS / CHEMICALS / TRACERS			\$0
1602	COMPLETION - ENGINEERING / SUPERVISION			\$0
1603	COMPLETION - CONTRACT LABOR			\$0
2100	COMPLETION UNIT			\$0
2101	COMPLETION - TRUCKING / HOT SHOT			\$0
2200	CASED HOLE WIRELINE SERVICES	\$20,000		\$20,000
2400	STIMULATION SERVICES			\$0
2401	COMPLETION - FLUID DISPOSAL			\$0
2402	COMPLETION - FRAC TANK RENTALS			\$0
2403	FLOWBACK			\$0
3301	PUMP TRUCKS & SERVICES			\$0
4003	PRODUCTION - CEMENT & CEMENTING SERVICES	\$40,000		\$40,000
4004	PRODUCTION - CASING CREWS, TOOLS & TONGS	\$12,500		\$12,500
4200	WELL TESTING			\$0
9000	FILL PITS & DRESS LOCATION			\$0
2260			TANGIBLE	TOTAL
1103	PRODUCTION CASING / LINER		\$304,000	\$304,000
1200	TUBING		\$42,000	\$42,000
1301	TUBING HEAD / X-MAS TREE		\$12,500	\$12,500
1401	SUBSURFACE EQUIPMENT / PACKER			\$0
1501	ARTIFICIAL LIFT EQUIPMENT / SUBPUMP / PUMPING UNIT		\$150,000	\$150,000
1502	TANKS / WALKS / STAIRWAYS			\$0
1503	SEPARATION EQUIPMENT / GAUGES - PROD FACILITY			\$0
1601	ELECTRICAL		\$25,000	\$25,000
1700	MEASUREMENT EQUIPMENT			\$0
1701	AUTOMATION EQUIPMENT			\$0
8000	FLOWLINES & FITTINGS			\$0
TOTAL COST TO COMPLETE & EQUIP		\$72,500	\$533,500	\$606,000
TOTAL WELL COST		\$875,000	\$624,000	\$1,499,000



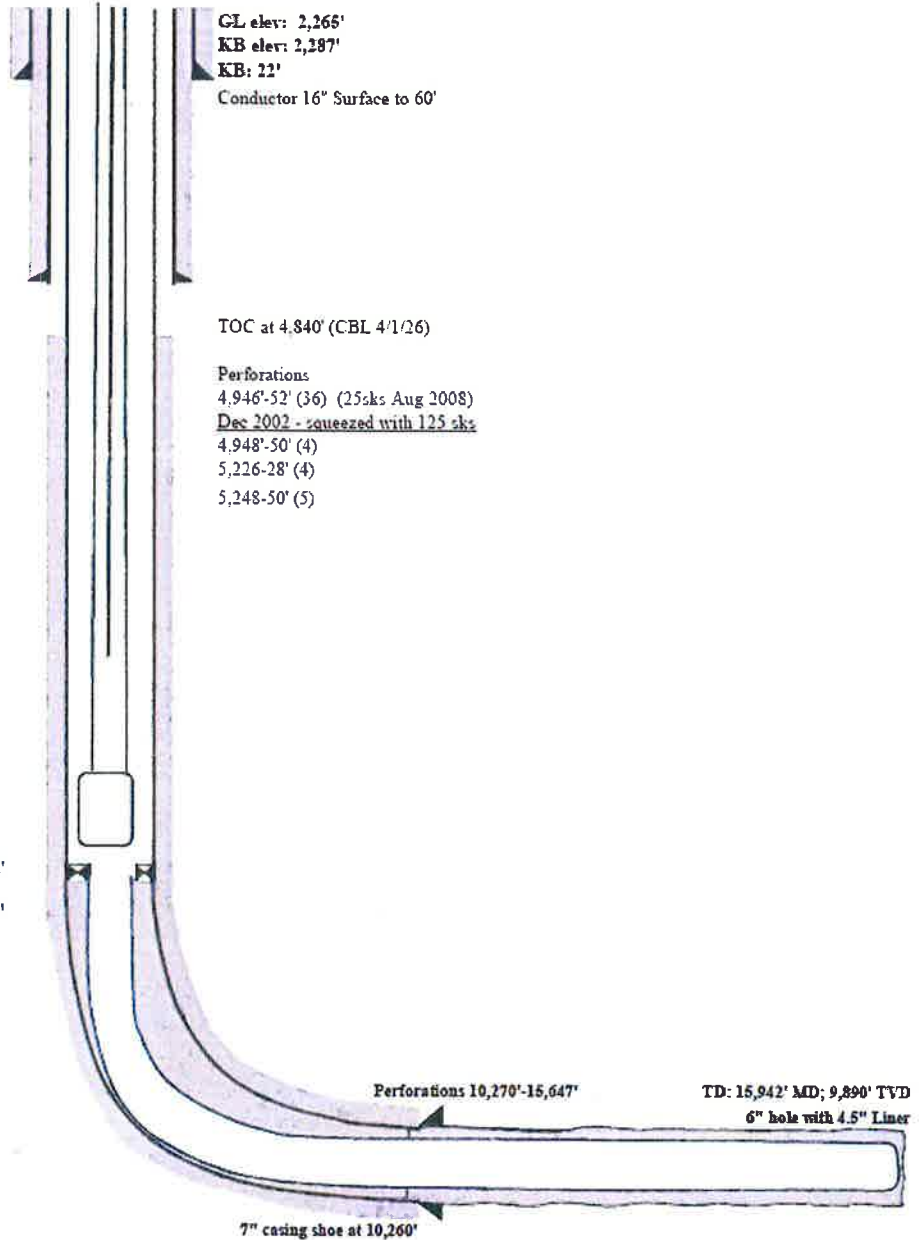
Initial Wellbore Schematic

API# 25-083-21946

W2 E2 Lot 2 Section 04 - T24N - R55E
160 FNL, 2080 FEL

Surface casing:
9 5/8" 36# I-55 LT&C @ 1,590'
Cemented with 530 sks

7" Intermediate Casing at 10,260'
7" 29# P-110 LTC to 10,260'
Cemented with 670 + 150 sks



Current Wellbore Diagram
Whiplash Vaira 4-2-H
Section 12 of T24N-55E
Richland County, Montana

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



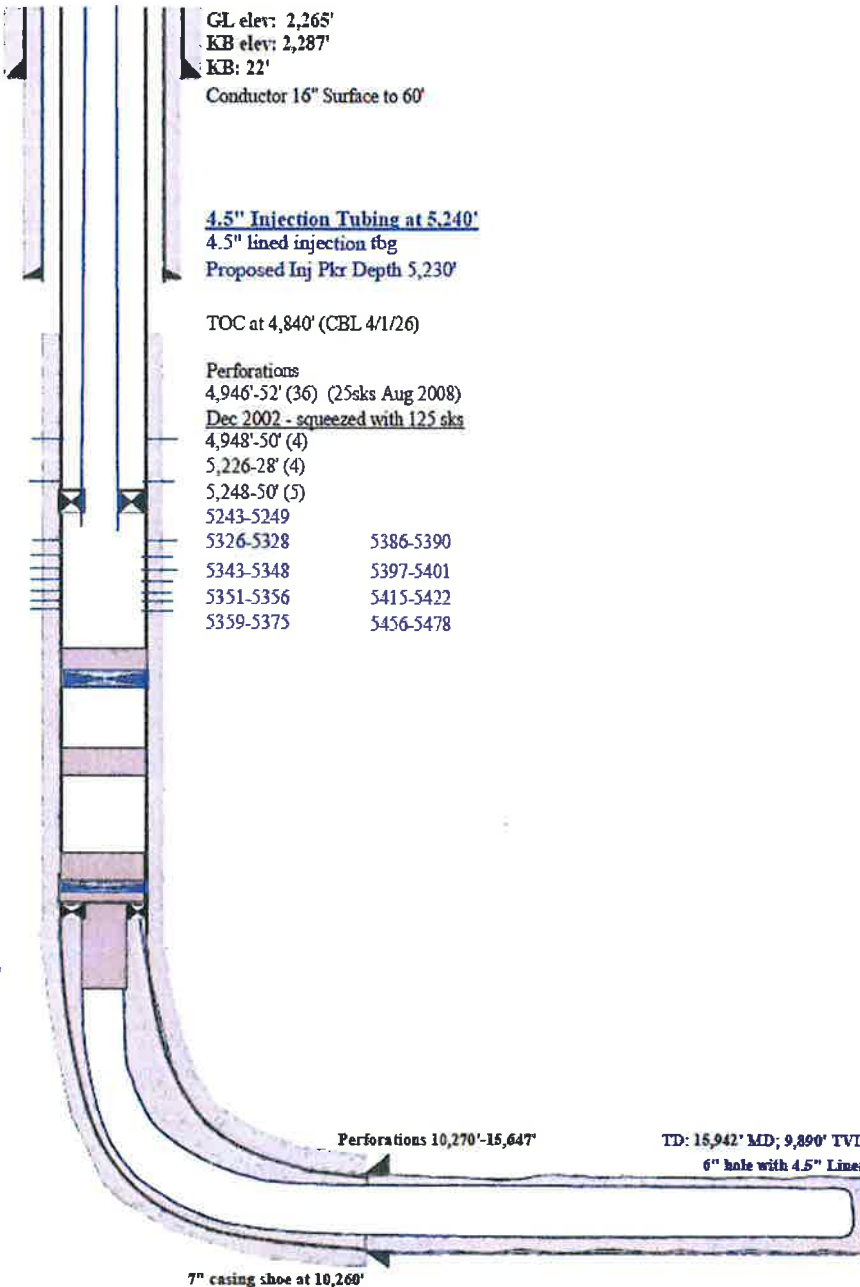
Proposed Wellbore Schematic

API# 25-083-21946

W2 E2 Lot 2 Section 04 - T24N - R55E
260 FNL, 2080 FEL

Surface casing:
9 5/8" 36# J-55 LT&C @ 1,590'
Cemented with 530 Sks

7" Intermediate Casing at 10,260'
7" 29# P-110 LTC to 10,260'
Cemented with 670 + 150 sks



TOC @ 5,600'
6 sks of cement (50') (Class G + 35% silica)
CIBP at 5,650'

Top of Charles at 7,784' from DRL Report
Balanced Plug (7,659 -7,909')
30 sks balanced plug Class G + 35% silica

TOC @ 9,450'
10 sks of cement (75') (Class G + 35% silica)
CICR at 9,525'
40 sks of cement (768') (Class G + 35% silica)

KOP 9,300'
Top of 4.5" Liner @ 9,544'

Production Liner (9,544' - 15,942')
PBR 9,544'
Liner hanger
4 1/2" 11.6# N-80 / P-110 from 9,544' - 15,942'
Cemented with 380 sks

Proposed Wellbore Diagram
Whiplash Vaira 4-2-H
Section 12 of T24N-55E
Richland County, Montana

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

Exhibit 8B



MORNINGSTAR
OPERATING

Surface and Mineral Owner List

Whiplash Vaira 4-2-H

Richland County, MT

Current Operators within AOR

MORNINGSTAR OPERATING LLC

Burning Tree Luren 31-4-H

25-083-22391

MORNINGSTAR OPERATING LLC

Burning Tree Jessie 31-3-HID3

25-083-22661

Surface Owners within AOR

Bud & Joe LLC
2535 Clearwater Way
Billings, MT 59105

Jay Julson
816 Larvik Lane
Stoughton, WI 53589

Joni Peterson
S1005 Lees Valley Rd.
Mondovi, WI 54755

Thomas Marum
S-643 Sand Road
Mondovi, WI 54755

Mary Marum
1715 Truax Blvd. Apt. #2
Eau Claire, WI 54703

William R. Sambolt and Nancy J. Pidgeon Sambolt,
Trustees of the William and Nancy
Sambolt Trust dated December 18, 2014 – 1/2 UDI
493 Apple Pine Cir.
Hudson, WI 54016

Rodney Teigan
1203 Pershing St.
Eau Claire, WI 54701

Delores Delmore
4712 Baker Road
Hopkins, MN 55343

Kathy Marum
S 1638 State Rd. 88
Alma, WI 54610

John Marum
S-699 Turner Valley Rd.
Mondovi, WI 54755

J.O. Julson Heirs, Montana Land Irrevocable Trust
1527 W Vine St.
Eau Claire, WI 54703

Mary Louise Dommer, Trustee of the Mary Louise
Dommer Revocable Trust dated
October 4, 2019 – 1/2 UDI
1527 W Vine St.
Eau Claire, Wisconsin 54703

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING

Surface and Mineral Owner List Whiplash Vaira 4-2-H Richland County, MT

Mineral Interest Owners within AOR

ALVIN BUD VAIRA EDUCATIONAL
TRUST
PO BOX 1588,

BARBARA MONNIER
4713 FIRELANE RD,
ZEPHYRHILLS, FL, 33541

BETTY DOENIER
S 550 CO RD BB,
MONDOVI, WI, 54755

CELESTE KETCHUM
2800 ALEXANDER RD,
BILLINGS, MT, 59105

DARYL P VAIRA
13349 CO RD 324,
LAMBERT, MT, 59243

PATRICIA KAY IMSDAHL
309 PORTOFINO WAY,
CLOVERDALE, CA, 95425

DEBRA VAIRA
2535 CLEARWATER WAY,
BILLINGS, MT, 59105

DUANE C TEIGEN
W5930 NELSON RD,
MONDOVI, WI, 54755

GARY L JULSON
W 7885 W CEDAR RD,
MONDOVI, WI, 54755

HARVEY FAMILY TRUST
211 KINSEY CT,
EVANSVILLE, WI, 53536

ANNE M LINDQUIST
4309 SHARI ANN LN,
BROOKLYN PARK, MN, 55443

BARRY FJELSTAD
W22 616 CO RD H,
STRUM, WI, 54770

BLUE MESA MINERALS LLC
3549 ARBUCKLE DR,
PLANO, TX, 75075

CHARLENE S NETZER
12127 CO RD 348,
SIDNEY, MT, 59270

DAVID L TEIGEN
W4130 MAPLE RIDGE RD,
MONDOVI, WI, 54755

DAVID M VAIRA
32704 HWY 201,
LAMBERT, MT, 59243

DENNIS J TEIGEN
S13750 OAK CT,
ELEVA, WI, 54738

ELIZABETH SIKVELAND
1511 TWIN OAKS DR,
BILLINGS, MT, 59105

GILLETTE VAIRA
2449 EASTRIDGE DR,
BILLINGS, MT, 59102

HEART PLUS LLC
PO BOX 216,
LAMBERT, MT, 59243

APRIL E THOMPSON
1259 PARK AVE APT 24,
SAN JOSE, CA, 95126-2818

BECKY J HAMILTON
PO BOX 39396,
NINILCHIK, AK, 99639-0048

BRAD PULCZINSKI
2860 80TH AVE,
WOODVILLE, WI, 54028

CORY TEIGEN
5456 ONEIL RD,
MONDOVI, WI, 54755

DANIEL T TEIGEN
50813 N 3RD ST,
ELEVA, WI, 54738

PATRICK DELMORE
3328 BIRCH PL,
MINNETONKA, MN, 55305

DOREEN M VAIRA HERBERT
933 HWY 24N,
GLASGOW, MT, 59230

ELSIA PRISSEL
W6542 HWY 77,
MINONG, WI, 54859-8900

GREGORY R FJELSTAD
PO BOX 372,
STRUM, WI, 54770

JACQUELINE HALL
1316 MOSSMAN DR,
BILLINGS, MT, 59105

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING

Surface and Mineral Owner List
Whiplash Vaira 4-2-H
Richland County, MT

JAMES A TEIGEN W 14271 ROSES RESORT RD, WEYERHOUSER, WI, 54895	JANICE K VAIRA-OPP 300 LYNDALD AVE, GLENDDIVE, MT, 59330-2829	JEFFERY T TEIGEN S 15095 ST RD 37, MONDOVI, WI, 54755
CLAYTON K VAIRA & JENIFER SUSAN VAIRA 1101 CEDAR AVE, SIDNEY, MT, 59270	CHERYL GARNER-VAIRA FKA CHERYL MILLER-GARNER 5602 S CAISSON WAY, MESA, AZ, 85212	NORTHEAST MONTANA LLP ATTN: PROSPECTOR OIL INC, PO BOX 1577 BILLINGS, MT, 59103-1577
JOAN O WEBER 4330 HERITAGE DR, EAU CLAIRE, WI, 54703	JOANIE MARUM S1005 LEES VALLEY RD, MONDOVI, WI, 54755-8330	JOHN E BIELEFELDT OR 5441 BENJAMIN ST, EAU CLAIRE, WI, 54703
JOHN E WONS 65 W 100 N #96, MEADOW, UT, 84644-7704	JOHN MARUM S 699 TURNER VALLEY RD, MONDOVI, WI, 54755	JOHN SCOTT 5170 W RIVER RD, WAUNAKEE, WI, 53597
JUDITH DIANNE SIMARD 125 GLENWOOD AVE, GLENDDIVE, MT, 59330	JUDITH FJELSTAD E5693 EVERGREEN RD, ELEVA, WI, 54738	KATHY MUELLER S1638 STATE RD 88, ALMA, WI, 54610
LARRY J VAIRA 2822 SARATOGA TRL, BILLINGS, MT, 59105	LARRY JULSON N47042 SEMINGSON RD, STRUM, WI, 54770	MARY ROBINSON 4117 BONNIE CT, EAU CLAIR, WI, 54701
MARION FERRANTE 4413 LAKESIDE DR, THE COLONY, TX, 75056	MARLYS T MARTEN N50751 COUNTY ROAD Y, ELEVA, WI, 54738-8991	MARY DOMMER 1527 W VINE ST, EAU CLAIRE, WI, 54703
LEWIS REV FAMILY TRUST OF 9/21/07 2101 WINDJAMMER WAY, ROWLETT, TX, 75088	WHITE ROCK OIL & GAS PARTNERS II-B LP 5810 TENNYSON PKWY STE 500, PLANO, TX, 75024	MICHAEL D DELMORE 11910 ISLETON AVE N, GRANT, MN, 55082
MORNINGSTAR OPERATING LLC 400 WEST 7TH ST, FORT WORTH, TX, 76102	NANCY J VAIRA 13449 CO RD 324, LAMBERT, MT, 59243-9420	NANCY PIDGEON SAMBOLT 493 APPLE PINE CIR, HUDSON, WI, 54016-8184

RECEIVED

MAY 06 2026



MORNINGSTAR
OPERATING

Surface and Mineral Owner List
Whiplash Vaira 4-2-H
Richland County, MT

NICK J VAIRA 26 HEATHER PL, GLASGOW, MT, 59230	NOBLE ROY ACCESS FUND VII LP PO BOX 660082, DALLAS, TX, 75266-0082	NOBLE ROY ACCESS FUND VIII LP PO BOX 660082, DALLAS, TX, 75266-0082
PATRICK VAIRA 32508 HWY 201, LAMBERT, MT, 59243	PEGGY A SIMONSON 1362 CARLI CT, CHIPPEWA FALLS, WI, 54729	PHILLIP SHANE IMSDAHL 2800 SHOW JUMPER LANE, RENO, NV, 89521
RANDY JULSON 6245 NAUGART DR, MERRILL, WI, 54452	RITA M IRRGANG 3216 HOPKINS CROSSROADS, MINNETONKA, MN, 55305	ROBERT C TEIGEN W 24053 MILAND RD, ELEVA, WI, 54738
RODNEY R TEIGEN S 13050 CO RD R, AUGUSTA, WI, 54722	ROGER FJELSTAD 3331 EDWARDS ST, EAU CLAIRE, WI, 54703	RYAN VAIRA 3275 PONY TRACKS DR, COLORADO SPRINGS, CO, 80922
SABRINA VAIRA ANDERSON PO BOX 400, FAIRVIEW, MT, 59221	SALLY L STEINKE 20770 57TH AVE, CADOTT, WI, 54727	SAVANNA CRAWFORD 2605 BENT TREE LN, ARLINGTON, TX, 76016
SHANE VAIRA 32458 COUNTY ROAD 130, RICHEY, MT, 59259	SHARON K BOE 26032 SOUTH EAST 192ND ST, MAPLE VALLEY, WA, 98038	SUE LYNN HOCHSTEIN 720 POOR VALLEY RD, RUTLEDGE, TN, 37861-4314
SWEARINGEN LLC 2503 KENCHESTER LOOP, WESLEY CHAPEL, FL, 33543	TAMARA I KOPP N 2330 870TH ST, ELK MOUND, WI, 54701	TANA KAY SIMARD PACHECO 10022 WESTSIDE CIRCLE, LITTLETON, CO, 80125
TERI LYN SUHR PO BOX 988, WELLINGTON, CO, 80549	THOMAS J TEIGEN S 407 HALVERSON VALLEY RD, MONDOVI, WI, 54755	THOMAS S MARUM S 643 SAND RD, MONDOVI, WI, 54755
TIMOTHY D & JEAN V VAIRA JTWROS PO BOX 585, TORI FJELSTAD N5670 230TH ST, MENOMONIE, WI, 54751	TIMOTHY J JULSON 808 ARENDALE CT, STOUGHTON, WI, 53589 TRAVIS SHAUN IMSDAHL 455 MALLARD DR, SANTA ROSA, CA, 95401	TIMOTHY VANCE IMSDAHL 1124 ENZOS WAY, WINDSOR, CA, 95492 TYLER ROSS SIMARD PO BOX 495, FORSYTH, MT, 59327

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING

Surface and Mineral Owner List
Whiplash Vaira 4-2-H
Richland County, MT

UNITY LIMITED PARTNERSHIP
3225 HARROW DR,
BILLINGS, MT, 59102

WENDY KLEINSCHMIDT
152 W RIVERSIDE AVE,
MONDOVI, WI, 54755

UNITY LIMITED PARTNERSHIP
3225 HARROW DR,
BILLINGS, MT, 59102

WHITE ROCK OIL & GAS GP II LLC
5810 TENNYSON PKWY STE 500,
PLANO, TX, 75024

VICKI VAIRA
312 2ND AVE SW,
SIDNEY, MT, 59270

MARY E SWERDFIGER
1627 KENTUCKY AVE S,
ST LOUIS PARK, MN, 55426

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING

Affidavit of Notification to Surface and Mineral Owners
Whiplash Vaira 4-2-H
Richland County, MT

BEFORE THE BOARD OF OIL AND GAS CONSERVATION OF THE STATE OF MONTANA

IN THE MATTER OF THE APPLICATION FOR
MORNINGSTAR OPERATING LLC FOR THE HEARING
OF ITS REQUEST FOR A UIC PERMIT FOR THE
WHIPLASH VAIRA 4-2-4 WELL, 260' FNL 2080' FEL,
SECTION 4, T24N, R55E, P.M.M. RICHLAND COUNTY,
MONTANA, FOR THE PURPOSE OF WATER INJECTION

AFFIDAVIT OF NOTIFICATION

Date: May 5, 2026

State of Utah
County of Uintah

Amy Doebele, being first duly sworn, deposes and says:

That Notice of advising of MorningStar Operating LLC' application for UIC permit in the captioned matter, in the form attached as "Exhibit A", was mailed to each current operator, surface owner and lease owner within the area of review at the addresses shown in the exhibit attached to the Notice, by mailing a true copy thereof this 5th day of May, 2026, postage prepaid, First Class USPS Mail. This affidavit is given as evidence of compliance with A.R.M. 36.22.1410.


Amy Doebele
Authorized Agent

Subscribed and sworn before me on this 5 day of May, 2026.


Notary Public of the State of Utah
My Commission Expires: 10-28-2026



RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING

**Affidavit of Publication – Helena Independent
Whiplash Vaira 4-2-H
Richland County, MT**

Independent Record

AFFIDAVIT OF PUBLICATION

Helena Independent Record
2222 N. Washington St
Helena, Montana 59602
(123) 456-7890

State of New Jersey, County of Camden, ss:

Anjana Bhadoriya, being first duly sworn, deposes and says: That (s)he is a duly authorized signatory of Column Software, PBC, duly authorized agent of Helena Independent Record, a newspaper of general circulation published that is a "legal newspaper" as that is published daily in the City of Helena, in the County of Lewis and Clark, State of Montana, and has charge of the Advertisements thereof.

If this certification is for the State of Montana, I hereby certify that I have read sec. 18-7-204 and 18-7-205 MCA, and subsequent revisions, and declare that the price or rate charged the State of Montana for the publication for which claim is made in printed copy in the amount of \$163.30 is not in excess of the minimum rate charged any other advertiser for publication of advertisement, set in the same size type and published for the same number of insertions, further certify that this claim is correct and just in all respects, and that payment or credit has not been received.

PUBLICATION DATES: May 2 2026

NOTICE ID: 3ruxawgqi54HYJL0Gr1

PUBLISHER ID: COL-MT-202657

NOTICE NAME: Morningstar Operating - Whiplash Vaira 4-2-H

Publication Fee: \$163.30

Anjana Bhadoriya

(signature)

SHARONN E THOMAS-POPE
NOTARY PUBLIC
STATE OF NEW JERSEY
My Commission Expires January 23, 2027

VERIFICATION

State of New Jersey
County of Camden

Subscribed in my presence and sworn to before me on this: **05/05/2026**

SM S. R. Poe

Notary Public

Notarized remotely online using communication technology via Proof.

**Morningstar Operating - Whiplash Vaira 4-2-H
BEFORE THE BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA**

In the Matter of the application of
MorningStar Operating LLC
for a Class II Injection well permit.

**NOTICE OF INTENTION TO APPLY FOR A CLASS II
INJECTION WELL PERMIT**

1. Name and address of Applicant:
MorningStar Operating LLC
400 W 7th Street
Fort Worth, TX 76102

**2. Legal Description including County and Approximate
Footages of Surface Location of Proposed Oil and Gas Well:
(and projected bottom-hole location, if a directional or horizontal
well)**

**Whiplash Vaira 4-2-H
Surface Hole: 260' FNL 2080' FEL
Lot 2, Section 4, Township 24 North, Range 55 East
Richland County, MT**

3. Source of fluids to be injected
Produced water from Three Forks (Bakken) wells

**4. Zone or formation into which injection will occur, including
depth**
Dakota/Lakota from 4,993 – 5,479' MD/TVD
Plugback depth – 5,600' MD/TVD

**5. An aquifer exemption will be requested as part of the
application since the proposed injection zone contains water
with less than 10,000 ppm total dissolved solids.**

Pursuant to Rules 36.22.1409, Administrative Rules of Montana, the Montana Board of Oil and Gas Conservation will hold a public meeting upon the application of MorningStar Operating LLC for a Class II underground injection permit for the well or project set forth above. Said hearing will be held at the Montana Board of Oil & gas Hearing Room at 2535 St. John's Ave, Billings, Montana, beginning at 9:00 am on Thursday, June 11, 2026.

May 2, 2026 COL-MT-202657 MNAXLP

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



MORNINGSTAR
OPERATING

Affidavit of Publication – Sidney Herald

Whiplash Vaira 4-2-H

Richland County, MT

SIDNEY HERALD

AFFIDAVIT OF PUBLICATION

Sidney Herald
310 2nd Ave NE
(406) 433-2403

I, Edmar Corachia, of lawful age, being duly sworn upon oath depose and say that I am an agent of Column Software, PBC, duly appointed and authorized agent of the Publisher of Sidney Herald, a publication that is a "legal newspaper" as that phrase is defined for the city of Sidney, for the County of Richland, in the state of Montana, that this affidavit is Page 1 of 2 with the full text of the sworn-to notice set forth on the pages that follow, and that the attachment hereto contains the correct copy of what was published in said legal newspaper in consecutive issues on the following dates:

PUBLICATION DATES:
May 2, 2026

Notice ID: HPUQgr0JUo7b8TLrhZPZ
Publisher ID: SHM000884
Notice Name: Morningstar Operating - Whiplash Vaira 4-2-H

PUBLICATION FEE: \$128.49

Request of
Alesha Jones

I declare under penalty of perjury and under the laws of the state of Montana that the foregoing is true and correct.

Edmar Corachia

Agent

SHARONN E THOMAS-POPE
NOTARY PUBLIC
STATE OF NEW JERSEY
My Commission Expires January 23, 2027

VERIFICATION

State of New Jersey
County of Camden

Signed or attested before me on this: 05/04/2026

SM E. R. Poe

Notary Public
Notarized remotely online using communication technology via Proof.

BEFORE THE BOARD OF OIL AND GAS CONSERVATION OF THE STATE OF MONTANA

In the Matter of the application of
MorningStar Operating LLC
for a Class II Injection well permit.

NOTICE OF INTENTION TO APPLY FOR A CLASS II INJECTION WELL PERMIT

1. Name and address of Applicant:
MorningStar Operating LLC
400 W 7th Street
Fort Worth, TX 76102

2. Legal Description including County and Approximate Footages of
Surface Location of Proposed Oil and Gas Well:
(and projected bottom-hole location, if a directional or horizontal
well)
Whiplash Vaira 4-2-H
Surface Hole: 260' FNL 2080' FEL
Lot 2, Section 4, Township 24 North, Range 55 East
Richland County, MT

3. Source of fluids to be injected
Produced water from Three Forks (Bakken) wells

4. Zone or formation into which injection will occur, including depth
Dakota/Lakota from 4,993 – 5,479' MD/TVD
Plugback depth – 5,600' MD/TVD

5. An aquifer exemption will be requested as part of the applica-
tion since the proposed injection zone contains water with less than
10,000 ppm total dissolved solids.
Pursuant to Rules 36.22.1409, Administrative Rules of Montana,
the Montana Board of Oil and Gas Conservation will hold a public
meeting upon the application of MorningStar Operating LLC for a
Class II underground injection permit for the well or project set forth
above. Said hearing will be held at the Montana Board of Oil & gas
Hearing Room at 2535 St. John's Ave, Billings, Montana, beginning
at 9:00 am on Thursday, June 11, 2026.
Date: May 2, 2026
SHM000884

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

RECEIVED

MAY 06 2026

Submit In Quadruplicate To:

MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

SUNDRY NOTICES AND REPORT OF WELLS

Operator MORNINGSTAR OPERATING LLC		Lease Name: WHIPLASH VAIRA
Address 400 7TH STREET		Type (Private/State/Federal/Tribal/Allotted): PRIVATE
City FORT WORTH	State TX	Zip Code 76102
Telephone 817-334-7800	Fax	Well Number: 4-2-H
Location of well (1/4-1/4 section and footage measurements): SHL: 260' FNL 2080' FEL LOT 2 SECTION 4, T24N, R55E BHL: 260' FNL 2080' FEL LOT 2 SECTION 4, T24N, R55E		Unit Agreement Name:
		Field Name or Wildcat: ELM COULEE
		Township, Range, and Section: T24N, R55E, SECTION 4
API Number: <u>25</u> <u>083</u> <u>21946</u> State County Well	Well Type (oil, gas, injection, other): INJECTION	County: RICHLAND

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	<input type="checkbox"/>	Subsequent Report of Mechanical Integrity Test	<input type="checkbox"/>
Notice of Intention to Run Mechanical Integrity Test	<input type="checkbox"/>	Subsequent Report of Stimulation or Treatment	<input type="checkbox"/>
Notice of Intention to Stimulate or to Chemically Treat	<input type="checkbox"/>	Subsequent Report of Perforation or Cementing	<input type="checkbox"/>
Notice of Intention to Perforate or to Cement	<input type="checkbox"/>	Subsequent Report of Well Abandonment	<input type="checkbox"/>
Notice of Intention to Abandon Well	<input type="checkbox"/>	Subsequent Report of Pulled or Altered Casing	<input type="checkbox"/>
Notice of Intention to Pull or Alter Casing	<input type="checkbox"/>	Subsequent Report of Drilling Waste Disposal	<input type="checkbox"/>
Notice of Intention to Change Well Status	<input type="checkbox"/>	Subsequent Report of Production Waste Disposal	<input type="checkbox"/>
Supplemental Well History	<input type="checkbox"/>	Subsequent Report of Change in Well Status	<input type="checkbox"/>
Other (specify) <u>Intent to convert to Class II Injection Well</u>	<input checked="" type="checkbox"/>	Subsequent Report of Gas Analysis (ARM 36.22.1222)	<input type="checkbox"/>

Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

MorningStar Operating LLC proposes to convert the Whiplash Vaira 4-25-H for Class II Injection.
Please see the attached procedure and wellbore diagrams (current/proposed).

- | | |
|--|---|
| 1. Plug & abandon the Bakken Lateral. PBTD 5,600' TVD. | 6. Perform MIT and Step Rate Test. |
| 2. Perforate Dakota/Lakota 5,243'-5,478' TVD. | 7. After all approvals received, begin injection. |
| 3. Swab for fluid sample analysis. | |
| 4. Establish injection and acidize treatment to clean up perforations. | |
| 5. Install injection packer and injection tubing @ 5,230'. | |

BOARD USE ONLY	
Approved _____ Date	
_____ Name	_____ Title

The undersigned hereby certifies that the information contained on this application is true and correct:

5/4/2026
Date

Holly Wood
Signed (Agent)

Holly Wood, Senior Regulatory Analyst
Print Name and Title

Telephone: 817-344-8088



MORNINGSTAR
OPERATING

RECEIVED

MAY 06 2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

Water Analysis of Injection Interval- Upper Dakota

Whiplash Vaira 4-2-H
Richland County, MT

- 1. Plug & abandon the Bakken Lateral. PBTB 5,600' TVD.**
- 2. Perforate Dakota/Lakota 5,243'-5,478' TVD.**
- 3. Swab for fluid sample analysis.**
- 4. Establish injection and acidize treatment to clean up perforations.**
- 5. Install injection packer and injection tubing @ 5,230'.**
- 6. Perform MIT and Step Rate Test.**
- 7. After all approvals received, begin injection.**

Existing & Proposed Wellbore Schematic attached



MORNINGSTAR
OPERATING

RECEIVED

MAY 06 2026

Last update: 3/25/2026

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

Proposed Wellbore Schematic

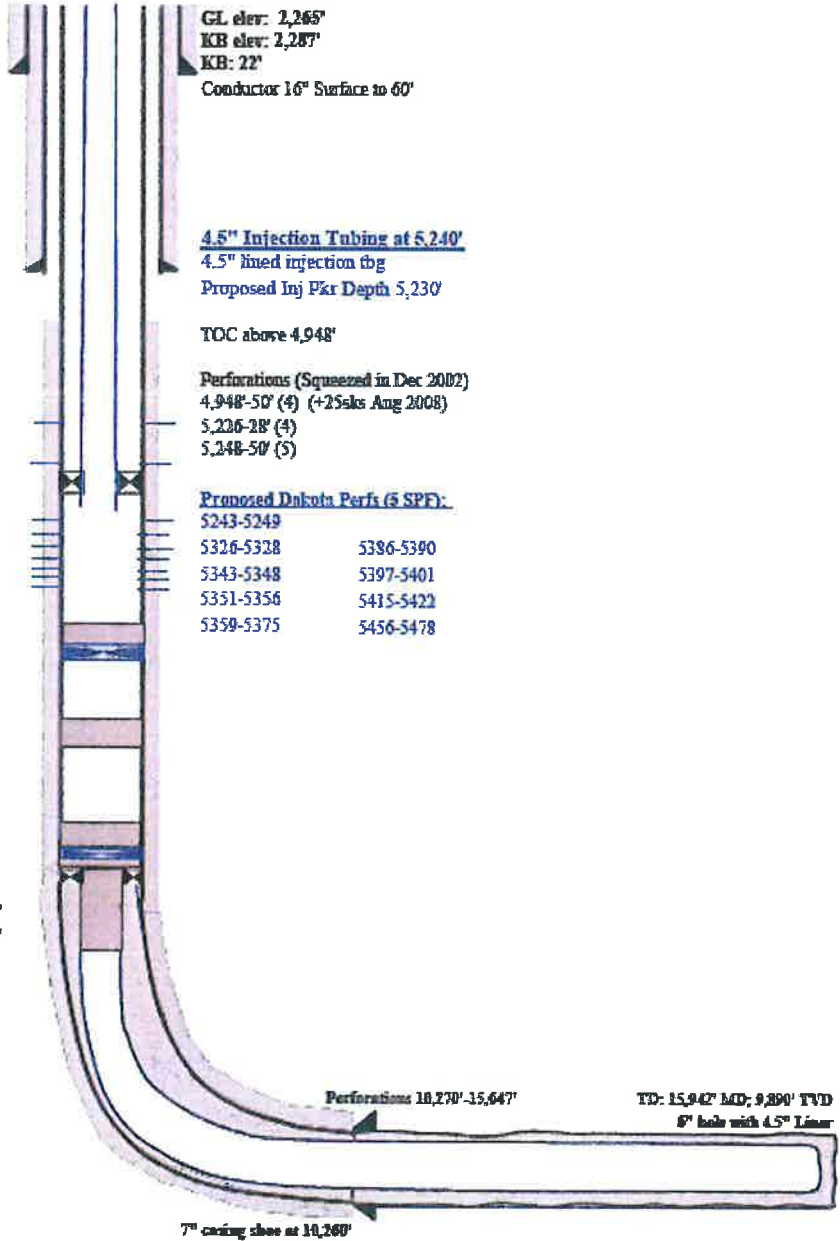
AP# 25-043-21946

W1 E2 Lot 2 Section 04 - T24N - R55E
260 ENL, 2000 FEL

Surface casing:
9 5/8" 36# J-55 LT&C @ 1,590'
Cemented with 530 sks

7" Intermediate Casing at 10,260'
7" 29# P-110 LTC to 10,260'

*TOC ~4,100' post squeeze
Cemented with 670 sks + 125 sks



Proposed Wellbore Diagram
Whiplash Vaira 4-2-H
Section 4 of T24N-R55E
Richland County, Montana

RECEIVED

MAY 06 2026

Exhibit 8

UIC Application- Dakota/Lakota

MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS



May 5, 2026

Mr. John Gizicki
Underground Injection Control (UIC) Program Director
Montana Board of Oil and Gas Conservation
2535 St. Johns Avenue
Billings, MT 59102

RE: Request for Aquifer Exemption
Whiplash Vaira 4-2-H located in Section 4 of T24N R55E
Richland County, Montana

Dear Mr. John Gizicki,

Please accept the Aquifer Exemption request to supplement the MorningStar Operating, LLC. Whiplash Vaira 4-2-H Disposal Application for the June 11, 2026, Montana Board of Oil and Gas hearing.

The Dakota/Lakota are being evaluated for injection. There is water data available on the Dakota/Lakota. The assumption is that an aquifer exemption will be required unless water quality data from the Whiplash Vaira 4-2-H indicates water from the injection zone is not acceptable as USDW. An aquifer exemption is required if the proposed injection zone contains water that is less than 10,000 ppm of total dissolved solids (TDS), and therefore defined as an Underground Source of Drinking Water (USDW).

Swab analysis from the Lakota Formation (noted as Lower Dakota in the water analysis report in Exhibit 6A) outside the area of review indicates the TDS is greater than 10,000 ppm. There is swab analysis from the Dakota Formation (noted as Upper Dakota in the water analysis report in Exhibit 6B) outside the area of review that indicates the TDS is less than 10,000 ppm but greater than 3,000 ppm. The TDS of the Dakota and Lakota will be confirmed with swab results upon completion. In addition to swab results, cost analysis data indicates that a Dakota/Lakota freshwater supply well in this area is unlikely. The basis of the exemption is that the Dakota/Lakota does not currently serve as a source of drinking water because the Dakota/Lakota is situated at a depth which makes recovery of water for drinking water purposes economically or technologically impractical.

Based on data from numerous published sources, two aquifers in the area meet the criteria of a USDW. These are shallow alluvium within the Tertiary Fort Union sandstone aquifer and the Cretaceous Fox Hills Hell Creek sandstone aquifer. Neither of these would be affected by injection into the proposed location. There are no water wells producing from any zone located within the ¼ mile area of review (AOR). There are 2 water wells, not within the ¼ mile AOR, but within ½ mile expanded view of the Whiplash Vaira 4-2-H. There are no water supply wells penetrating the Dakota/Lakota formation within ½ mile of the Whiplash Vaira 4-2-H, which is specifically requested information per 36.22.1418(1)(a).



To protect freshwater zones, drilling practices include drilling through these possible freshwater zones and setting surface casing. Surface casing is cemented to surface. There are only gamma ray logs that run through the Fox Hills formations due to this formation being isolated behind casing and cement. To supplement information on the depth of possible freshwater zones, MorningStar references Montana Bureau of Mines and Geology reports on groundwater for the area, namely, the mapping work by Larry Smith entitled “Depth to the Fox Hills-Lower Hell Creek Aquifer, Lower Yellowstone River Area” published in MBMG’s GWAA- Montana Ground-Water Assessment Atlas (1-B-03), 1998, which estimates the base of the Fox Hills at approximately 1400 to 1500 feet of depth in the Whiplash Vaira 4-2-H area. Underground sources of drinking water (USDW) TDS reports to the base of the Fox Hills are available in the area and show values less than 1200 mg/L.

The Dakota/Lakota are not used for USDW in this area due to the existence of shallower freshwater aquifers. Based on recent drilling estimates using a water well rig, the cost to drill a 1,500-foot water well with rathole through the Fox Hills including the pump is approximately \$569,000. The cost to drill and complete a 5900-foot Dakota/Lakota water well would require a full drilling rig and cost approximately \$1,499,000. There would also be additional costs to treat the Dakota/Lakota water, greatly exceeding the costs to treat the Fox Hills water. See Exhibits 7A and 7B.

The Environmental Protection Agency (EPA), in UIC guidance 34, states that the minimum data set needed for aquifer exemptions will include at least:

1. *All oil and gas boreholes within the area, all public and private water wells within the area and at least ¼ mile beyond the boundary of any existing wellhead protection areas, and the locations of all relevant water samples.*

- a. There are no water wells within ¼ mile of the proposed Whiplash Vaira 4-2-H injection location. Water wells located within ½ mile of the proposed location are listed below:

Well Name	GWIC ID	Location	Use	Distance from Proposed SWD (ft)	Total Depth (ft)
Vaira Alfred	3019	Sec 4, T24N, R55E 47.8663, -104.6583	Stock water	1714	46
Vaira David	37219	Sec 3, T24N, R55E 47.863339, -104.656642	Unknown	2586	52

- b. Water samples for the Dakota/Lakota formations are shown in Exhibit 6A and 6B.
 - c. There are no Dakota/Lakota oil producing wells within the ¼ mile or ½ mile area. See Exhibit 1A.
 - d. All water wells and producing wells within a ¼ mile and ½ mile area are shown on Exhibit 2A.
2. *Narrative description of the proposed exempted aquifer listing formation name, approximate depth or elevation, confining zone, as well as geological definition of the exempted area. Include adequate wireline logs to demonstrate vertical confinement from sources of drinking water.*

- a. The Whiplash Vaira 4-2-H may be completed into the Dakota and Lakota. See Exhibit 3A for a cross section of wireline logs showing the vertical confinement of the Dakota/Lakota formation and Exhibit 4A for available wireline logs of the injection interval.
- b. Water quality information for the proposed disposal zone in the immediate area of the Whiplash Vaira 4-2-H is not available. However, a water sample from the Dakota/Lakota in the RR Lonetree Edna 1-13 SWD located 6 miles west of the proposed disposal site had total dissolved solids between 5,173 to 10,352 mg/L, and water in the Whiplash Vaira 4-2-H is expected to be similar. The samples from the Lonetree Edna 1-13 were acquired by swab testing the interval and measuring the TDS for the interval. See Exhibit 6A and 6B. The Dakota (identified as Upper Dakota on the report) TDS lies between the 3,000 ppm and 10,000 ppm cutoff and will require an aquifer exemption.
- c. Proposed injection zones for the Whiplash Vaira 4-2-H SWD are as follows and can be viewed in the wellbore diagram in Exhibit 8B. Depths are shown below:

Formation	Lithology	TVD Top (ft)	TVD Base (ft)	Net pay (ft)	Pressure (PSI)	Porosity
Dakota	Sandstone	4993	5407	42	2172	21%
Lakota	Sandstone	5407	5479	29	2352	21%

Depth and net pay for each of the proposed injection zones are estimated from the Cement Bond Log with Gamma Ray ran April 1, 2026, on the Whiplash Vaira 4-2-H. The porosity is based on sonic log estimates from the following wellbores: R Fink 1-A (1/2 miles E), Boles 1-2 (1.5 miles E), Vaira 2-35X (2 miles NW), and Larson 18-1 (2.75 miles SW). The porosity was derived from a sonic log curve calculated using a consolidated sandstone matrix. Formation pressure was estimated using a water gradient of 0.435 psi/ft.

- d. The upper confining formation for the proposed injection zone is the Cretaceous Skull Creek formation. It is comprised of clastic, shallow marine deposits composed of medium-dark gray shales, calcareous, micaceous, and glauconitic in part, interbedded with siltstones. The Skull Creek is 150 feet thick in this area.

The lower confining formation for the proposed injection zone is the Jurassic Morrison, Swift, and Rierdon formations. The Swift lies immediately below the Lakota and is primarily made up of transgressive-regressive, clastic, shallow marine deposits composed of dark gray-green shales, slightly calcareous, dark gray-green, waxy shales, and is commonly interbedded with glauconitic siltstones and sandstones with occasional carbonate packstones and grainstones. The lower confining interval is approximately 742 feet of impermeable rock facies.

The actual fracture gradients for these confining zones are unknown, but fracture gradients for the confining shale layers are known to be higher than those for the underlying sandstone injection zone.



MORNINGSTAR
OPERATING

Formation	Lithology	TVD Top (ft)	TVD Base (ft)	Thickness (ft)
Skull Creek	Shale	4843	4993	150
Mrsn/Swft/Rrdn	Shale	5479	6221	742

Considering the vertical distance to any USDW and the maximum feasible injection rate that could occur, the likelihood of a fracture extending from the proposed disposal zone to any USDW under any reasonable disposal conditions is considered low.

3. *Thickness, area, and average porosity of the reservoir to be exempted. If the proposed UIC well within the exempted area is an SWD, calculate the volume of connate water that will be displaced by the injectate using the following formula (this pore volume figure is made part of the MBOGC permit for the included SWD well. For example, if the pore volume calculation shows the exempted aquifer to contain 5.0 million barrels within the exempted area, the UIC permit will terminate when the cumulative injected volume reaches 5.0 million barrels of saltwater).*

$$\text{Pore Volume (barrels)} = (\pi * r^2 * h * f) / 5.63$$

Where: r = radius of the exempted area, in feet (usually 1320')
 h = average thickness, in feet, of the proposed exempted aquifer
 f = average porosity, in decimal, of the proposed exempted aquifer

The computed pore volume would be:

$$\text{Dakota: } (\pi * 1320^2 * 42 * 0.21) / 5.63 = 8,575,470 \text{ barrels}$$

$$\text{Lakota: } (\pi * 1320^2 * 29 * 0.21) / 5.63 = 5,921,158 \text{ barrels}$$

$$\text{Radius of Emplacement Fluid} = (Q * t / (\pi * h * \text{porosity}))^{0.5}$$

Where: t = time, in days
 Q = injection rate, cubic feet per day

Assuming:	Minimum Water Injection Rate	0	BWPD	or	0	FT ³ /DAY
	Median Water Injection Rate	2000	BWPD	or	11229	FT ³ /DAY
	Maximum Water Injection Rate	3500	BPWD	or	19651	FT ³ /DAY
	Injection Period	18	YEARS	or	6570	DAYS



Net Thickness	71	FEET
Average Porosity	21%	

The computed radius of emplacement would be:

$$(11229 \times 6570 / (\pi \times 71 \times 0.21))^{0.5} = 1255 \text{ FT} = 0.24 \text{ miles}$$

4. *Water quality analysis of the aquifer for exemption. How was water quality determined?*
 - a. Water samples from the RR Lonetree Edna 1-13, located 7 miles southeast of the Whiplash Vaira 4-2-H were used. See Exhibit 6A and 6B for swab results of the water samples.

In addition to the technical data, the affidavits of notification to all concerned parties are attached as Exhibit 9A and 10A. Please contact us if there are any questions regarding this submission.

Sincerely,

Handwritten signature of Brodie Savage in blue ink.

Handwritten signature of Erin Donovan in blue ink.

Brodie Savage

Erin Donovan

Vice President- Operations
Engineering
817-334-7745

Manager- Geology

817-334-7871

bsavage@txopartners.com

edonovan@txopartners.com

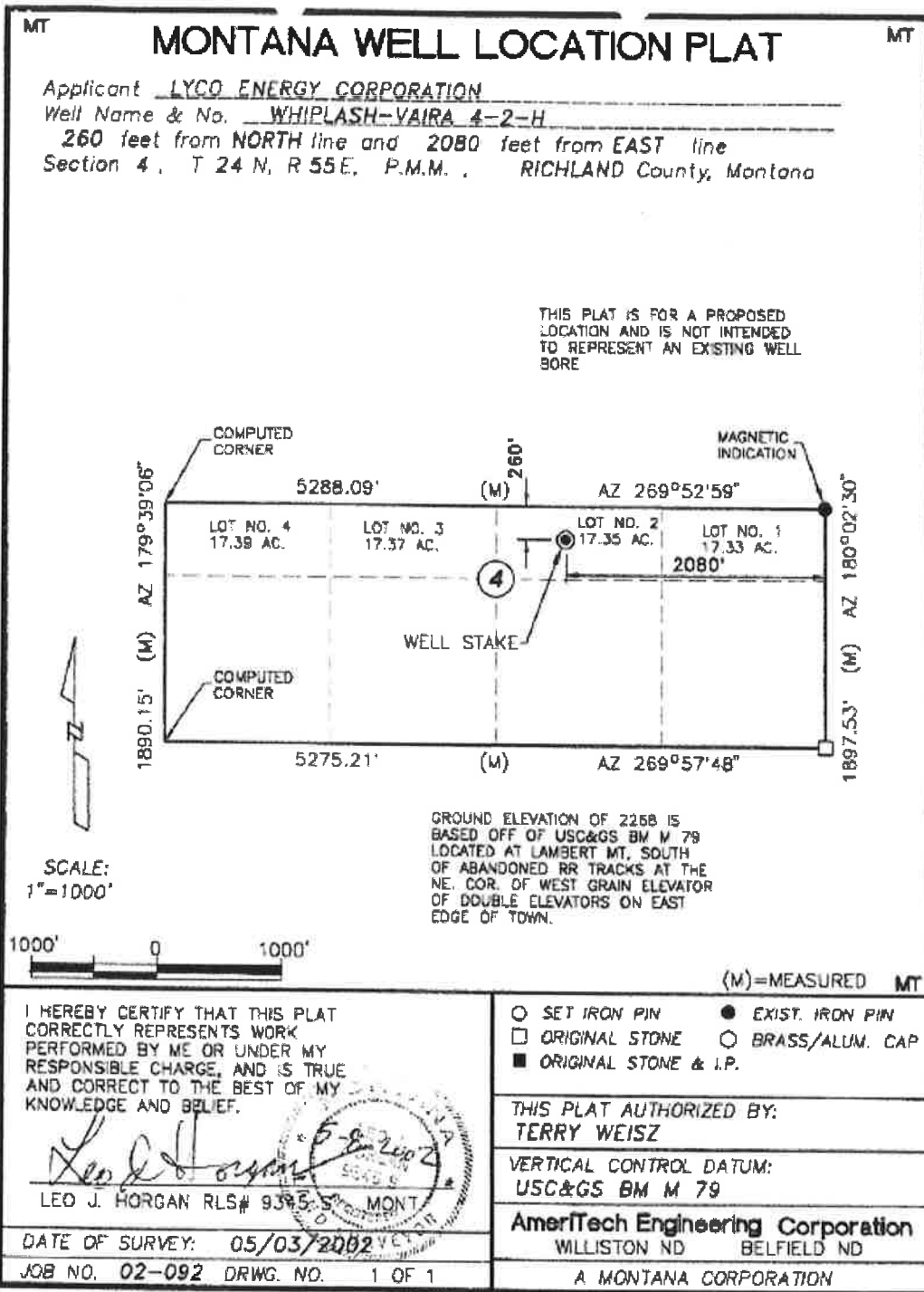


List of Exhibits

Exhibit 1A	Map of General Area
Exhibit 2A	Map of Freshwater Wells within Area of Review (AOR)
Exhibit 3A	Geologic Cross Section of the Dakota/Lakota
Exhibit 4A	Log of Injection Interval
Exhibit 5A	Water Well Sample Analysis
Exhibit 6A	Water Analysis of Injection Interval- Lower Dakota
Exhibit 6B	Water Analysis of Injection Interval- Upper Dakota
Exhibit 7A	Estimated Cost of Drilling 1,500-foot water well – Fox Hills
Exhibit 7B	Estimated Cost of Drilling 5,900-foot water well – Dakota/Lakota
Exhibit 8A	Current Wellbore Diagram
Exhibit 8B	Proposed Wellbore Diagram
Exhibit 9A	Surface and Mineral Owner List
Exhibit 10A	Affidavit of Notification to Surface and Mineral Owners
Exhibit 11A	Affidavit of Publication



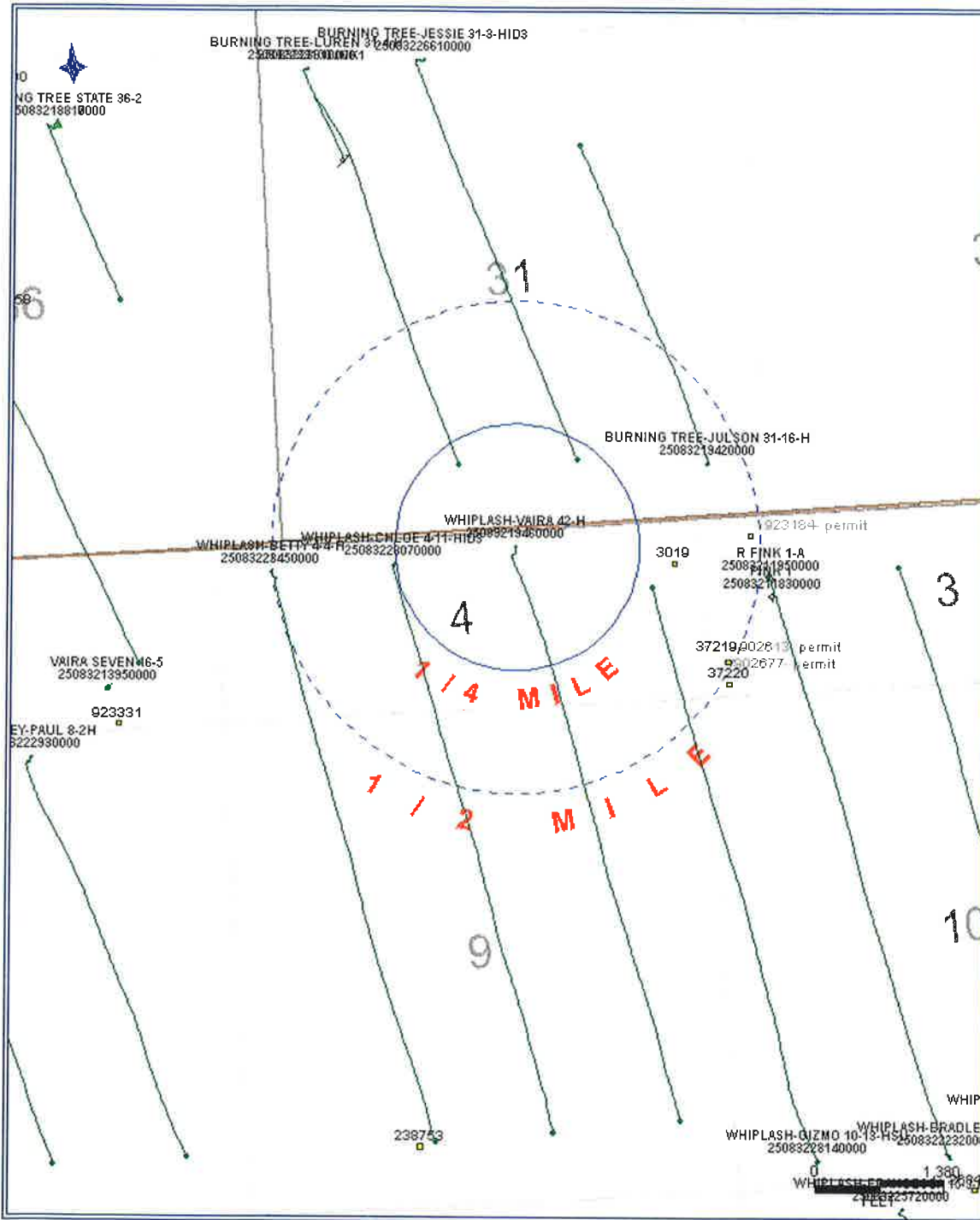
MORNINGSTAR
OPERATING



Map of General Area
 Whiplash Vaira 4-2-H
 Section 12 of T24N-55E
 Richland County, Montana



MORNINGSTAR
OPERATING

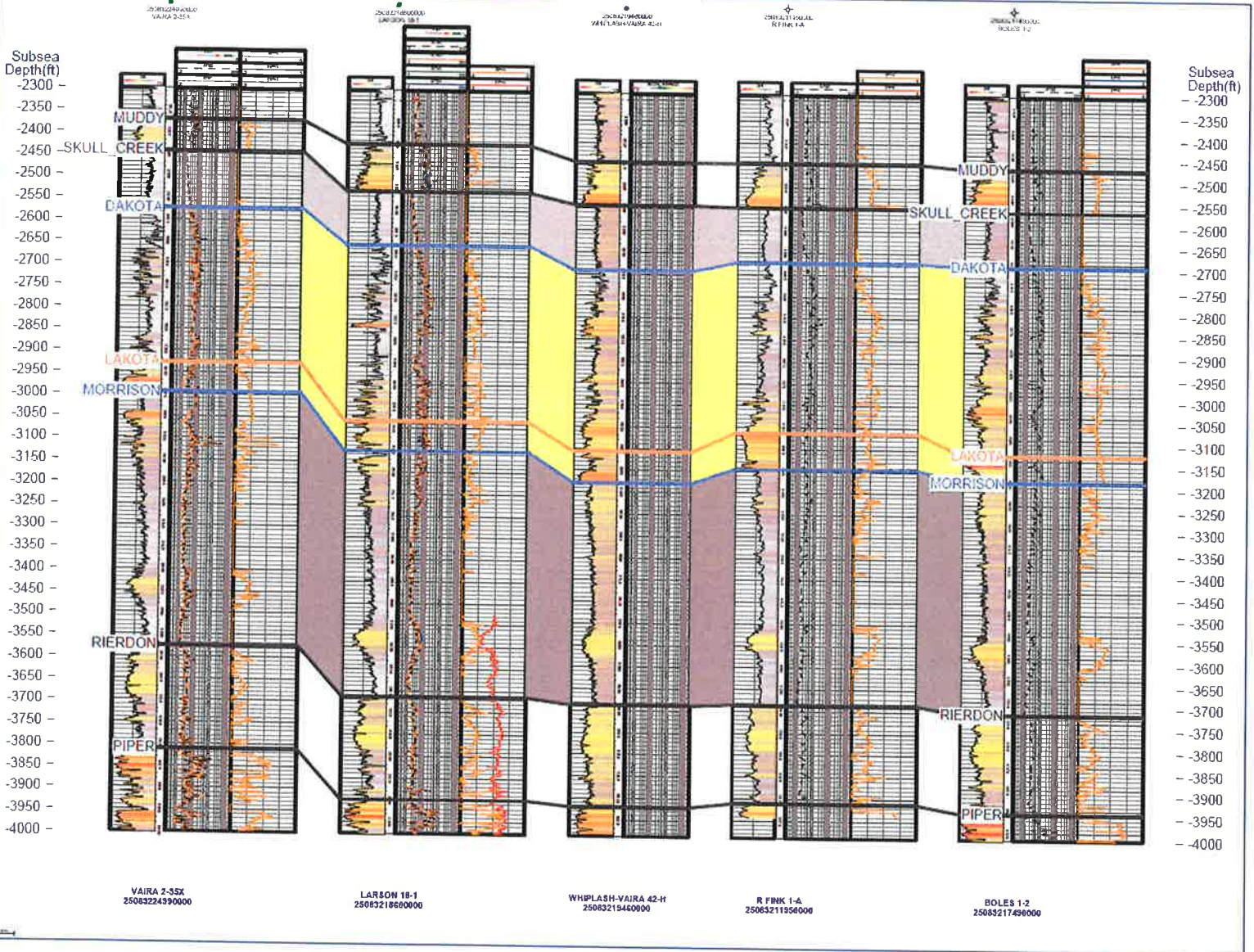


Map of Freshwater Wells
Whiplash Vaira 4-2-H
Section 12 of T24N-55E
Richland County, Montana



MORNINGSTAR
OPERATING

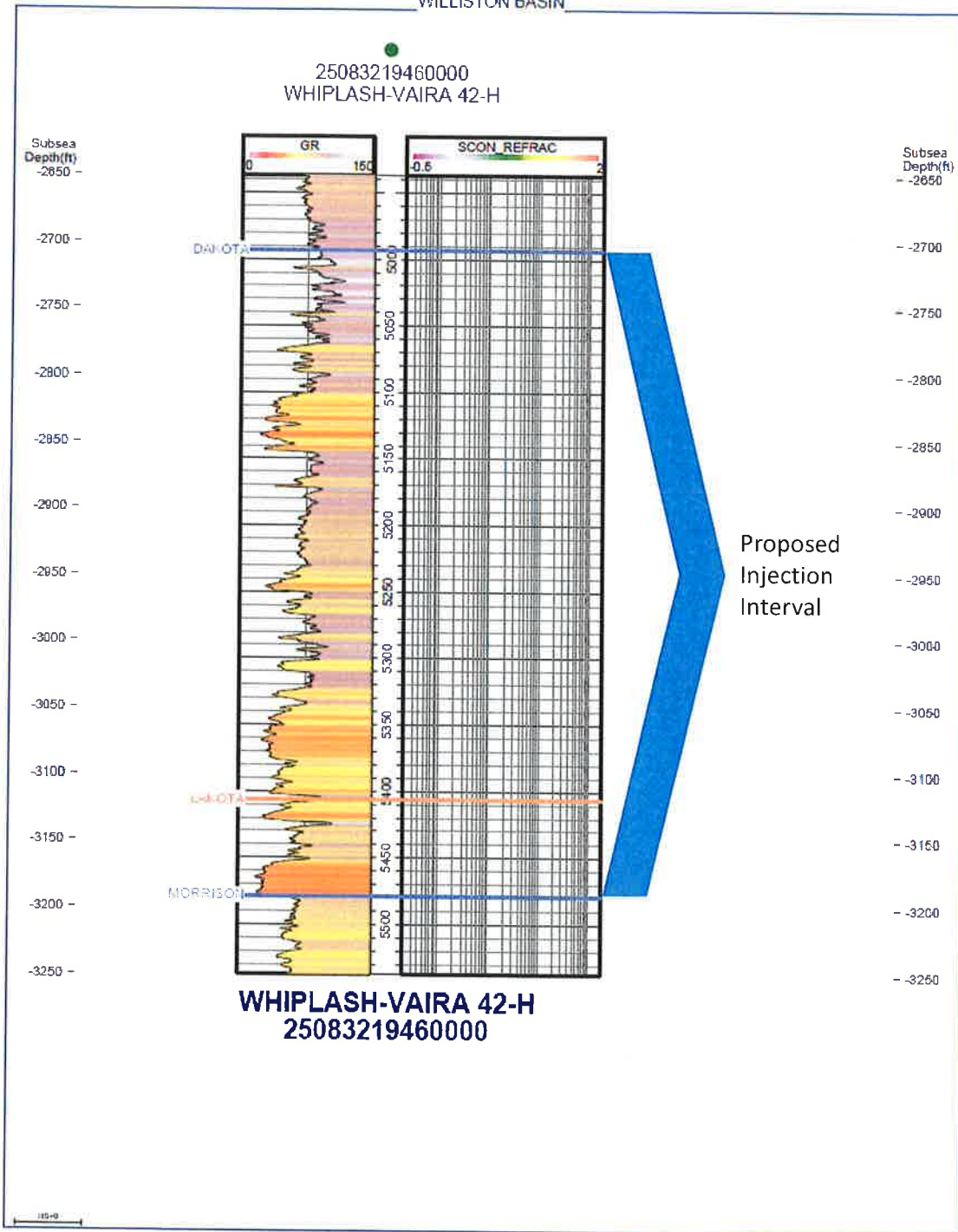
WILLISTON BASIN



Cross Section
Whiplash Vaira 4-2-H
Section 12 of T24N-55E
Richland County, Montana



MORNING STAR
OPERATING
WILLISTON BASIN



Log of Injection Interval
Whiplash Vaira 4-2-H
Section 12 of T24N-55E
Richland County, Montana



MORNING STAR OPERATING

Freshwater Sample Analysis
Whiplash Vaira 4-2-H
Richland County, MT

4/23/2026, 11:12 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report | V.12.2026

Ground-Water Information Center Water Quality Report
Report Date: 4/23/2026

Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT
Compare to Water Quality Standards

Location Information

Sample Id/Site Id: 1980Q2601 / 3019
Location (TRS): 24N 55E 04 DADD
Latitude/Longitude: 47° 51' 58" N 104° 39' 29" W
Datum: NAD27
Altitude: 2259
County/State: RICHLAND / MT
Site Type: WELL
Geology: 125TGRV
USGS 7.5' Quad: GLENDIVE
PWS Id:
Project: EMT_CG_2016
Sample Date: 9/8/1980 8:10:00 AM
Agency/Sampler: USGS / MET
Field Number: 1-149
Lab Date: 12/12/1980
Lab/Analyst: MBMG / FNA
Sample Method/Handling: PUMPED / 4220
Procedure Type: DISSOLVED
Total Depth (ft): 46
SWL-MP (ft): NR
Depth Water Enters (ft): 26

Major Ion Results

Table with 2 columns: mg/L and meq/L. Rows include Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K), Iron (Fe), Manganese (Mn), Silica (SiO2), Bicarbonate (HCO3), Carbonate (CO3), Chloride (Cl), Sulfate (SO4), Nitrate (as N), Fluoride (F), and Orthophosphate (as P).

Trace Element Results (µg/L)

Table with 2 columns: µg/L and meq/L. Rows include Aluminum (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Beryllium (Be), Boron (B), Bromide (Br), Cadmium (Cd), Cerium (Ce), Cesium (Cs), Chromium (Cr), Cobalt (Co), Copper (Cu), Gallium (Ga), Lanthanum (La), Lead (Pb), Lithium (Li), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Niobium (Nb), Neodymium (Nd), Palladium (Pd), Praseodymium (Pr), Rubidium (Rb), Silver (Ag), Selenium (Se), Strontium (Sr), Thallium (Tl), Thorium (Th), Tin (Sn), Titanium (Ti), Tungsten (W), Uranium (U), Vanadium (V), Zinc (Zn), and Zirconium (Zr).

Field Chemistry and Other Analytical Results

Table with 2 columns: Parameter and Value. Rows include Total Dissolved Solids (mg/L), Sum of Diss. Constituents (mg/L), Field Conductivity (µmhos), Lab Conductivity (µmhos), Field pH, Lab pH, Water Temp (°C), Air Temp (°C), Nitrate + Nitrite (mg/L as N), Total Kjeldahl Nitrogen (mg/L as N), Total Nitrogen (mg/L as N), As(III) (ug/L), Field Hardness as CaCO3 (mg/L), Hardness as CaCO3, Field Alkalinity as CaCO3 (mg/L), Alkalinity as CaCO3 (mg/L), Ryznar Stability Index, Sodium Adsorption Ratio, Langlier Saturation Index, Nitrite (mg/L as N), Hydroxide (mg/L as OH), Lab, Dissolved Inorganic Carbon (mg/L), Acidity to 4.5 (mg/L CaCO3), As(V) (ug/L), Ammonia (mg/L), T.P. Hydrocarbons (µg/L), PCP (µg/L), Phosphorus, TD (mg/L), Field Nitrate (mg/L), Field Dissolved O2 (mg/L), Field Chloride (mg/L), Field Redox (mV), Lab, Dissolved Organic Carbon (mg/L), Lab, Total Organic Carbon (mg/L), Acidity to 8.3 (mg/L CaCO3), and Total Susp Solids (mg/L).

Additional Parameters

Sulfide Total(mg/L-S) L.1
Sample Condition:

Field Remarks: SAMPLED AT WELL HEAD * OWNER: ALFRED VAIRA - FAIRVIEW MT *
Lab Remarks: FU ZN 11.3 MG/L *

Explanation: mg/L = milligrams per Liter; µg/L = micrograms per Liter; ft = feet; NR = No Reading in GWIC

Qualifiers: A = Hydride atomic absorption; E = Estimated due to interference; H = Exceeded holding time; J = Estimated quantity above detection limit but below reporting limit; K = Na+K combined; N = Spiked sample recovery not within control limits; P = Preserved sample; S = Method of standard additions; U = Undetected quantity below detection limit; * = Duplicate analysis not within control limits; ** = Sum of Dissolved Constituents is the sum of major cations (Na, Ca, K, Mg, Mn, Fe) and anions (HCO3, CO3, SO4, Cl, SiO2, NO3, F) in mg/L. Total Dissolved Solids is reported as equivalent weight of evaporation residue.

Disclaimer

These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.



MORNING STAR OPERATING

Freshwater Sample Analysis
Whiplash Vaira 4-2-H
Richland County, MT

4/23/26, 11:11 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report | V.12.2026

Ground-Water Information Center Water Quality Report
Report Date: 4/23/2026

Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT
Compare to Water Quality Standards

Location Information

Sample Id/Size Id: 222012 / 3019
Location (TRS): 24N 55E 04 DADD
Latitude/Longitude: 47° 51' 58" N 104° 39' 29" W
Datum: NAD27
Altitude: 2259
County/State: RICHLAND / MT
Site Type: WELL
Geology: 125TGRV
USGS 7.5' Quad: GLENDIVE
PWS Id:
Project: EMT_OG_2016
Sample Date: 8/22/2016 3:44:00 PM
Agency/Sampler: MBMG / BROWN, ALLISON
Field Number: 3019 D. VAIRA
Lab Date: 10/17/2016 6:36:46 AM
Lab/Analyst: MBMG / TIMMER, JACKIE
Sample Method/Handling: PUMPED / r:1 r:a:0 fu:2 fa:2
Procedure Type: DISSOLVED
Total Depth (ft): 46
SWL-MP (ft): NR
Depth Water Enters (ft): 28

Major Ion Results

Table with 4 columns: Ion Name, mg/L, meq/L, and another set of mg/L, meq/L. Includes Calcium, Magnesium, Sodium, Potassium, Iron, Manganese, Silica, Bicarbonate, Carbonate, Chloride, Sulfate, Nitrate, Fluoride, Orthophosphate.

Trace Element Results (µg/L)

Table with 4 columns: Element Name, µg/L, Element Name, µg/L, Element Name, µg/L, Element Name, µg/L. Includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Bromide, Cadmium, Cerium, Cesium, Chromium, Cobalt, Copper, Gallium, Lanthanum, Lead, Lithium, Mercury, Molybdenum, Nickel, Niobium, Neodymium, Palladium, Praseodymium, Rubidium, Silver, Selenium, Strontium, Thallium, Thorium, Tin, Titanium, Tungsten, Uranium, Vanadium, Zinc, Zirconium.

Field Chemistry and Other Analytical Results

Table with 4 columns: Parameter, Value, Parameter, Value, Parameter, Value, Parameter, Value. Includes Total Dissolved Solids, Sum of Diss. Constituents, Field Conductivity, Lab Conductivity, Field pH, Lab pH, Water Temp, Air Temp, Nitrate + Nitrite, Total Kjeldahl Nitrogen, Total Nitrogen, As(III), Field Hardness, Hardness as CaCO3, Field Alkalinity, Alkalinity as CaCO3, Ryznar Stability Index, Sodium Adsorption Ratio, Langlier Saturation Index, Nitrite, Hydroxide, Lab. Dissolved Inorganic Carbon, Acidity to 4.5, As(V), Ammonia, T.P. Hydrocarbons, PCB, Phosphorus, TD, Field Nitrate, Field Dissolved O2, Field Chloride, Field Redox, Lab. Dissolved Organic Carbon, Lab. Total Organic Carbon, Acidity to 8.3, Total Susp Solids.

Explanation: mg/L = milligrams per Liter; µg/L = micrograms per Liter; ft = feet; NR = No Reading in GWIC

Qualifiers: J = Estimated quantity above detection limit but below reporting limit; P = Preserved sample; S = Method of standard additions; U = Undetected quantity below detection limit; * = Duplicate analysis not within control limits; ** = Sum of Dissolved Constituents is the sum of major cations (Na, Ca, K, Mg, Mn, Fe) and anions (HCO3, CO3, SO4, Cl, SiO2, NO3, F) in mg/L. Total Dissolved Solids is reported as equivalent weight of evaporation residue.

Disclaimer

These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.



MORNINGSTAR
OPERATING

Freshwater Sample Analysis

Whiplash Vaira 4-2-H

Richland County, MT

4/23/26, 11:13 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report | V.12.2026

Ground-Water Information Center

Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT

Isotope Tracer Report

Report Date: 4/23/2026

Location Information

Sample Id/Site Id: 222012 / 3019
Location (TRS): 24N 55E 04 DADD
Latitude/Longitude: 47° 51' 58" N 104° 39' 29" W
Datum: NAD27
Altitude: 2259
County/State: RICHLAND / MT
Site Type: WELL
Geology: I25TGRV
USGS 7.5' Quad: GLENDIVE
PWS Id:
Project: EMT_OG_2016

Sample Date: 8/22/2016 3:44:00 PM
Agency/Sampler: MBMG / BROWN, ALLISON
Field Number: 3019 D. VAIRA
Lab Date: 10/17/2016 6:36:46 AM
Lab/Analyst: MBMG / TIMMER, JACKIE
Sample Method/Handling: PUMPED / ru:1 ra:0 fu:2 fa:2
Procedure Type: DISSOLVED
Total Depth (ft): 46
SWL-MP (ft): NR
Depth Water Enters (ft): 28

Radon (Rn222 - pCi/L):	NR	Argon (Ar39):	NR
Carbon (C13):	NR	Silicon (Si32):	NR
Carbon (C14):	NR	Chlorine (Cl36):	NR
Tritium (H3 - TU):	NR	Lithium (Li6):	NR
H3/He3 Ratio:	NR	Krypton (Kr85):	NR
Deuterium (H2):	-153.000	Boron (B11):	NR
Oxygen (O18):	-19.900	Strontium (Sr87):	NR
Sulphur (S34):	NR	Chloro-fluorocarbon (CFC-11):	NR
Iodine (I129):	NR	Chloro-fluorocarbon (CFC-12):	NR
Nitrogen (N15):	NR	Chloro-fluorocarbon (CFC-113):	NR
Nitrogen (N15 of Nitrate):	NR	Oxygen (O18 of Nitrate):	NR
Sulphur (S34 of Sulfate):	NR	Oxygen (O18 of Sulfate):	NR

Sample Condition:
Field Remarks:
Lab Remarks:

Notes

Explanation: pCi/L = picocuries per Liter; TU = Tritium Units; NR = No Reading in GWIC

Disclaimer

These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.



MORNING STAR
OPERATING

Freshwater Sample Analysis

Whiplash Vaira 4-2-H

Richland County, MT

4/23/2026, 11:12 AM

Montana's Ground-Water Information Center (GWIC) | Analysis Report (Outside Laboratory) | V. 12.2026

Ground-Water Information Center	Organic Report
Site Name: VAIRA ALFRED * 11 MI N LAMBERT MT	Report Date: 4/23/2026

Location Information

Sample Id/ Site Id	10360396002 / 3019	Sample Date	8/22/2016 3:50:00 PM
Location (TRS)	24N 55E 04 DADD	Agency/Sampler	PRIVATE / UNKNOWN
Latitude/Longitude	47.8663N -104.6583W	Field Number	
Datum	NAD27	Lab Name	PACE
Altitude	2259	Analyst	
County/State	RICHLAND / MT	Sample Method/# Bottles	
Site Type	WELL	Sample Type	

Sample Information

COMPARISON REPORT

Type	Analyte	Value	Units	Qual	Method	MDL	MRL	Rec	Ext	Anl	Staff
	Total Extractable Hydrocarbons	ND	ug/L		MADEP EPH	69.8	202		9/1/2016 8:58:00 AM	9/1/2016	
	1-Chloro-octadecane (S)	83	%		MADEP EPH				9/1/2016 8:58:00 AM	9/1/2016	
	Methyl-tert-butyl ether	ND	ug/L		MADEP VPH	0.28	1			8/30/2016	
	Benzene	ND	ug/L		MADEP VPH	0.12	0.5			8/30/2016	
	Toluene	ND	ug/L		MADEP VPH	0.11	0.5			8/30/2016	
	Ethylbenzene	ND	ug/L		MADEP VPH	0.16	0.5			8/30/2016	
	m&p-Xylene	ND	ug/L		MADEP VPH	0.18	0.5			8/30/2016	
	o-Xylene	ND	ug/L		MADEP VPH	0.099	0.5			8/30/2016	
	Xylene (Total)	ND	ug/L		MADEP VPH	0.28	2			8/30/2016	
	Naphthalene	ND	ug/L		MADEP VPH	0.17	5			8/30/2016	
	Aliphatic, Adjusted(C05-C08)	ND	ug/L		MADEP VPH	1.9	20			8/30/2016	
	Aliphatic, Adjusted(C09-C12)	ND	ug/L		MADEP VPH	0.96	20			8/30/2016	
	Aromatic (C09-C10)	ND	ug/L		MADEP VPH	0.25	20			8/30/2016	
	Total Purgeable Hydro Carbons	ND	ug/L		MADEP VPH	1.8	20			8/30/2016	
	Aliphatic (C09-C12),Unadjusted	ND	ug/L		MADEP VPH	0.96	20			8/30/2016	
	Aliphatic (C05-C08),Unadjusted	ND	ug/L		MADEP VPH	1.9	20			8/30/2016	
	a,a,a-Trifluorotoluene (S)	102	%		MADEP VPH					8/30/2016	
	Ethane	ND	ug/L		RSK 175	0.87	10			8/29/2016	
	Ethene	ND	ug/L		RSK 175	0.77	10			8/29/2016	
	Methane	12.8	ug/L		RSK 175	0.49	10			8/29/2016	

Additional Information

Explanation: ND = Non-detect, value was below detection limit. NR = No Reading in GWIC

Disclaimer

These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.



MORNINGSTAR
OPERATING

Water Analysis of Injection Interval- Lower Dakota
Whiplash Vaira 4-2-H
Richland County, MT

SATHE ANALYTICAL LABORATORY, INC.

301 W. 2ND STREET

P.O. BOX 1507
WILLISTON, ND. 58801

701 572-3670

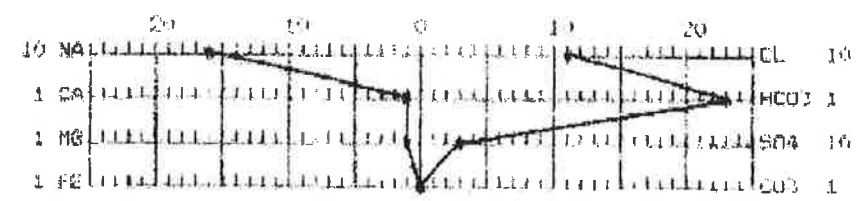
WATER ANALYSIS REPORT

OPERATOR: FINEPLUS RESOURCES L.P. DATE: 4/7/09
WELL NO. LONG TREE EDNA 1-10 LAB NO.: W-09-1694
FIELD: not listed FORMATION: Lower Dakota
COUNTY: Richland INTERVAL: 3844 - 3864'
STATE: MT DST #:
LOC: not listed SAMPLE 11TH SWAB RUN-TOTAL 105 BBLs

CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
SODIUM	3580.0	155.7	CHLORIDE	3756.1	106.2
CALCIUM	29.6	1.5	CARBONATE	0.0	0.0
MAGNESIUM	11.4	0.9	BICARBONATE	1415.2	33.2
IRON	0.2	0.0	SULFATE	1532.2	31.9
POTASSIUM	17.4	0.4	NITRATE	0.0	0.0
BARIUM	0.0	0.0			
CHROMIUM	0.0	0.0			

SPECIFIC GRAVITY @ 77°F 1.000 PH 7.55
RESISTIVITY @ 77°F, ohm-meters 0.912 NAEL (Calc.) 6210.3
TOTAL DISSOLVED SOLIDS (Calc.) MG/L 10350.5 POTENTIAL SULFIDE MG

WATER ANALYSIS PATTERN - MEQ/L



REMARKS - 11th RUN SWAB - TOTAL 105 BBL 4/6/09.
Received 4/7/09.

DISTRIBUTION OF RESULTS
Rocky Border -- Sidney MT,
Lynn Sundry -- Williston -- Williston ND.



MORNINGSTAR
OPERATING

Water Analysis of Injection Interval- Upper Dakota
Whiplash Vaira 4-2-H
Richland County, MT

SATHE ANALYTICAL LABORATORY, INC.

301 W. 2ND STREET

P.O. BOX 1577
WILLISTON, ND. 58854

701-572-3632

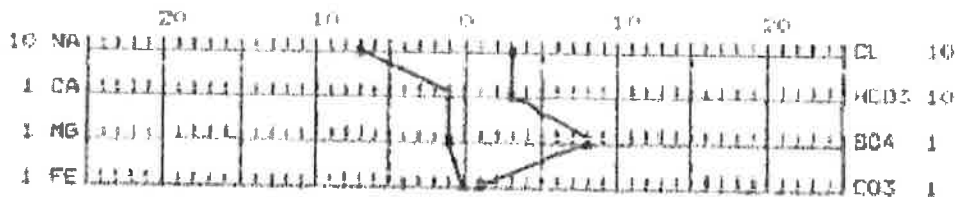
WATER ANALYSIS REPORT

OPERATOR:	ENERPLUS L.P.	DATE:	4/8/09
WELL NO.:	LONE TREE EDNA 1-12	LAB NO.:	W-09-1705
FIELD:	not listed	FORMATION:	Upper Dakota
COUNTY:	Richland	INTERVAL:	2368-2608
STATE:	MT	DST #:	
LOG:	not listed	SAMPLE RUN #16-SAMPLE 130 DRLS BACK	

CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
SODIUM	1680.0	75.1	CHLORIDE	1114.7	31.4
CALCIUM	14.0	0.7	CARBONATE	31.5	1.1
MAGNESIUM	7.6	0.7	BICARBONATE	1922.1	31.5
IRON	1.2	0.1	SULFATE	391.2	5.1
POTASSIUM	2.9	0.3	NITRATE	0.0	0.0
BARIUM	0.0	0.0			
CHROMIUM	0.0	0.0			

SPECIFIC GRAVITY @ 77°F	1.000	PH	7.85
RESISTIVITY @ 77°F, cm-cmeters	1.569	NOCL (Calc.)	1838.1
TOTAL DISSOLVED SOLIDS (Calc.) MG/L	5173.0	HYDROGEN SULFIDE	NEG

WATER ANALYSIS FACTORS: MEQ/L



REMARKS - Run #16 Sample 130 DRLS Back.
Received 4/8/09.

DISTRIBUTION OF RESULTS
Rocky Border -- Sidney MT.
Lynn Sundby -- Halliburton - Williston ND.



MORNINGSTAR
OPERATING

AUTHORITY FOR EXPENDITURE - D&C

Company <u>MorningStar Operating, LLC</u>	AFE # _____	CC# _____	Date <u>1/10/2025</u>
Lease Name <u>Elm Coulee Water Well</u>	Well # <u>1</u>	API # _____	
S-T-R _____	Surv/Abs _____	Field/Area <u>Elm Coulee</u>	
County <u>Richland</u>	State <u>Montana</u>		
Project <u>Drill and Complete a water well to 1,500'</u>			
Proj Form _____		Proj TD <u>1500</u>	

		INTANGIBLE		TOTAL
2250				
1000	LOCATION / ROADS / PITS	\$150,000		\$150,000
1002	LAND DAMAGES / LEGAL WORK/ SURVEYING	\$25,000		\$25,000
1100	DRILLING - FISHING TOOLS & SERVICE			\$0
1301	DRILLING - RENTAL TOOLS & EQUIPMENT - SURFACE	\$20,000		\$20,000
1302	DRILLING - RENTAL TOOLS & EQUIPMENT - SUBSURFACE	\$4,000		\$4,000
1500	MUD / CHEMICALS	\$15,000		\$15,000
1600	DRILLING - ENGINEERING / SUPERVISION	\$15,000		\$15,000
1601	DRILLING - CONTRACT LABOR			\$0
2000	DRILLING RIG	\$125,000		\$125,000
2003	DRILLING - TRUCKING / HOT SHOT (TANGIBLES ONLY)			\$0
2004	DIRECTIONAL TOOLS & SERVICE			\$0
2007	RIG MOB / DEMOB			\$0
2102	DRILLING - FLUID DISPOSAL / SOLIDS CONTROL			\$0
2201	OPEN HOLE LOGS / CORES / FORMATION EVALUATION			\$0
3000	DRILL BITS			\$0
3100	OVERHEAD			\$0
3900	DRILLING - WATER & WATERLINES	\$15,000		\$15,000
3901	DRILLING - POWER & FUEL	\$10,000		\$10,000
4001	SURFACE / INTERMEDIATE - CASING CREWS, TOOLS & TONGS			\$0
4002	SURFACE / INTERMEDIATE - CEMENT & CEMENTING SERVICES			\$0
8000	MUD LOGGING UNIT			\$0
2260			TANGIBLE	TOTAL
1201	CONDUCTOR PIPE			\$0
1101	SURFACE CASING			\$0
1102	INTERMEDIATE CASING			\$0
1300	CASING HEAD		\$7,500	\$7,500
TOTAL COST IF DRY HOLE		\$379,000	\$7,500	\$386,500
2250		INTANGIBLE		TOTAL
1101	COMPLETION - FISHING TOOLS & SERVICES			\$0
1303	COMPLETION - RENTAL TOOLS & EQUIPMENT - SUBSURFACE			\$0
1304	COMPLETION - RENTAL TOOLS & EQUIPMENT - SURFACE			\$0
1501	COMPLETION - WATER / COMPLETION FLUIDS / CHEMICALS / TRACERS			\$0
1602	COMPLETION - ENGINEERING / SUPERVISION			\$0
1603	COMPLETION - CONTRACT LABOR			\$0
2100	COMPLETION UNIT			\$0
2101	COMPLETION - TRUCKING / HOT SHOT			\$0
2200	CASED HOLE WIRELINE SERVICES			\$0
2400	STIMULATION SERVICES			\$0
2401	COMPLETION - FLUID DISPOSAL			\$0
2402	COMPLETION - FRAC TANK RENTALS			\$0
2403	FLOWBACK			\$0
3301	PUMP TRUCKS & SERVICES			\$0
4003	PRODUCTION - CEMENT & CEMENTING SERVICES	\$30,000		\$30,000
4004	PRODUCTION - CASING CREWS, TOOLS & TONGS	\$7,500		\$7,500
4200	WELL TESTING			\$0
9000	FILL PITS & DRESS LOCATION			\$0
2260			TANGIBLE	TOTAL
1103	PRODUCTION CASING / LINER		\$50,000	\$50,000
1200	TUBING		\$10,000	\$10,000
1301	TUBING HEAD / X-MAS TREE		\$10,000	\$10,000
1401	SUBSURFACE EQUIPMENT / PACKER			\$0
1501	ARTIFICIAL LIFT EQUIPMENT / SUBPUMP / PUMPING UNIT		\$50,000	\$50,000
1502	TANKS / WALKS / STAIRWAYS			\$0
1503	SEPARATION EQUIPMENT / GAUGES - PROD FACILITY			\$0
1601	ELECTRICAL		\$25,000	\$25,000
1700	MEASUREMENT EQUIPMENT			\$0
1701	AUTOMATION EQUIPMENT			\$0
8000	FLOWLINES & FITTINGS			\$0
TOTAL COST TO COMPLETE & EQUIP		\$37,500	\$145,000	\$182,500
TOTAL WELL COST		\$416,500	\$152,500	\$569,000



MORNINGSTAR
OPERATING

AUTHORITY FOR EXPENDITURE - D&C

Company <u>MorningStar Operating, LLC</u>	AFE # _____	CC# _____	Date <u>1/10/2025</u>
Lease Name <u>Elm Coulee Water Well</u>	Well # <u>1</u>	API # _____	
S-T-R _____	Surv/Abs _____	Field/Area <u>Elm Coulee</u>	
County <u>Richland</u>	State <u>Montana</u>		
Project <u>Drill and Complete a water well to 5,900'</u>			
Proj Form _____		Proj TD <u>5,900'</u>	

		INTANGIBLE		TOTAL
2250				
1000	LOCATION / ROADS / PITS	\$250,000		\$250,000
1002	LAND DAMAGES / LEGAL WORK/ SURVEYING	\$25,000		\$25,000
1100	DRILLING - FISHING TOOLS & SERVICE			\$0
1301	DRILLING - RENTAL TOOLS & EQUIPMENT - SURFACE	\$50,000		\$50,000
1302	DRILLING - RENTAL TOOLS & EQUIPMENT - SUBSURFACE	\$20,000		\$20,000
1500	MUD / CHEMICALS			\$0
1600	DRILLING - ENGINEERING / SUPERVISION	\$30,000		\$30,000
1601	DRILLING - CONTRACT LABOR			\$0
2000	DRILLING RIG	\$300,000		\$300,000
2003	DRILLING - TRUCKING / HOT SHOT (TANGIBLES ONLY)			\$0
2004	DIRECTIONAL TOOLS & SERVICE			\$0
2007	RIG MOB / DEMOB			\$0
2102	DRILLING - FLUID DISPOSAL / SOLIDS CONTROL	\$40,000		\$40,000
2201	OPEN HOLE LOGS / CORES / FORMATION EVALUATION			\$0
3000	DRILL BITS			\$0
3100	OVERHEAD			\$0
3900	DRILLING - WATER & WATERLINES	\$25,000		\$25,000
3901	DRILLING - POWER & FUEL	\$25,000		\$25,000
4001	SURFACE / INTERMEDIATE - CASING CREWS, TOOLS & TONGS	\$7,500		\$7,500
4002	SURFACE / INTERMEDIATE - CEMENT & CEMENTING SERVICES	\$30,000		\$30,000
8000	MUD LOGGING UNIT			\$0
2260			TANGIBLE	TOTAL
1201	CONDUCTOR PIPE			\$0
1101	SURFACE CASING		\$83,000	\$83,000
1102	INTERMEDIATE CASING			\$0
1300	CASING HEAD		\$7,500	\$7,500
TOTAL COST IF DRY HOLE		\$802,500	\$90,500	\$893,000
2250		INTANGIBLE		TOTAL
1101	COMPLETION - FISHING TOOLS & SERVICES			\$0
1303	COMPLETION - RENTAL TOOLS & EQUIPMENT - SUBSURFACE			\$0
1304	COMPLETION - RENTAL TOOLS & EQUIPMENT - SURFACE			\$0
1501	COMPLETION - WATER / COMPLETION FLUIDS / CHEMICALS / TRACERS			\$0
1602	COMPLETION - ENGINEERING / SUPERVISION			\$0
1603	COMPLETION - CONTRACT LABOR			\$0
2100	COMPLETION UNIT			\$0
2101	COMPLETION - TRUCKING / HOT SHOT			\$0
2200	CASED HOLE WIRELINE SERVICES	\$20,000		\$20,000
2400	STIMULATION SERVICES			\$0
2401	COMPLETION - FLUID DISPOSAL			\$0
2402	COMPLETION - FRAC TANK RENTALS			\$0
2403	FLOWBACK			\$0
3301	PUMP TRUCKS & SERVICES			\$0
4003	PRODUCTION - CEMENT & CEMENTING SERVICES	\$40,000		\$40,000
4004	PRODUCTION - CASING CREWS, TOOLS & TONGS	\$12,500		\$12,500
4200	WELL TESTING			\$0
9000	FILL PITS & DRESS LOCATION			\$0
2260			TANGIBLE	TOTAL
1103	PRODUCTION CASING / LINER		\$304,000	\$304,000
1200	TUBING		\$42,000	\$42,000
1301	TUBING HEAD / X-MAS TREE		\$12,500	\$12,500
1401	SUBSURFACE EQUIPMENT / PACKER			\$0
1501	ARTIFICIAL LIFT EQUIPMENT / SUBPUMP / PUMPING UNIT		\$150,000	\$150,000
1502	TANKS / WALKS / STAIRWAYS			\$0
1503	SEPARATION EQUIPMENT / GAUGES - PROD FACILITY			\$0
1601	ELECTRICAL		\$25,000	\$25,000
1700	MEASUREMENT EQUIPMENT			\$0
1701	AUTOMATION EQUIPMENT			\$0
8000	FLOWLINES & FITTINGS			\$0
TOTAL COST TO COMPLETE & EQUIP		\$72,500	\$533,500	\$606,000
TOTAL WELL COST		\$875,000	\$624,000	\$1,499,000



Initial Wellbore Schematic

API# 25-083-21946

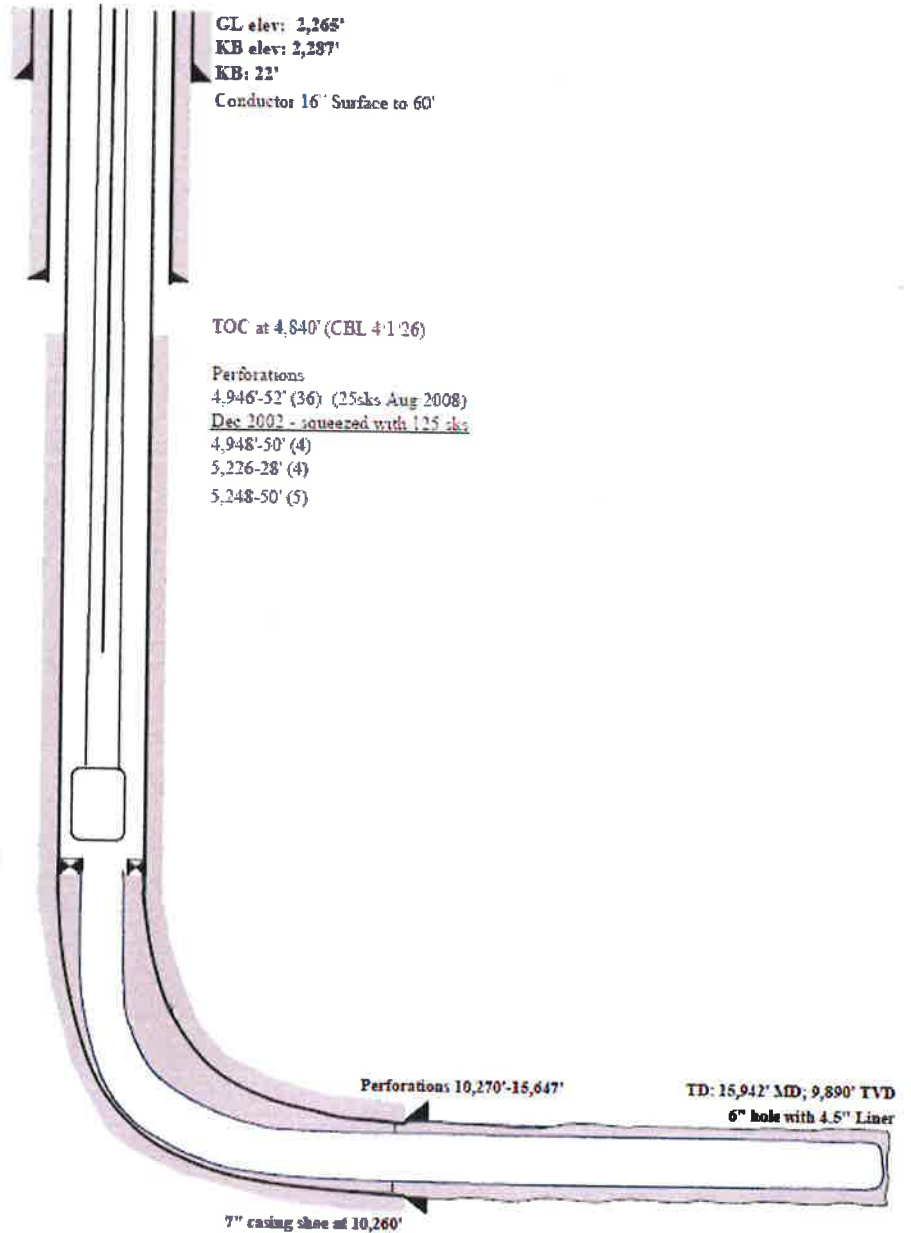
W1 E2 Lot 2 Section 04 - T24N - R55E
260 FNL, 2080 FEL

Surface casing:

9 5/8" 36# J-55 LT&C @ 1,590'
Cemented with 530 Sks

7" Intermediate Casing at 10,260'

7" 29# P-110 LTC to 10,260'
Cemented with 670 + 150 sks



CL elev: 2,265'
KB elev: 2,297'
KB: 22'
Conductor 16' Surface to 60'

TOC at 4,840' (CBL 4'126)

Perforations
4,946-52' (36) (25sks Aug 2008)
Dec 2002 - squeezed with 125 sks
4,948-50' (4)
5,226-28' (4)
5,248-50' (5)

Top of 4.5" Liner @ 9,544'

KOP 9,300'

Production Liner (9,544' - 15,942')

PBR 9,544
Liner hanger
4 1/2" 11.6# N-80 P-110 from 9,544' - 15,942'
Cemented with 380 sks

Perforations 10,270'-15,647'

TD: 15,942' MD; 9,890' TVD
6" hole with 4.5" Liner

7" casing shoe at 10,260'

Current Wellbore Diagram
Whiplash Vaira 4-2-H
Section 12 of T24N-55E
Richland County, Montana



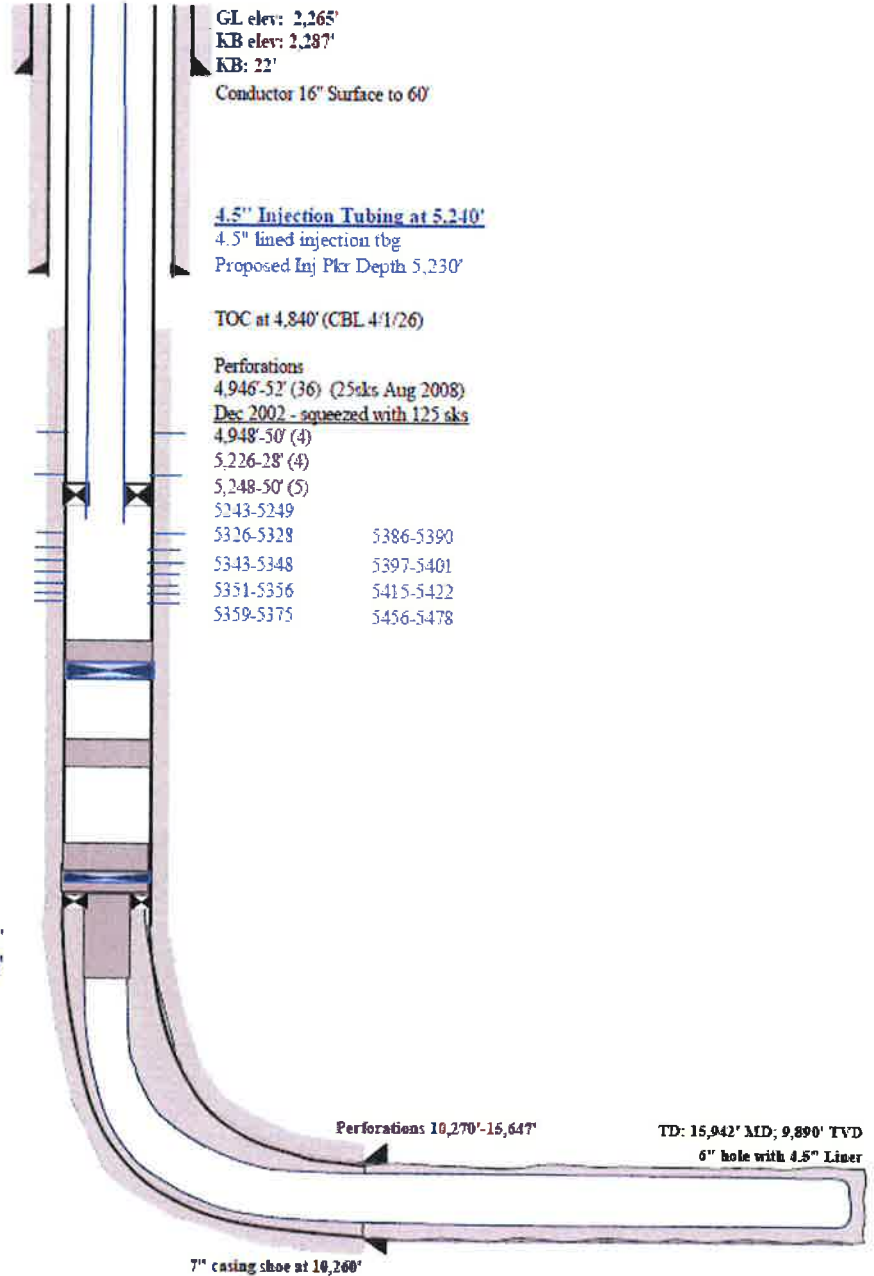
Proposed Wellbore Schematic

API# 25-083-21946

W2 E2 Lot 2 Section 04 - T24N - R55E
260 FNL, 2080 FEL

Surface casing:
9 5/8" 36# I-55 LT&C @ 1,590'
Cemented with 530 Sks

7" Intermediate Casing at 10,260'
7" 29# P-110 LTC to 10,260'
Cemented with 670 + 150 sks



TOC @ 5,600'
6 sks of cement (50') (Class G + 35% silica)
CIBP at 5,650'

Top of Charles at 7,784' from DRL Report
Balanced Plug (7,659 - 7,909')
30 sks balanced plug Class G + 35% silica

TOC @ 9,450'
10 sks of cement (75') (Class G + 35% silica)
CICR at 9,525'
40 sks of cement (768') (Class G + 35% silica)

KOP 9,300'
Top of 4.5" Liner @ 9,544'

Production Liner (9,544' - 15,942')
PBR 9,544'
Liner hanger
4 1/2" 11.6# N-80 / P-110 from 9,544' - 15,942'
Cemented with 380 sks

Proposed Wellbore Diagram
Whiplash Vaira 4-2-H
Section 12 of T24N-55E
Richland County, Montana



MORNINGSTAR
OPERATING

Surface and Mineral Owner List
Whiplash Vaira 4-2-H
Richland County, MT

Current Operators within AOR

MORNINGSTAR OPERATING LLC
Burning Tree Luren 31-4-H
25-083-22391

MORNINGSTAR OPERATING LLC
Burning Tree Jessie 31-3-HID3
25-083-22661

Surface Owners within AOR

Bud & Joe LLC
2535 Clearwater Way
Billings, MT 59105

Rodney Teigan
1203 Pershing St.
Eau Claire, WI 54701

Jay Julson
816 Larvik Lane
Stoughton, WI 53589

Delores Delmore
4712 Baker Road
Hopkins, MN 55343

Joni Peterson
S1005 Lees Valley Rd.
Mondovi, WI 54755

Kathy Marum
S 1638 State Rd. 88
Alma, WI 54610

Thomas Marum
S-643 Sand Road
Mondovi, WI 54755

John Marum
S-699 Turner Valley Rd.
Mondovi, WI 54755

Mary Marum
1715 Truax Blvd. Apt. #2
Eau Claire, WI 54703

J.O. Julson Heirs, Montana Land Irrevocable Trust
1527 W Vine St.
Eau Claire, WI 54703

William R. Sambolt and Nancy J. Pidgeon Sambolt,
Trustees of the William and Nancy
Sambolt Trust dated December 18, 2014 – 1/2 UDI
493 Apple Pine Cir.
Hudson, WI 54016

Mary Louise Dommer, Trustee of the Mary Louise
Dommer Revocable Trust dated
October 4, 2019 – 1/2 UDI
1527 W Vine St.
Eau Claire, Wisconsin 54703



MORNINGSTAR
OPERATING

Surface and Mineral Owner List Whiplash Vaira 4-2-H Richland County, MT

Mineral Interest Owners within AOR

ALVIN BUD VAIRA EDUCATIONAL
TRUST
PO BOX 1588,

BARBARA MONNIER
4713 FIRELANE RD,
ZEPHYRHILLS, FL, 33541

BETTY DOENIER
S 550 CO RD BB,
MONDOVI, WI, 54755

CELESTE KETCHUM
2800 ALEXANDER RD,
BILLINGS, MT, 59105

DARYL P VAIRA
13349 CO RD 324,
LAMBERT, MT, 59243

PATRICIA KAY IMSDAHL
309 PORTOFINO WAY,
CLOVERDALE, CA, 95425

DEBRA VAIRA
2535 CLEARWATER WAY,
BILLINGS, MT, 59105

DUANE C TEIGEN
W5930 NELSON RD,
MONDOVI, WI, 54755

GARY L JULSON
W 7885 W CEDAR RD,
MONDOVI, WI, 54755

HARVEY FAMILY TRUST
211 KINSEY CT,
EVANSVILLE, WI, 53536

ANNE M LINDQUIST
4309 SHARI ANN LN,
BROOKLYN PARK, MN, 55443

BARRY FJELSTAD
W22 616 CO RD H,
STRUM, WI, 54770

BLUE MESA MINERALS LLC
3549 ARBUCKLE DR,
PLANO, TX, 75075

CHARLENE S NETZER
12127 CO RD 348,
SIDNEY, MT, 59270

DAVID L TEIGEN
W4130 MAPLE RIDGE RD,
MONDOVI, WI, 54755

DAVID M VAIRA
32704 HWY 201,
LAMBERT, MT, 59243

DENNIS J TEIGEN
S13750 OAK CT,
ELEVA, WI, 54738

ELIZABETH SIKVELAND
1511 TWIN OAKS DR,
BILLINGS, MT, 59105

GILLETTE VAIRA
2449 EASTRIDGE DR,
BILLINGS, MT, 59102

HEART PLUS LLC
PO BOX 216,
LAMBERT, MT, 59243

APRIL E THOMPSON
1259 PARK AVE APT 24,
SAN JOSE, CA, 95126-2818

BECKY J HAMILTON
PO BOX 39396,
NINILCHIK, AK, 99639-0048

BRAD PULCZINSKI
2860 80TH AVE,
WOODVILLE, WI, 54028

CORY TEIGEN
5456 ONEIL RD,
MONDOVI, WI, 54755

DANIEL T TEIGEN
50813 N 3RD ST,
ELEVA, WI, 54738

PATRICK DELMORE
3328 BIRCH PL,
MINNETONKA, MN, 55305

DOREEN M VAIRA HERBERT
933 HWY 24N,
GLASGOW, MT, 59230

ELSIA PRISSEL
W6542 HWY 77,
MINONG, WI, 54859-8900

GREGORY R FJELSTAD
PO BOX 372,
STRUM, WI, 54770

JACQUELINE HALL
1316 MOSSMAN DR,
BILLINGS, MT, 59105



MORNINGSTAR
OPERATING

Surface and Mineral Owner List
Whiplash Vaira 4-2-H
Richland County, MT

JAMES A TEIGEN W 14271 ROSES RESORT RD, WEYERHOUSER, WI, 54895	JANICE K VAIRA-OPP 300 LYNDALE AVE, GLEN DIVE, MT, 59330-2829	JEFFERY T TEIGEN S 15095 ST RD 37, MONDOVI, WI, 54755
CLAYTON K VAIRA & JENIFER SUSAN VAIRA 1101 CEDAR AVE, SIDNEY, MT, 59270	CHERYL GARNER-VAIRA FKA CHERYL MILLER-GARNER 5602 S CAISSON WAY, MESA, AZ, 85212	NORTHEAST MONTANA LLP ATTN: PROSPECTOR OIL INC, PO BOX 1577 BILLINGS, MT, 59103-1577
JOAN O WEBER 4330 HERITAGE DR, EAU CLAIRE, WI, 54703	JOANIE MARUM S1005 LEES VALLEY RD, MONDOVI, WI, 54755-8330	JOHN E BIELEFELDT OR 5441 BENJAMIN ST, EAU CLAIRE, WI, 54703
JOHN E WONS 65 W 100 N #96, MEADOW, UT, 84644-7704	JOHN MARUM S 699 TURNER VALLEY RD, MONDOVI, WI, 54755	JOHN SCOTT 5170 W RIVER RD, WAUNAKEE, WI, 53597
JUDITH DIANNE SIMARD 125 GLENWOOD AVE, GLEN DIVE, MT, 59330	JUDITH FJELSTAD E5693 EVERGREEN RD, ELEVA, WI, 54738	KATHY MUELLER S1638 STATE RD 88, ALMA, WI, 54610
LARRY J VAIRA 2822 SARATOGA TRL, BILLINGS, MT, 59105	LARRY JULSON N47042 SEMINGSON RD, STRUM, WI, 54770	MARY ROBINSON 4117 BONNIE CT, EAU CLAIR, WI, 54701
MARION FERRANTE 4413 LAKESIDE DR, THE COLONY, TX, 75056	MARLYS T MARTEN N50751 COUNTY ROAD Y, ELEVA, WI, 54738-8991	MARY DOMMER 1527 W VINE ST, EAU CLAIRE, WI, 54703
LEWIS REV FAMILY TRUST OF 9/21/07 2101 WINDJAMMER WAY, ROWLETT, TX, 75088	WHITE ROCK OIL & GAS PARTNERS II-B LP 5810 TENNYSON PKWY STE 500, PLANO, TX, 75024	MICHAEL D DELMORE 11910 ISLETON AVE N, GRANT, MN, 55082
MORNINGSTAR OPERATING LLC 400 WEST 7TH ST, FORT WORTH, TX, 76102	NANCY J VAIRA 13449 CO RD 324, LAMBERT, MT, 59243-9420	NANCY PIDGEON SAMBOLT 493 APPLE PINE CIR, HUDSON, WI, 54016-8184



MORNINGSTAR
OPERATING

Surface and Mineral Owner List Whiplash Vaira 4-2-H Richland County, MT

NICK J VAIRA 26 HEATHER PL, GLASGOW, MT, 59230	NOBLE ROY ACCESS FUND VII LP PO BOX 660082, DALLAS, TX, 75266-0082	NOBLE ROY ACCESS FUND VIII LP PO BOX 660082, DALLAS, TX, 75266-0082
PATRICK VAIRA 32508 HWY 201, LAMBERT, MT, 59243	PEGGY A SIMONSON 1362 CARLI CT, CHIPPEWA FALLS, WI, 54729	PHILLIP SHANE IMSDAHL 2800 SHOW JUMPER LANE, RENO, NV, 89521
RANDY JULSON 6245 NAUGART DR, MERRILL, WI, 54452	RITA M IRRGANG 3216 HOPKINS CROSSROADS, MINNETONKA, MN, 55305	ROBERT C TEIGEN W 24053 MILAND RD, ELEVA, WI, 54738
RODNEY R TEIGEN S 13050 CO RD R, AUGUSTA, WI, 54722	ROGER FJELSTAD 3331 EDWARDS ST, EAU CLAIRE, WI, 54703	RYAN VAIRA 3275 PONY TRACKS DR, COLORADO SPRINGS, CO, 80922
SABRINA VAIRA ANDERSON PO BOX 400, FAIRVIEW, MT, 59221	SALLY L STEINKE 20770 57TH AVE, CADOTT, WI, 54727	SAVANNA CRAWFORD 2605 BENT TREE LN, ARLINGTON, TX, 76016
SHANE VAIRA 32458 COUNTY ROAD 130, RICHEY, MT, 59259	SHARON K BOE 26032 SOUTH EAST 192ND ST, MAPLE VALLEY, WA, 98038	SUE LYNN HOCHSTEIN 720 POOR VALLEY RD, RUTLEDGE, TN, 37861-4314
SWEARINGEN LLC 2503 KENCHESTER LOOP, WESLEY CHAPEL, FL, 33543	TAMARA I KOPP N 2330 870TH ST, ELK MOUND, WI, 54701	TANA KAY SIMARD PACHECO 10022 WESTSIDE CIRCLE, LITTLETON, CO, 80125
TERI LYN SUHR PO BOX 988, WELLINGTON, CO, 80549	THOMAS J TEIGEN S 407 HALVERSON VALLEY RD, MONDOVI, WI, 54755	THOMAS S MARUM S 643 SAND RD, MONDOVI, WI, 54755
TIMOTHY D & JEAN V VAIRA JTWROS PO BOX 585, TORI FJELSTAD N5670 230TH ST, MENOMONIE, WI, 54751	TIMOTHY J JULSON 808 ARENDALE CT, STOUGHTON, WI, 53589 TRAVIS SHAUN IMSDAHL 455 MALLARD DR, SANTA ROSA, CA, 95401	TIMOTHY VANCE IMSDAHL 1124 ENZOS WAY, WINDSOR, CA, 95492 TYLER ROSS SIMARD PO BOX 495, FORSYTH, MT, 59327



MORNINGSTAR
OPERATING

Surface and Mineral Owner List
Whiplash Vaira 4-2-H
Richland County, MT

UNITY LIMITED PARTNERSHIP
3225 HARROW DR,
BILLINGS, MT, 59102

WENDY KLEINSCHMIDT
152 W RIVERSIDE AVE,
MONDOVI, WI, 54755

UNITY LIMITED PARTNERSHIP
3225 HARROW DR,
BILLINGS, MT, 59102

WHITE ROCK OIL & GAS GP II LLC
5810 TENNYSON PKWY STE 500,
PLANO, TX, 75024

VICKI VAIRA
312 2ND AVE SW,
SIDNEY, MT, 59270

MARY E SWERDFIGER
1627 KENTUCKY AVE S,
ST LOUIS PARK, MN, 55426



MORNINGSTAR
OPERATING

Affidavit of Notification to Surface and Mineral Owners
Whiplash Vaira 4-2-H
Richland County, MT

BEFORE THE BOARD OF OIL AND GAS CONSERVATION OF THE STATE OF MONTANA

IN THE MATTER OF THE APPLICATION FOR
MORNINGSTAR OPERATING LLC FOR THE HEARING
OF ITS REQUEST FOR A UIC PERMIT FOR THE
WHIPLASH VAIRA 4-2-4 WELL, 260' FNL 2080' FEL,
SECTION 4, T24N, R55E, P.M.M. RICHLAND COUNTY,
MONTANA, FOR THE PURPOSE OF WATER INJECTION

AFFIDAVIT OF NOTIFICATION

Date: May 5, 2026

State of Utah
County of Uintah

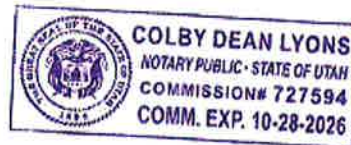
Amy Doebele, being first duly sworn, deposes and says:

That Notice of advising of MorningStar Operating LLC' application for UIC permit in the captioned matter, in the form attached as "Exhibit A", was mailed to each current operator, surface owner and lease owner within the area of review at the addresses shown in the exhibit attached to the Notice, by mailing a true copy thereof this 5th day of May, 2026, postage prepaid, First Class USPS Mail. This affidavit is given as evidence of compliance with A.R.M. 36.22.1410.


Amy Doebele
Authorized Agent

Subscribed and sworn before me on this 5 day of May, 2026.


Notary Public of the State of Utah
My Commission Expires: 10-28-2026





MORNINGSTAR
OPERATING

**Affidavit of Publication – Helena Independent
Whiplash Vaira 4-2-H
Richland County, MT**

Independent Record

AFFIDAVIT OF PUBLICATION

Helena Independent Record
2222 N. Washington St
Helena, Montana 59602
(123) 456-7890

State of New Jersey, County of Camden, ss:

Anjana Bhadoriya, being first duly sworn, deposes and says: That (s)he is a duly authorized signatory of Column Software, PBC, duly authorized agent of Helena Independent Record, a newspaper of general circulation published that is a "legal newspaper" as that is published daily in the City of Helena, in the County of Lewis and Clark, State of Montana, and has charge of the Advertisements thereof.

If this certification is for the State of Montana, I hereby certify that I have read sec. 18-7-204 and 18-7-2050 MCA, and subsequent revisions, and declare that the price or rate charged the State of Montana for the publication for which claim is made in printed copy in the amount of \$163.300 is not in excess of the minimum rate charged any other advertiser for publication of advertisement, set in the same size type and published for the same number of insertions, further certify that this claim is correct and just in all respects, and that payment or credit has not been received.

PUBLICATION DATES: May, 2 2026

NOTICE ID: 3ruxavqqj54HYjLi0Gr1

PUBLISHER ID: COL-MT-202657

NOTICE NAME: Morningstar Operating - Whiplash Vaira 4-2-H
Publication Fee: \$163.30

Anjana Bhadoriya

(signature)

SHARDIN E THOMAS-POPE
NOTARY PUBLIC
STATE OF NEW JERSEY
My Commission Expires January 23, 2027

VERIFICATION

State of New Jersey
County of Camden

Subscribed in my presence and sworn to before me on this: 05/05/2026

SM S. R. Poe

Notary Public

Notarized remotely online using communication technology via Proof.

**Morningstar Operating - Whiplash Vaira 4-2-H
BEFORE THE BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA**

In the Matter of the application of
MorningStar Operating LLC
for a Class II Injection well permit.

**NOTICE OF INTENTION TO APPLY FOR A CLASS II
INJECTION WELL PERMIT**

1. Name and address of Applicant:

MorningStar Operating LLC
400 W 7 th Street
Fort Worth, TX 76102

2. Legal Description including County and Approximate
Footages of Surface Location of Proposed Oil and Gas Well:
(and projected bottom-hole location, if a directional or horizontal
well)

Whiplash Vaira 4-2-H
Surface Hole: 260' FNL 2080' FEL
Lot 2, Section 4, Township 24 North, Range 55 East
Richland County, MT

3. Source of fluids to be injected

Produced water from Three Forks (Bakken) wells

4. Zone or formation into which injection will occur, including
depth

Dakota/Lakota from 4,993 – 5,479' MD/TVD
Plugback depth – 5,600' MD/TVD

5. An aquifer exemption will be requested as part of the
application since the proposed injection zone contains water
with less than 10,000 ppm total dissolved solids.

Pursuant to Rules 36.22.1409, Administrative Rules of
Montana, the Montana Board of Oil and Gas Conservation
will hold a public meeting upon the application of MorningStar
Operating LLC for a Class II underground injection permit for the
well or project set forth above. Said hearing will be held at the
Montana Board of Oil & gas Hearing Room at 2535 St. John's
Ave. Billings, Montana, beginning at 9:00 am on Thursday, June
11, 2026.

May 2, 2026 COL-MT-202657 MNAXLP



MORNINGSTAR
OPERATING

Affidavit of Publication – Sidney Herald
Whiplash Vaira 4-2-H
Richland County, MT

**SIDNEY
HERALD**

AFFIDAVIT OF PUBLICATION

Sidney Herald
310 2nd Ave NE
(406) 433-2403

I, Edmar Corachia, of lawful age, being duly sworn upon oath depose and say that I am an agent of Column Software, PBC, duly appointed and authorized agent of the Publisher of Sidney Herald, a publication that is a "legal newspaper" as that phrase is defined for the city of Sidney, for the County of Richland, in the state of Montana, that this affidavit is Page 1 of 2 with the full text of the sworn-to notice set forth on the pages that follow, and that the attachment hereto contains the correct copy of what was published in said legal newspaper in consecutive issues on the following dates:

PUBLICATION DATES:
May 2, 2026

Notice ID: HPUQgR0JUo7b8TLrhZPZ
Publisher ID: SHM000884
Notice Name: Morningstar Operating - Whiplash Vaira 4-2-H

PUBLICATION FEE: \$126.49

Request of
Alesha Jones

I declare under penalty of perjury and under the laws of the state of Montana that the foregoing is true and correct.

Edmar Corachia

Agent

SHARONN E THOMAS-POPE
NOTARY PUBLIC
STATE OF NEW JERSEY
My Commission Expires January 23, 2027

VERIFICATION

State of New Jersey
County of Camden

Signed or attested before me on this: 05/04/2026

SM E. Pope

Notary Public
Notarized remotely online using communication technology via Proof.

**BEFORE THE BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA**

In the Matter of the application of
MorningStar Operating LLC
for a Class II Injection well permit.

**NOTICE OF INTENTION TO APPLY FOR A CLASS II INJECTION
WELL PERMIT**

1. Name and address of Applicant:
MorningStar Operating LLC
400 W 7th Street
Fort Worth, TX 76102

2. Legal Description Including County and Approximate Footages of
Surface Location of Proposed Oil and Gas Well:
(and projected bottom-hole location, if a directional or horizontal
well)

Whiplash Vaira 4-2-H
Surface Hole: 260' FNL 2080' FEL
Lot 2, Section 4, Township 24 North, Range 56 East
Richland County, MT

3. Source of fluids to be injected
Produced water from Three Forks (Bakken) wells

4. Zone or formation into which injection will occur, including depth
Dakota/Lakota from 4,993 – 5,479' MD/TVD
Plugback depth – 5,600' MD/TVD

5. An aquifer exemption will be requested as part of the applica-
tion since the proposed injection zone contains water with less than
10,000 ppm total dissolved solids.

Pursuant to Rules 36.22.1409, Administrative Rules of Montana,
the Montana Board of Oil and Gas Conservation will hold a public
meeting upon the application of MorningStar Operating LLC for a
Class II underground injection permit for the well or project set forth
above. Said hearing will be held at the Montana Board of Oil & gas
Hearing Room at 2535 St. John's Ave. Billings, Montana, beginning
at 9:00 am on Thursday, June 11, 2026.

Date: May 2, 2026
SHM000884