# THE PITCHFORK URANIUM-VANADIUM PROJECT SAN MIGUEL COUNTY COLORADO, USA NI-43-101 Technical Report

Prepared for:

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## 1 SUMMARY (ITEM 1)

## 1.1 Scope of Work

In January 2023, Gold Express Mines, Inc (GEM or the Company) commissioned Tellurian Exploration, Inc. (Tellurian) to prepare a Canadian National Instrument 43-101 (NI-43-101) compliant technical report for the Pitchfork U-V projects (the Property, Project, or PUP), located in northwestern San Miguel County Colorado, USA. GEM is a private US-Nevada corporation that requests its technical reports to be compliant with and for Canadian-listed public companies. It conducts business in Colorado under the name of Fermi Metals, LLC, a Wyoming Corporation. This technical report complies with the disclosure standards in Canadian National Instrument 43-101 and revised on June 30, 2002, and prescripted in NI-43-101 F1.

The purpose of this report is to compile the initial property-of-merit report for GEM. The Qualified Person for this report is Mr. Mark I. Pfau, MMSA #01410QP, and Principal Geologist for Tellurian Exploration, Inc. Tellurian visited the PUP on June 12 and June 15, 2023, and reviewed the historical drilling, sampling, and mapping, field procedures, and all reports as part of this review. The exploration program proposed by GEM is designed to target U-V mineralization for conventional underground mining and milling. This report is a first-time technical report on the PUP. This technical report is preliminary and does not include new or current mineral resources.

During the field exam, the location of the Federal unpatented lode mining claim blocks was identified and verified in the field. Several historic drill sites were noted as were numerous historic workings. Access routes, geology, waterways, and environmental considerations were examined, and three verification samples were taken for geochemical analysis.

## **1.2** Project Description, Location, and Access

The Pitchfork uranium-vanadium (U-V) projects (PUP) of GEM are located in the Uravan mineral belt of Colorado (Figs. 4.1 and 4.2) some 220 miles SW of Denver, Colorado, and in northwestern San Miguel County. The Project is also located within the Gypsum Valley mining district (Fig. 4.4).

The Property consists of three claim blocks of Federal unpatented lode mining claims. These are the PF-10-39, the PFE 1-41, and the single Thunderbolt claim in Montrose County, located 10.5 miles north near the DOX claim block of GEM's Uravan U-V projects. The Thunderbolt claim is not considered any further in this technical report. The PF claims are owned by Mr. Robert Larson, and the PFE claims are owned by Fermi Metals, LLC, which is controlled by GEM. Fermi Metals has a lease agreement dated February 1, 2023, with Mr. Larson on the PF claims that include the PFE claims.

The mining claims are un-surveyed with coordinates on the public record with the BLM and with San Miguel County in Colorado. The status of the unpatented lode claims has been verified in the field by Tellurian and with the BLM on their MLRS website. The surface estate is severed from the mineral rights on 320 acres, about 16 of the PF claims, and is privately owned by the Barrett Brothers. There is an underlying agreement in place for the use of the surface of US\$10.00 per acre per year.

There are underlying annual and quarterly payments, work commitments, private agreements, NSR payments, and other encumbrances on the PUP as outlined in Subchapter 4.1.1. Tellurian has reviewed these agreements and they are to be standard exploration agreements. There are no apparent environmental challenges or legacy issues to the PUP prospect, and no known factors or risks that affect access, title, or the right or ability to perform work on the Property.



Fig. 1.1: Location of the Uravan and Lisbon Valley mineral belts in Utah and Colorado relative to other uraniumproducing areas of the western U.S. The Pitchfork U-V project is located in the southern Uravan mineral belt.



Fig. 1.2: The Uravan mineral belt, showing major uranium-vanadium (U-V) mineral deposits along the Colorado-Utah border and the GEM property position. The location of the PUP is shown in red.



Fig. 1.3: Location of the Pitchfork U-V project (PUP) in northwestern San Miguel County, Colorado. The PUP is shown relative to the Uravan U-V projects of GEM, the regional DOE leases, and significant historic mines.

#### 1.3 **History**

The discovery of the Pitchfork U-V prospect is not documented. The earliest reference is Madison (1954) in the USGS Trace Element Memorandum (TEM) #631. Madison notes that the USBM completed three diamond drill holes in 1943, but that the property had been in production since 1940 by the Dulaney Mining Company. Madison also indicates that the USGS drilled the Property in 1953 with 30 holes totaling Page | 7 3190 feet and outlined a small zone of mineralization. Tellurian surmises that the original Pitchfork mine was discovered before the UMDC (Chapter 6.1) exploration years which started in 1943.

Ranchers Exploration and Development Company conducted work on the Pitchfork mine area from 1975-1978 and the claims lapsed in 1980. The Rancher's historic and non-compliant resource summary is shown in Fig. 6.1. Larson (2022) states that:

Previous mining produced approximately 20,000 tons of ore at a grade of 0.21% U3O8 and 1.13% V2O5. Based upon drilling conducted in the 1970s a small discontinuous resource area has been defined in steeply dipping, faulted Salt Wash sandstone lenses that contains a drill-proven and indicated resource of 70,250 tons containing 0.18% U3O8. This equates to 248,750 lbs U3O8 and a projected 1,343,250 lbs V2O5. There are at least two additional targets within the re-staked claim block to the northwest that have uranium mineralization on surface exposures. At the far northwest limit of these claims is the Bald-Eagle Mine which had a small amount of production from the under-lying Hermosa formation.

In 2007, the claims were staked by Robert Larson. Since the surface ownership of a portion of the claims was owned by a local family, known as Barrett Brothers, Inc., proper notification was given as to the planned staking, and a subsequent Surface Agreement was completed.

In 2011, these claims were leased to a company named AMICOR, but no substantive work was completed. The claims were later dropped, and the payment for the Surface Agreement was not made. In 2013, Larson re-staked the claims and re-initiated the Surface Agreement. During subsequent years the nine claims covering the defined resource were kept valid and the Surface Agreement payments were made.

Larson (2022) indicates that a total of 102 drill holes were completed on the PUP by Ranchers Exploration from 1975-1978 and the drill logs from all 102 drill holes are available in the database. In February 2023, Larson entered into an agreement with Fermi Metals, LLC, a Wyoming corporation owned by Gold Express Mines, Inc. The agreement was for control of the PF-10 through the PF-39 claim block. Fermi subsequently in early 2023 staked the 41 PFE claims along the strike of the mineralization and formed the Pitchfork Uranium Project (PUP), the subject of this technical report.

#### 1.4 **Geological Setting and Mineralization**

The regional geologic story of the Uravan and Lisbon Valley U-V deposits is largely the geology of the Paradox Basin. The Pennsylvanian-age Paradox Basin of SE Utah, SW Colorado, NE Arizona, and NW New Mexico is buried beneath the Colorado Plateau rocks and is rich in natural resources containing potash, lithium, salt, petroleum, natural gas, sulfur, carbon dioxide, bitumen, copper, uranium, and vanadium; all of which can be related to the fluid history of the basin. The basin contains very saline brines, petroleum liquids and gases, magmatic fluids related to Tertiary intrusives, and fresh oxygenated groundwater, each of which has left its imprint on the rocks and mineralization.

The Triassic and Jurassic history of the Paradox Basin is a period of consistent continental conditions that are recorded in the deposition of fluvial systems and eolian sand sheets, now largely red beds.

Rejuvenation of salt flow breached the surface in the Triassic, and at least twice in the Jurassic, producing local erosional unconformities around the salt anticlines. In early Cretaceous time, there were prolonged periods of regional erosion, for about 40 m.y., during which the final red-beds strata in the Burro Canyon-Cedar Mountain Formations were deposited. The transgression of the Cretaceous Seaway at about 98 Ma, caused the Paradox Basin to be sealed under thousands of feet of Mancos Shale.

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Another dimension to the thermal and fluid source history is late Oligocene and late Cretaceous magmatism across the region in laccolithic complexes such as the Henry, Abajo, and La Sal Mountains and in the subsurface as a regionally extensive mid-Tertiary thermal event that is interpreted as the result of deep-seated advective heat flux. The laccolith-cored mountains (Fig. 7.1) remain major recharge centers for fresh water, which can now be followed through modern shallow aquifers.

The Uravan mineral belt, as defined by the U.S. Geological Survey (USGS) in 1952: *is an elongated area in southwestern Colorado wherein uranium-vanadium deposits in the Salt Wash Member of the Morrison Formation generally have closer spacing, larger size, and higher grade than those in adjacent areas and the region as a whole.* 

The Uravan belt includes the Gateway, Uravan, Bull Canyon, Gypsum Valley, and Slick Rock mining districts. The Salt Wash Member (Jms) consists of interbedded fluvial sandstone and floodplain-type mudstone units. The sandstone beds crop out in three to eight cliffs or "rims" with the mudstone units forming slopes. The uppermost sandstone, or rim, contains the majority of the U-V mineral deposits, but deposits do occur in the lower sandstones. The PUP is entirely located in the Gypsum Valley paleochannel (Fig. 8.2) of the Salt Wash Member of the Jurassic-age Morrison Formation of the Uravan mineral belt.

The Pitchfork Mine proper shows two mineralized zones within the Salt Wash Member. These may be two separate mineralized zones within the Salt Wash each in a different sandstone tongue. Alternatively, the mineralized zones may be a single mineralized horizon in the Salt Wash which has been overturned. The evidence is in conflict and is described by Eastman (1978).

## 1.5 Exploration

There is no current exploration or drilling to report for the PUP other than the land acquisition, the compilation of historical drilling and mapping from the 1960s through the 1980s, the verification samples, and this technical report. The exploration of the PUP targets is currently utilizing:

- Well-documented regional geology related to the historic Uravan U-V developments.
- Known exploration and development techniques from the historical to current production.
- Known U-V bearing rock formations of the Salt Wash Member of the Jurassic-age Morrison Formation.
- Well-documented models of exploration for sandstone-hosted roll-front U-V mineralization.

Exploration moving forward of the PUP will include:

- A ground-based Magnetometer-VLF-Radiometric survey to further map historic U-V mineralization identified by historic workings and drilling.
- Test drilling of 15,000 feet (approximately 31 drill holes) to verify U-V mineralization in the historical resource and to extend mineralization along the strike and at depth.

## 1.6 Sampling, Analysis, and Data Verification

There is no verifiable historic geochemistry to report on the PUP. The three verification samples taken as part of the field review are located on the claim blocks of the PUP. Tellurian performed all of the samplings which were standard rock samples of seven to nine pounds each and which were under lock and key until shipment to the lab.

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Rock samples are assayed at American Analytical Services in Osburn, Idaho, which is an ISO-17025 accredited lab. Sample preparation and analysis are completed at the laboratory. Rock samples were analyzed using AAA's 35-element ICP-MS scan and AAS's ICP-18 element rare earth scan which includes U and Th and uses the same preparation procedures as the ICP-35 element scan (Table 12.1). The assay methods and detection limits are appropriate for the analysis of the elements required and are within standard industry practice.

Data verification on the PUP consists of the confirmation of the land position in the field by Tellurian, database review, target concept design, and verification samples tabulated in Table 12.1. All of the samples taken show anomalous U and V values. The samples are all weakly to moderately anomalous in the pathfinder elements common to roll-front U-V deposits and the Uravan mineral belt.

## **1.7** Mineral Processing and Metallurgical Testing

There is no historical metallurgical testing or information on the PUP.

## **1.8** Mineral Resource Estimates

There is a non-NI-43-101 compliant historical mineral resource estimate from the PUP (Chapter 6.2) and note the cautionary language:

- There has been insufficient exploration of the relevant property or properties to allow for an estimate of a mineral resource that is compliant with NI-43-101.
- The issuer and the QP have not performed sufficient validation of the historical resource to allow the resource to be compliant with NI-43-101.
- It is uncertain if further exploration will result in the estimation of a mineral resource.
- The exploration target, therefore, does not represent, and should not be construed to be, an estimate of a mineral resource.

## **1.9 Conclusions and Recommendations**

In the opinion of Tellurian Exploration, the PUP represents a viable greenfield-brownfield level target for employing well-known models of U-V mineralization and discovering and developing U-V mineral resources for conventional underground mining and milling recovery.

A dedicated effort is recommended to realize the U-V potential of the Property through geologic mapping, rock sample geochemical exploration, ground-based geophysics, confirmation drilling, and modeling. GEM needs to complete the following summarized recommended steps in geophysics and drilling for the 2023-2025 field season. Detailed recommendations are in Chapter 18, Recommendations.

### **1.9.1** Field and Land Status

- There are six patented claim in-holdings or adjoining claims to the PUP that need to be incorporated into the land package. These claims are noted in Figs. 4.5 and 5.2.
- Rock samples be taken on all available Salt Wash Member outcrops and mine dumps to determine geochemical zoning. A complete geochemical suite including U, V, and Th, along with the pathfinder elements As, Ba, Cu, Mo, Se, Sb, S, and Zn will aid in predicting mineralization.

## **1.9.2 Geophysical Surveys**

- Tellurian recommends the use of ground-based Mag-VLF-Radiometric surveys on both of the claim blocks of the PUP within the following parameters:
- Survey is approximately 10.5 line miles (18 line kms) based on claim-end lines, with lines spaced 500 feet apart in an SW-NE orientation, and perpendicular to the strike of the mineralization.
- The total survey uses two instruments, one Mag-VLF unit, and the second unit using K-Th-U radiometrics. The survey will take one week to complete in the field.

## 1.9.3 Drilling

Historic drilling in the PUP area was based on standard air rotary drilling. Tellurian recommends reverse circulation (RC) in the initial Phase 1 drill testing of the PUP; followed by an HQ-size diamond core program for Phase 2 drilling.

TABLE 1.1. ESTIMATED COSTS TO ADVANCE THE DITCHFORK II V REQUECT TO DISCOVERY STATUS

## **1.10** Estimated Cost to Advance the Pitchfork U-V Project to Discovery Status

The estimated costs to move the PUP to the next level of evaluation are in Table 1.1 below:

TABLE 11 ESTIMATED COSTS TO ADVANCE THE FITCHFORK OF PROJECT TO DISCOVERT STATUS								
Budget Item	Timing		Est'd Costs	Remarks				
	2023-2025		US\$					
Management	Q4 (23), Q1-Q4 (24)	\$	60,000	Project and Corporate				
Plan of Operations	Q4 (23)-Q2 (24)	\$	25,000	BLM document, outside contractor				
Road repair upgrade	Q3 (24)	\$	20,000	Cat work, repair roads, new drill pads				
RC Drilling	Q3-Q4 (24)	\$	1,100,000	23 holes, 11000 feet, all-in costs; drill-gamma-PFN at \$100/ft				
Core Drilling	Q4 (24), Q1 (25)	\$	1,200,000	Eight ddhs, 4000 feet @ US\$300/ft, all in, mineral zones only				
Personnel	Q1-Q4 (24)	\$	150,000	One geologist+ two geotechs, basic field data, sampling				
Travel and Logistics	Q4 (23),Q1-Q4 (24)	\$	50,000	Hotel, food, fuel, vehicle, etc				
Ground geophysics	Q4 (23)	\$	20,000	Two people, two units; US\$1500/day+ processing, 5 days				
Claims Renewal	Q2 (24), Q2 (25)	\$	15,000	Annual renewal 72 claims, August 31 2024 and 2025				
Leases and Agreements	Q4 (23)-Q4 (25)	\$	113,000	Two years; Larson lease, Barret Bros				
Field sampling	Q4 (23), Q2 (24)	\$	7,000	Approx. 100 assays @ US\$70/ assay				
Lab specialties	Q4 (24)	\$	3,000	20 petrographic analysis, 20 diequilibriaum tests				
Claim additions	Q2 (24)	\$	5,000	10 new claims based on geophysics at US\$500/claim				
Survey	Q4 (24)	\$	10,000	New drill holes and claims				
Assays	Q4 (24 ), Q1 (25)	\$	7,000	Prelim leach tests				
Database Management	Q4 (24)-Q1(25)	\$	75,000	Setup and modeling				
Updated Technical Rep.	Q2-Q3(25)	\$	75,000	Maiden resource statement, Initial Assessment				
TOTAL	2023-2025	\$	2,935,000					
Contingency		\$	440,250	At 15%.				
TOTAL ESTIMATED COSTS	US\$	\$	3,375,250.00					

Tellurian Exploration, Inc

## **1.11 Tellurian Summary**

There are underlying annual and quarterly payments, work commitments, private agreements, NSR payments, and other encumbrances on the PUP as outlined in Subchapter 4.1.1. Tellurian has reviewed these agreements and they appear to be standard exploration agreements.

There are no apparent environmental challenges or legacy issues to the PUP prospects, and there are no known factors or risks that affect access, title, or the right or ability to perform work on the Property.

The PUP project is a greenfield and brownfield, early-stage, exploration project where the geology is wellknown from past mining and milling operations. Early-stage exploration projects, even in established mining districts like the Gypsum Valley, have risks similar to other mineral exploration projects. The risks are not unique to the PUP and are summarized below.

- Variance in the grade and continuity of mineralization from what drilling and estimation
- Variance in the grade and continuity of mineralization from what drilling and estimation techniques interpreted.
- Environmental, social, and political rejection of the Project could cause delays in conducting work or increase the costs from what is assumed.
- Risk associated with delays or additional requirements for regulatory authorizations.
- Risk associated with the uranium market and sales contracts.
- Risk associated with uranium mining, recovery, and mineral processing.

The potential quantity and grade of Salt Wash U-V mineralization on the PUP are conceptual. There has been insufficient exploration to define any mineral resource and it is uncertain if further exploration will result in targets being identified as a mineral resource.

#### 2 **INTRODUCTION (ITEM 2)**

In January 2023, Gold Express Mines, Inc (GEM or the Company) commissioned Tellurian Exploration, Inc. (Tellurian) to prepare a Canadian National Instrument 43-101 (NI 43-101) compliant technical report for the Pitchfork U-V projects (the Property, Project, or PUP), located in northwestern San Miguel County Colorado, USA. GEM is a private US-Nevada corporation that requests its technical reports to be compliant Page | 12 with and for Canadian-listed public companies. It conducts business in Colorado under the name of Fermi Metals, LLC, a Wyoming Corporation. This technical report complies with the disclosure standards in Canadian National Instrument 43-101 and revised on June 30, 2002, and prescripted in NI-43-101 F1.

The purpose of this report is to compile the initial property-of-merit report for GEM. The Qualified Person for this report is Mr. Mark I. Pfau, MMSA #01410QP, and Principal Geologist for Tellurian Exploration, Inc. Tellurian visited the PUP on June 12 and June 15, 2023, and reviewed the historical drilling, sampling, and mapping, field procedures, and all reports as part of this review. The exploration program proposed by GEM is designed to target U-V mineralization for conventional underground mining and milling. This report is a first-time technical report on the PUP. This technical report is preliminary and does not include new or current mineral resources.

During the field exam, the location of the Federal unpatented lode mining claim blocks was identified and verified in the field. Several historic drill sites were noted as were numerous historic workings. Access routes, geology, waterways, and environmental considerations were examined, and three verification samples were taken for geochemical analysis.

#### 2.1 **Scope of Work**

Reliance on the report is assessed after consideration of Tellurian's scope of work. This report is intended to be read as a whole, and sections or parts of this report should not be relied upon out of context.

This report is intended to be used by Gold Express Mines subject to the terms of its contract with Tellurian. That contract permits filing this report as a Technical Report with Canadian Securities Regulatory Authorities as required by provincial securities legislation. Except for the purposes legislated under provincial securities laws, any other use of this report by any third party is at that party's sole risk.

Unless otherwise stated, information and data contained in this report or used in its preparation have been provided by Gold Express Mines. This Technical Report has been compiled from sources cited in the text by the author and what outside resources are readily available online.

#### 2.2 **Units of Measurement**

In this technical report, all currencies are expressed in US dollars (\$) and all coordinates given are in UTM NAD 83 Zone 12S. Grades, assays, and concentrations of uranium and other elements are expressed in parts per million (ppm); while contained metal content is converted to U<sub>3</sub>O<sub>8</sub> or radiometric equivalent  $eU_3O_8$ . Uranium, where there are resources, is typically stated on a Grade-tonnage (GT) curve or contour. Areas of land are expressed in acres, and elevations and distances are expressed in imperial feet and miles.

Metallic elements will have the periodic table symbol employed, including U (uranium), Th (thorium), Cu (copper), As (arsenic), Pb (lead), Zn (zinc), Ba (barium), Mo (molybdenum), V (vanadium), and S (sulfur).

#### 2.3 **Sources of Information**

This Technical Report is based partly on historic internal company technical reports and maps, published government reports, company letters, memoranda, public disclosure, and public information as listed in the References after this Technical Report. This Technical Report is supplemented by published and available reports provided by the United States Geological Survey (USGS), the Colorado State Geological Page | 13 Survey, and the US Bureau of Mines (USBM). Chapter responsibilities are listed in Table 2.1. Abbreviations, acronyms, and units of measurement are summarized in Table 2.2.

	TABLE 2.1: SOURCES OF INFORMATION								
Chapte	er	Subject	Author/Primary Source						
1	ltem 1	Summary	Tellurian (QP)						
2	Item 2	Introduction	Tellurian (QP)						
3.	Item 3	Reliance on Other Experts	Tellurian (QP)						
4	Item 4	Property Description and Location	Tellurian (QP)						
5	Item 5	Accessibility, Climate, Local Resources,	Tellurian (QP)						
		Infrastructure and Physiography							
6	Item 6	History	Tellurian (QP), Larson, (2022)						
7	Item 7	Geological Setting and Mineralization	Tellurian (QP), Thorson (2018)						
8	Item 8	Deposit Types	Tellurian (QP), IAEA (2020)						
9	Item 9	Exploration	Tellurian (QP)						
10	Item 10	Drilling	Tellurian (QP)						
11	Item 11	Sample Preparation, Analysis, and Security	Tellurian (QP)						
12	Item 12	Data Verification	Tellurian (QP)						
13	Item 13	Mineral Processing and Metallurgical Testing	Tellurian (QP)						
14	Item 14	Mineral Resource Estimate	Tellurian (QP)						
Items	15-22 NA								
15	Item 23	Adjacent Properties	Tellurian (QP)						
16	Item 24	Other Relevant Data and Information	Tellurian (QP)						
17	Item 25	Interpretation and Conclusions	Tellurian (QP)						
18	Item 26	Recommendations	Tellurian (QP)						
19	Item 27	References	Tellurian (QP)						
20	Item 28	Date and Signature Page	Tellurian (QP)						
Appen	dix A	List of Claims	Tellurian (QP)						

Table 2.1: Detailed source of information and responsibility for each chapter of this technical report. Individual scientific and governmental references are inserted in the respective chapters.

Table 2.2: Abbreviations, Acronyms, and Units Used in NI-43-101 Reports								
Abbreviation	Meaning	Abbreviation	Meaning					
AA	atomic absorption spectroscopy	LoM	life of mine					
Ag	silver	m	meter					
As	arsenic	m²	square meters					
Au	gold	m³	cubic meters					
(Au) Eq	gold equivalent	mm	millimeter	Page   14				
BLM	bureau of land management	Ma	million years old					
core	diamond core drilling method	mi	miles					
CRM	certified reference material	mm	millimeters					
°C	degrees centigrade	Moz	million troy ounces					
Cu	copper	mW	megawatt					
DDH	diamond drill hole	NI-43-101	Canadian National Instrument 43-101					
٥F	degrees Farenheit	NSR	net smelter return					
FA	fire-asssay	OZ	troy ounce					
ft	foot	%	percent					
ft²	feet squared	opt	troy ounce per short or imperial ton					
ft³	cubic feet	Pb	lead					
g/t	grams per tonne	P80	nominal size at 80%					
g/cm <sup>3</sup>	grams per cubic centimeter	ppm	parts per million					
gpm	gallons per minute	ppb	parts per billion					
ha	hectare	QA/QC	quality assurance/quality control					
Hg	mercury	QP	qualified person					
hp	horsepower	RC	reverse circulation drilling					
Hz	hertz	RQD	rock quality designation					
ICP-AES	inductively coupled plasma - atomic emission spectroscopy	RTP	reduced to pole (magnetics)					
ICP-OES	inductively coupled plasma - optical emission spectroscopy	Sb	antimony					
ICP-MS	inductively coupled plasma – mass spectrometry method	SEC	U. S. Securities & Exchange Commision					
in	inch	SEDAR	System for Electronic Document Analysis					
IP-Res	induced polarization-resistivity geophysics	SG	specific gravity					
ISO	International Standords Organization	(M) t	(million) metric tonnes					
JORC	Australasian Joint Ore Reserves Committee	(M)T	(million) imperial short ton (2000 pounds)					
Ка	thousand years old	USBM	U.S, Bureau of Mines					
kg	kilograms	USFS	U. S. Forest Service					
km	kilometers	USGS	U. S. Geological Survey					
km²	square kilometers	VD	vertical derivative (geophysics)					
koz	thousand troy ounces	XRD	x-ray difraction					
kW	kilowatt	Zn	zinc					
kV	kilovolt	NW	northwest					
lbs	pounds	NE	northeast					
μm	micron or micrometer	SW	southwest					
L	liter	SE	southeast					

Table 2.2: Abbreviations, Acronyms, and Units Used in NI-43-101 Reports
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Table 2.2: Abbreviations, Acronyms, and units of measure used in NI-43-101 reports. In addition to the above, the NRC (Nuclear Regulatory Commission) and DOE (Department of Energy) are always involved in U.S.-based uranium development and production.

## 3 RELIANCE ON OTHER EXPERTS (ITEM 3)

Tellurian's opinion contained in this report is based on information provided to Tellurian by GEM throughout Tellurian's investigations. This reflects various technical and economic conditions at the time of writing. Given the nature of the mining business, these conditions can change significantly over relatively short periods. Consequently, actual results may be significantly more or less favorable than reported.

This report includes technical information that may require subsequent calculations to derive sub-totals, totals, weighted averages, and metal contents. Such calculations inherently involve a degree of rounding and consequently, introduce a margin of error. Where these occur, Tellurian does not consider them to be material to the report.

Tellurian wishes to acknowledge the assistance of James Baughman, GEM Chief Geologist, Mr. John Ryan, President of GEM, Ms. Helen Thomas, V.P Exploration for GEM, Mr. Manuel Montoya in compiling the maps in the preparation of this report, and Mr. Robert (Bob) Larson for his time in showing the project in the field and assisting in the historical and business aspect of the Project.

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## 4 **PROPERTY DESCRIPTION AND LOCATION (ITEM 4)**

The Pitchfork uranium-vanadium (U-V) projects (PUP) of GEM are located in the Uravan mineral belt of Colorado (Figs. 4.1 and 4.2) some 220 miles SW of Denver, Colorado, in northwestern San Miguel County. The Project is also located within the Gypsum Valley mining district (Figs. 4.3 and 4.4).

The Property consists of three claim blocks of Federal unpatented lode mining claims. These are the PF-10-39, the PFE 1-41, and the single Thunderbolt claim in Montrose County, located 10.5 miles north near the DOX claim block of GEM's Uravan U-V projects. The Thunderbolt claim is not considered any further in this technical report and is shown in Figs. 4.3 and 5.1. The PF claims are owned by Mr. Robert Larson, and the PFE claims are owned by Fermi Metals, LLC, which is controlled by GEM. Fermi Metals has a lease agreement dated February 1, 2023, with Mr. Larson on the PF claims that include the PFE claims.

The entire PUP covers approximately 1320 acres and just under 2.1 mi<sup>2</sup> of land (Fig. 4.5). The mining claims are listed in Appendix A. Pertinent location information includes:

- The PUP utilizes UTM NAD 83, Zone 12S, and is centered on 707000E X 42011500N, at an elevation of 6600 feet.
- The latitude/longitude is +38.027800°N and -108.36174.W.
- The PUP is on the Gypsum Gap 1:24000, the Nucla 1:100000, and the Moab 1:250000 USGS topographic quadrangle maps.
- Magnetic declination (2023) near the project center is 9.40° E ± 0.37°, changing by 0.10° W per year (WMM, NOAA).

## 4.1 Mineral Tenure Details

The unpatented mining claims at the PUP fall under the 1872 General Mining Law. The claims are located on lands with the underground estate administered by the BLM, which is in the Department of the Interior. An annual payment of US\$165.00 to the BLM is required for each claim and must be made on or before August 31 of every year to maintain the claims in good standing. There is a nominal recording fee of about US\$15.00 for each claim when filed in the County.

The surface estate is severed from the mineral rights on 320 acres, about 16 of the PF claims, and is privately owned by the Barrett Brothers. There is a current underlying agreement for the use of the surface of US\$10.00 per acre per year and with development, this value escalates to US\$25.00 per acre.

The mining claims are un-surveyed with coordinates on the public record with the BLM and San Miguel counties in Colorado. The status of the unpatented lode claims has been verified in the field by Tellurian and with the BLM on their MLRS website.

The State of Colorado imposes a metallic minerals severance tax based on modified gross revenue of 2.25% of gross income above \$19 million a year, where gross income is the value of "ore" right after removal from the mine and does not include value added by treatment or marketing, or income from extraction or processing of minerals from waste or residue of previously mined material.



Fig. 4.1: Location of the Uravan and Lisbon Valley mineral belts in Utah and Colorado relative to other uraniumproducing areas of the western U.S. The Pitchfork U-V project is located in the southern Uravan mineral belt.



Fig. 4.2: The Uravan mineral belt, showing major uranium-vanadium mineral deposits along the Colorado-Utah border and the location of the Pitchfork project.



Fig. 4.3: Detailed view of the GEM property position in SW Colorado, DOE mineral lease lands, historic mines, and the location of the Pitchfork U-V project relative to the Uravan U-V projects of GEM.

The Thunderbolt claim is located at the historic Thunderbolt Mine near the DOX claim block about 10 miles north of the PUP.

TheThunderbolt claim is not considered any further in this report.



Fig. 4.4: Outline of the Gypsum Valley mining district, the associated U-V mines, and the location of the PUP.



Fig. 4.5: Location of the PUP on the GoogleEarth image, showing the PF and PFE claim blocks and other patented ground nearby which is not currently part of the Project.

## 4.1.1 Mineral Tenure Details Larson Lease

The lease agreement between Fermi Metals LLC and Robert Larson is dated February 1, 2023, and has been reviewed by Tellurian. The agreement is for the PF 1-39 and the PFE 1-41 claims entail:

- A Quarterly payment of US\$12,500 to Robert Larson.
- A purchase option at the end of five years for US\$650,000 with credit for quarterly payments.
- A 2% NSR on production, with a purchase back of US\$1,000,000 and 1% NSR.
- Fermi will pay all associated claim and maintenance fees including the Surface Agreement with the Barrett Brothers (US\$10 per acre annually for 320 acres).
- A minimum of three drill holes to be completed on the PF claim block and three drill holes to be completed on the PFE claim block within three years of the lease agreement.
- Fermi is responsible for all exploration-related federal and state permits and all reclamation.
- An area of influence of five miles on the NW-SE length and ½ mile on the width of the PUP claim position.

## 4.2 Environmental and Social

The PUP has seen historic uranium exploration and production but there are no current legacy environmental problems. Threatened or endangered species in the project area will require an analysis from the local BLM office but do include the sage-grouse and pygmy rabbits. There is an abundance of Mule deer and nesting raptors to consider.

The PUP itself has never been in the public spotlight as a minerals exploration project. Historic uranium production in the area from the 1950s into the 1970s is in the public spotlight due to the contamination of local rivers. There has been no community outreach due to a lack of exploration progress on the PUP. There are no community issues to address at this time. The project area is not on or close to, any Native American lands, wilderness areas, or proposed wilderness areas.

## 4.3 Permitting Requirements

An Environmental Assessment (EA) will need to be completed for the BLM on the PUP before any surface disturbance if the planned surface disturbance exceeds five acres, otherwise, a categorical exclusion may apply. The PF and PFE claim blocks are under the Tre Rios Field Office of the BLM. Both field offices are under the Southwest District of the BLM, which is headquartered in Montrose, Colorado (Fig. 4.4).

Exploration and mine permitting are managed by the State of Colorado through the:

• Colorado Dept. of Natural Resources, Division of Minerals and Geology

These agencies work off of a Plan of Operations (PoO) from the BLM and ultimately a Final Environmental Impact statement. There are 25-30 federal, state, and county permits required to open a uranium mine in Colorado.

## 4.4 Tellurian Summary

There are underlying annual and quarterly payments, work commitments, private agreements, NSR payments, and other encumbrances on the PUP as outlined in Subchapter 4.1.1. Tellurian has reviewed these agreements and they appear to be standard exploration agreements.

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There are no apparent environmental challenges or legacy issues to the PUP prospect, and there are no known factors or risks that affect access, title, or the right or ability to perform work on the Property. At production, the production severance royalty on uranium commences.

The PUP project is a greenfield and brownfield, early-stage, exploration project where the geology is wellknown from past mining and milling operations. Early-stage exploration projects, even in established mining districts like Gypsum Valley, have risks similar to other mineral exploration projects. The risks are not unique to PUP and are summarized below.

- Variance in the grade and continuity of mineralization from what drilling and estimation techniques interpreted.
- Environmental, social, and political rejection of the Project could cause delays in conducting work or increase the costs from what is assumed.
- Risk associated with delays or additional requirements for regulatory authorizations.
- Risk associated with the uranium market and sales contracts.
- Risk associated with uranium mining, recovery, and mineral processing.

## 5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY (ITEM 5)

## 5.1 Location and Access

The PUP is in San Miguel County Colorado, USA (Figs. 5.1 and 5.2) and is in Section 33, Township 44N and Range 16W, New Mexico Meridian. The primary extractive industries in these counties have historically been uranium and vanadium mining, ranching, and farming (primarily hay), and fossil fuels, which include the oil and gas fields of the Paradox (Colorado-Utah) Basin. The local zip code in Naturita Colorado is 81422 and the area is entirely within the Mountain Time Zone (GMT -7). The Project is in the Gypsum Valley mining district (Fig. 4.4).

Basic services are available in Naturita, Colorado for conducting local mineral exploration. There are no major airports with daily air service available. The closest airport with regular air service is in Grand Junction, Colorado (104 miles and 2.7 hours to Naturita). Denver is the closest major international airport.

Road access to the PUP is excellent. However, ATVs are required for the northern segments of the properties. Primary road access is by Colorado Highway 141 which tracks south from Colorado Highway 141 where it junctions with Colorado Highway 145, four miles SE of Naturita. The PUP is another 19 miles and then an unmarked gravel road enters the claim block from the right (Figs. 4.4 and 5.2). Access to the property is relatively easy due to the number of historic drill roads in the area.

## 5.2 Climate and Physiography

The PUP is in the Colorado River drainage and Colorado Plateau physiographic province. The Colorado Plateau is bordered by the Middle Rocky Mountains on the north and east, the Southern Rocky Mountains on the south, and the basin-and-range province on the west.

Annual precipitation at Naturita is 13 inches with 11 inches annual snowfall. Precipitation is highest in September and lowest in June. The area is impacted by the southern monsoon which affects the southwest U.S. and generates violent afternoon thunderstorms and local flash floods. Annual temperatures range from  $+ 90^{\circ}$ F in June through August to  $< 20^{\circ}$ F in December-January. The PUP is typically snow-free from March through November and exploration can be conducted nearly year-round. The region is considered a Bsk: cold, semi-arid Steppe climate, under the Köppen climate system.

Topography is flat to moderate-rolling with steep incised canyons, with elevations between 5500 and 7200 feet. Vegetation consists of sagebrush, juniper, Ponderosa, and Piñon pine, especially in stream bottoms or water courses. Salt desert shrubs are common in the valley areas.

Several of the valleys are salt-cored anticlines that have ruptured to the surface and allow natural gas to escape. Soils on the PUP vary considerably over short distances and are almost universally derived from sandstone. About 20% of the area is rock outcrop, Gladel-Bond, or Orthents rock outcrop complex on slopes that range from 1 to 50%. Soils are cobbly clay to silty loam up to 30" depth (<u>https://websoilsurvey.nrcs.usda.gov</u>). Soils are typically saline to various degrees. Given the poor development and alkaline nature of the soils, geochemical dispersion is most likely retarded and mechanical but will need to be assessed in an orientation survey.

## 5.3 Infrastructure

Power infrastructure in and around the PUP is abundant due to the historic mining in the area. Western Colorado is serviced by a major north-south carrying 345kV transmission lines and is laced by north-south interstate and intrastate natural gas lines. The nearest and only operating uranium/vanadium recovery mill (White Mesa, Chapter 5.3.2) is approximately 1.3 hours by road, from the PUP.

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The PUP is located about 100 miles east of the Intermountain seismic belt which trends from southern California northwest, then north through central Utah, the Yellowstone-Teton area, and into Montana. Seismic activity is weak in the PUP area with a peak acceleration of 17-33% as a fraction of standard gravity and is in seismic design category B.

## 5.3.1 Electric and Natural Gas

Natural gas pipelines along the Utah-Colorado border are dominated by the Northwest pipeline system of the Williams Company. The Trans Colorado pipeline of Kinder-Morgan also traverses the eastern portions of Montrose and San Miguel counties, and the two companies connect systems near Naturita.

In San Miguel County, regional electric power is provided by the San Miguel Power Association (SMPA), a power cooperative that purchases and transmits electric power through the Tri-State Generation and Transmission Associations.

## 5.3.2 White Mesa Uranium Mill

The White Mesa uranium milling operation is located just south of Blanding, Utah. The mill is owned and operated by Energy Fuels Resources Inc. White Mesa is the only operating conventional uranium processing facility in the United States. It has a licensed capacity of 2000 tons per day and can produce up to eight million pounds of U<sub>3</sub>O<sub>8</sub> per year. The facility also has a co-recovery circuit to process vanadium, commonly found in the Colorado Plateau, and an alternate feed circuit to process other uranium-bearing materials, such as those derived from uranium conversion and other metal processing.

## 5.4 Tellurian Summary

The PUP has excellent road access for exploration and drilling but requires the use of ATVs for routine access and will require upgrades for drill access. The area has a semiarid, steppe climate and is highly exposed. Access conditions will be highly dependent upon local weather and mud conditions. The Property presents no unusual risks or problems related to its physical location, climate, or physical attributes. Infrastructure development is excellent due to the historic mining in the area and current oil and gas production. Infrastructure needs to be considered in the earliest stages of any mine development due to long lead times on construction.



Fig. 5.1: Location of the Pitchfork U-V project (PUP) in northwestern San Miguel County, Colorado. The PUP is shown relative to the Uravan U-V projects of GEM, the regional DOE leases, and significant historic mines.



Fig. 5.2: Location of the PUP on the Gypsum Gap 1:24000 topographic map showing local highway access.

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## 6 HISTORY (ITEM 6)

Chapter 6, History, is primarily taken from Tellurian (2023) and references cited within; Larson (2022), and Madison (1954).

The history of the mining of carnotite deposits in SW Colorado and SE Utah reflects the importance of Page | 25 three metals: radium, vanadium, and uranium. The history of the PUP claim blocks reflects the history of exploration and development of the Uravan mineral belt.

## 6.1 Uravan History 1880s to Present

Geological investigations of the U-V deposits of the Uravan area began about 1900 and have continued to the present. Reports by the USGS, USBM, and the U.S. Atomic Energy Commission (AEC) during the uranium boom of the 1950s identified the Salt Wash Member of the Morrison Formation (Jms) as the principal host to U-V mineralization.

To evaluate the U resources of the Jms, the Army Corps of Engineers, as part of the Manhattan Project, contracted with Union Carbide (UMETCO) and Carbon Corporation to create a raw-materials appraisal group. This group, known as Union Mines Development Corporation (UMDC), was formed in 1943 and systematically studied the U-V deposits in the area. All of the known outcrops of U-V minerals, prospects, and mines were mapped and described. Their work was thorough, and few outcropping occurrences of U-V minerals known today were overlooked by UMDC. In 1947, the Atomic Energy Commission (AEC), was created in response to the nuclear arms race and a U purchasing program ensued.

During the period 1947 through 1979, uranium production from Uravan and adjacent areas amounted to 14,675,000 tonnes averaging 0.24 percent  $U_3O_8$  and containing 34,754,000 kg (about 77M pounds) of  $U_3O_8$ . This represents 11 percent of the total United States uranium production. Vanadium production was from 14,589,600 tonnes with an average grade of 1.24 percent  $V_2O_5$  and containing 187,443,300 kg (about 413M pounds) of  $V_2O_5$ . This represents 80 percent of the total domestic production of vanadium from sandstone uranium ores.

In 1980 Dennison Mines built a major U-V milling facility in Blanding, Utah. (Chapter 5.3.2). Energy Fuels Resources now owns the facility. By 1984, most of the U-V mining in the U.S. ceased, UMETCO's Uravan mill closed by 1985 after 70 years of operation, and the mill site was reclaimed as a Superfund project.

The Three Mile Island nuclear plant incident in 1979, followed by the Chernobyl, Russia disaster in 1986 brought nuclear power development in the U.S. to an end and uranium mining ceased altogether. In 2011, The meltdown at Fukushima Japan, further hindered any future development of nuclear energy in the U.S. The current U.S. list of critical metals does not include fuel minerals (uranium) but does include vanadium.

With the development of the new Natrium sodium-cooled reactor, approvals have been made for a 345mW nuclear power plant in Kemmerer, Wyoming and proposals are underway in Utah and the Carolinas.

## 6.2 Pitchfork Mine History

The discovery of the Pitchfork U-V prospect is not documented. The earliest useful reference is Madison (1954) in the USGS Trace Element Memorandum (TEM) #631. Madison notes that the USBM completed three diamond drill holes in 1943, but that the property had been in production since 1940 by the Dulaney Mining Company. Madison also indicates that the USGS drilled the Property in 1953 with 30 holes totaling Page | 26 3190 feet and outlined a small zone of mineralization. Tellurian surmises that the original Pitchfork mine was discovered before the UMDC exploration years which started in 1943.

Ranchers Exploration and Development Company conducted work on the Pitchfork mine area from 1975-1978 and the claims lapsed in 1980. The Rancher's historic resource summary is shown in Fig. 6.1. Larson (2022) states that:

Previous mining produced approximately 20,000 tons of ore at a grade of 0.21% U308 and 1.13% V205. Based upon drilling conducted in the 1970s a small discontinuous resource area has been defined in steeply dipping, faulted Salt Wash sandstone lenses that contains a drill-proven and indicated resource of 70,250 tons containing 0.18% U308. This equates to 248,750 lbs U308 and a projected 1,343,250 lbs V205. There are at least two additional targets within the re-staked claim block to the northwest that have uranium mineralization on surface exposures. At the far northwest limit of these claims is the Bald-Eagle Mine which had a small amount of production from the under-lying Hermosa formation.

In 2007, the claims were staked by Robert Larson. Since the surface ownership of a portion of the claims was owned by a local family, known as Barrett Brothers, Inc., proper notification was given as to the planned staking, and a subsequent Surface Agreement was completed which covers about 320 acres.

In 2011, these claims were leased to a company called AMICOR, but no substantive work was completed. The claims were later dropped, and the payment for the Surface Agreement was not made. In 2013, Larson re-staked the claims and re-initiated the Surface Agreement. During subsequent years the nine claims covering the defined historic resource were kept valid, and the Surface Agreement payments were made.

Larson (2022) indicates that a total of 102 drill holes were completed on the PUP by Ranchers Exploration from 1975-1978, and the drill logs from all 102 drill holes are available in the database. Earlier government drill logs from the USGS and USBM are incomplete (Hohne 1958).

Since only nine of the original thirty claims were kept active during intervening years, it wasn't until 2021 that the NW twenty-one claims were re-staked. The Pitchfork Claims, PF-10 through PF-39, are currently active and the Surface Agreement is in effect. The present Surface Agreement was termed for 10 years and is set to expire in December of 2023. A provision in the Agreement allows it to be extended by written notice to the Barrett Brothers. Written notice has been sent to the Barrett Brothers and they are aware of the planned continuation of the Agreement.

In February 2023, Larson entered into an agreement with Fermi Metals, LLC, a Wyoming corporation owned by Gold Express Mines, Inc. The agreement was for control of the PF-10 through the PF-39 claim block. In early 2023, Fermi staked the 46 PFE claims along the strike of the mineralization and formed the Pitchfork Uranium Project (PUP), the subject of this technical report.

### 6.3 Historical Mineral Resource Estimates

There is a non-NI-43-101 compliant historical mineral resource estimate from the PUP in Fig. 6.1. Note the cautionary language:

- There has been insufficient exploration of the relevant property or properties to allow for an Page | 27 estimate of a mineral resource that is compliant with NI-43-101.
- The issuer and the QP have not performed sufficient validation of the historical resource to allow the resource to be compliant with NI-43-101.
- It is uncertain if further exploration will result in the estimation of a mineral resource.
- The exploration target, therefore, does not represent, and should not be construed to be, an estimate of a mineral resource.

## 6.4 Historical Metallurgical Testing

There is no historical metallurgical testing or information on the PUP.

## 6.5 Tellurian Summary

All the exploration at the PUP is historic and is pre-NI-43-101 standards. All of the historic explorations were conducted by known exploration and production companies and government agencies whose exploration standards are not known but are believed to be standard exploration procedures for the 1950s through the early 1980s era.



Photo 6.1: A historic loading dock fed from a portal on the PF claim block. Sample 650473 from the adjoining dump assayed 1430 ppm U ( $0.168\% U_3O_8$ ) and 2780 ppm V ( $0.496\% V_2O_5$ ). The sample also assayed 115 ppm Pb and 80 ppm Zn.



Fig. 6.1: The outline of the historical and non-compliant 1979 resource at Pitchfork compiled by Ranchers Exploration and Development Company The resource was compiled using standard mineral resource estimation techniques in 1978 and without the use of geostatistics.

There are 102 Ranchers Exploration drill holes with logs in the database. Drill logs from the USGS and USBM are incomplete (Hohne, 1958) but indicative of mineralization. Tellurian recommends the twinning of eight to 10 of these historical drill holes in addition to eight HQ-size core holes to validate the historical resource to comply with NI-43-101 standards for an Inferred resource. Note the cautionary language in Chapter 6.3.

Ranchers reported 822,000 tons grading 0.04  $U_3O_8$ , which contained an in-situ resource of 642,000 pounds of  $U_3O_8$ . The vanadium to uranium ratio was calculated to be 5.4:1. The historical resource was dated January 24, 1979.

## 7 GEOLOGICAL SETTING AND MINERALIZATION (ITEM 7)

The Regional Geology (Chapter 7.1) and the Mineralization and Alteration, (Chapter 7.4), of the PUP are summarized by Thorson, 2018, and numerous references are cited within. The Property and District Geology (Chapters 7.2 and 7.3) is summarized from Chenoweth, 1981, and Larson, 2022.

## 7.1 Regional Geology

The regional geologic story of the Uravan and Lisbon Valley U-V deposits is largely the geology of the Paradox Basin. The Pennsylvanian Paradox Basin of SE Utah, SW Colorado, NE Arizona, and NW New Mexico is buried beneath the Colorado Plateau rocks and is rich in natural resources containing potash, lithium, salt, petroleum, natural gas, sulfur, carbon dioxide, bitumen or tar sands, copper, uranium, and vanadium, all of which can be related to the fluid history of the basin. The basin contains very saline brines, petroleum liquids and gases, magmatic fluids related to Tertiary intrusives, and fresh oxygenated groundwater, each of which has left its imprint on the rocks and mineralization.

The Paradox Basin formed in the middle Pennsylvanian about 301 to 295 Ma as a foreland basin related to the upthrust of a Precambrian basement block by reverse motion on the Uncompaghre fault. The offset of the Pennsylvanian-age Uncompaghre fault was originally interpreted as extensional but better seismic resolution and more drilling have revealed that the Uncompaghre fault is a major compressional feature.

The Pennsylvanian Paradox Basin was a silled (anoxic and sulfidic) basin with shallow connections to the ocean. Repetitive cycles of desiccation and flooding resulted in the deposition of an estimated 5000 to 8000 feet of evaporites composed mostly of salt, with lesser amounts of dolomite, siltstone, gypsum (anhydrite), and organic-rich siltstone and shales, now called the Pennsylvanian-age Paradox Formation.

The Paradox Basin continued to be filled with clastic material in the Permian from the Uncompaghre uplift, as a sedimentary wedge that became both thinner and finer-grained towards the SW. This wedge, the Cutler Group strata contains 4000 feet to as much as 8000 feet of conglomerate and coarse sandstone in locations close to the Uncompaghre fault but thins rapidly towards the SW so that the Cutler is between 1500 and 1700 feet thick at Lisbon Valley, at a distance of about 40 miles from the fault.

The Triassic and Jurassic history of the Paradox Basin is a period of consistent continental conditions that are recorded in the deposition of fluvial systems and eolian sand sheets, now largely red beds. Rejuvenation of salt flow breached the surface in the Triassic, and at least twice in the Jurassic, producing local erosional unconformities around the salt anticlines. In early Cretaceous time, there were prolonged periods of regional erosion, for about 40 m.y., during which the final red-beds strata in the Burro Canyon-Cedar Mountain Formations were deposited. The transgression of the Cretaceous Seaway at about 98 Ma, caused the Paradox Basin to be sealed under thousands of feet of Mancos Shale.

Another dimension to the thermal and fluid source history is late Oligocene and late Cretaceous magmatism across the region in laccolithic complexes such as the Henry, Abajo, and La Sal Mountains and in the subsurface as a regionally extensive mid-Tertiary thermal event that is interpreted as the result of deep-seated advective heat flux. The Oligocene magmatism contributed to transient heat pulses and the laccolith complexes created topographic highs that have changed the hydrologic setting, a role they continue to play up to the present. The laccolith-cored mountains (Fig. 7.1) remain major recharge centers for fresh water, which can now be followed through modern shallow aquifers.

## 7.2 Property and District Geology

The Moab 1:250000 geologic map (Fig. 7.1) shows the regional geology of the southern Uravan mineral belt, the location of the Pitchfork U-V project, and the location of GEM's Colorado property base in the Uravan U-V projects (Pfau, 2023). The Uravan mineral belt, as defined by the USGS in 1952:

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"is an elongated area in southwestern Colorado wherein uranium-vanadium deposits in the Salt Wash Member of the Morrison Formation generally have closer spacing, larger size, and higher grade than those in adjacent areas and the region as a whole".

The Uravan belt includes the Gateway, Uravan, Bull Canyon, Gypsum Valley, and Slick Rock mining districts. The Salt Wash Member (Jms) consists of interbedded fluvial sandstone and floodplain-type mudstone units. The sandstone beds crop out in three to eight cliffs or "rims" with the mudstone units forming slopes. The uppermost sandstone, or rim, contains the majority of the mineral deposits, but deposits do occur in the lower sandstones.

The PUP target is entirely located in the Gypsum Valley paleochannel (Fig. 8.2) of the Salt Wash Member of the Jurassic-age Morrison Formation of the Uravan mineral belt. However, on the northern portion of the PFE claims near the Bald Eagle mine, Eastman (1978) reports that U occurs in the shaley limestone of the stratigraphically deeper Pennsylvanian Hermosa Fm, but the Hermosa is not considered to be a viable exploration target for U-V mineralization. The only available geologic map of the PUP is from Madison, (1954), is highly generalized, and not in a usable electronic format.

## 7.2.1 Salt Wash Member, Jurassic Morrison Formation

The Salt Wash Member consists of interbedded fluvial sandstone and floodplain-type mudstone units. The sandstone beds crop out in three to eight cliffs or "rims" with the mudstone units forming slopes. The uppermost sandstone, or rim, contains most of the mineral deposits, but deposits do occur in the lower sandstone. A few deposits occur in coarse conglomeratic sandstone in the lower part of the overlying Brushy Basin Member (Fig. 7.2)

Records of the DOE show that production has been derived from nearly 1,200 individual properties within the area. Individual deposits or groups of deposits are localized within reduced permeable, carbonaceous Salt Wash sandstones. Many of the deposits in the Uravan area are within well-defined, sandstone-filled paleo stream channels which are several hundred meters wide (1000 feet) and up to a few kilometers (two miles) long (Fig. 8.3).

The tabular mineralized bodies typically are elongated parallel to sedimentary trends and are concordant with the bedding. The mineable mineralized zones average about 1.2 m (4 feet) thick, but in a few places mineralized thicknesses approaching 9 m (30 feet) have been mined. Individual mineralized zones may be connected by weakly mineralized rock, but generally, the boundary of mineralized and barren rock is abrupt.

Mineralized zones tend to be clustered within elongated favorable areas. Average production from these elongated favorable areas has ranged from several hundred thousand tons to several million tons with a district average grade of  $0.24\% U_3O_8$  and  $1.24\% V_2O_5$ .

Foster, et al, 2006 detail the stratigraphy of the Salt Wash Member.



Fig. 7.1: Geologic map showing the location of the PUP, nearby DOE uranium mineral leases, and GEM's Uravan U-V projects in the area. The map is of the Moab 1:250000 scale geology of western Colorado and eastern Utah. (Williams 1964).



Fig. 7.2: Stratigraphic column of the Colorado Plateau. Shows generalized stratigraphy, intervals of volcanic ash, and major tectonic episodes of that part of the geologic section that hosts uranium deposits. Strata that are important host rocks for uranium deposits are designated with an upper case "U", the less significant uranium host rock is designated with a lower case "u". From Hall et al 2003 and references cited within.

## 7.3 PUP Structure

The Laramide orogeny of Late Cretaceous and Early Tertiary time affected the Uravan mineral belt only slightly compared to the bordering areas. The dominant structural element of the northeastern side of the Plateau is the broad NW-trending uplift that underlies the Uncompany Plateau.

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Lying SW of and parallel to the Uncompany Plateau upwarp are the Sinbad Valley, Paradox Valley, Gypsum Valley, and Dolores anticlines which are large oil and gas-producing anticlines having intrusive cores of salt and gypsum from the Paradox Member of the Hermosa Formation. The collapse of the crests of the salt anticlines occurred in two stages, the first in the early Tertiary, and the second stage occurred after the uplift of the Colorado Plateau in the Miocene. Erosion has allowed breaching of the salt cores and has exposed them to removal and leakage of natural gas. The salt-core tectonics have impacted the PUP on the north and west sides of the project area.

The strata on the PUP have been warped into NW-trending folds cut by steeply dipping faults as shown in Fig. 7.3. Offsets on the faults do not appear to be significant but lack quantitative documentation.

## 7.4 Hydrothermal Alteration and Mineralization

Uranium mineralization in the greater Paradox Basin occurs in two mineralogical classes, primary U mineralization, and secondary U mineralization. Primary mineralization is largely uraninite  $(UO_2)$  and coffinite  $[U(SiO_4)1-x(OH)4x]$  with other minerals that contain U in the U+4 (reduced) oxidation states, plus chalcopyrite, galena, pyrite, and a few less common metal sulfides. The primary V mineral is generally roscoelite, a V-bearing mica, or hydromica, and/or montroseite [(V, Fe)O(OH)]. The V to U ratio in primary mineralization is generally between 4:1 to 8:1, but there are a few occurrences that are essentially V deposits with very low amounts of uranium.

Secondary mineralization is commonly carnotite  $[K_2(UO_2)2 (VO_4) 2.3H_2O]$  or tyuyamunite  $[Ca(UO_2) 2 (VO_4) 2.nH_2O]$ , plus hundreds of less common U or U-V minerals containing U in the oxidized (U +6) oxidation state. Uranium mineralization commonly, but not consistently, occurs with carbonaceous fossil plant material. Uranium mineralization and/or U-bearing host rocks contain non-woody, intergranular carbonaceous material that resembles bitumen of possible petroleum derivation, far more commonly than has been reported in the literature. It is important to note that Paradox Basin U-V mineralization also commonly contains anomalous but variable amounts of As, Bi, Co, Cr, Cu, Mo, Ni, Se, Pb, and Zn.

Primary U-V mineralization occurs as flat, tabular, lenses or pods of U-V minerals that on a large scale are strata-parallel although minor and sometimes economic U mineralization can occur along faults. On a smaller scale in the tabular deposits, the U-V mineralization may crosscut stratigraphy very sharply. The U-V minerals occur in sandstone and pebble conglomerates as intergranular disseminations, as small pods and lenses in which U and V minerals impregnate sandstone in spotted or striped textures, as larger irregular impregnated bodies, and as replacements of coaly carbonaceous plant material.

## 7.4.1 Hydrothermal Alteration and Mineralization, Pitchfork Mine

The dominant U-V mineralization at the Pitchfork Mine is carnotite,  $[K_2(UO_2)2 (VO_4) 2.3H_2O]$  (Photo 7.1). No detailed mineralogical work has been performed on the mineralization and alteration. Other mines



Fig. 7.3: Schematic cross-section through the Pitchfork mine area based on historical surface mapping and drill logs. Mineralization is noted in the black dashes and occupies multiple horizons within the Salt Wash Member (JMS). Local structures offset the mineralized units but to no significant degree. This cross-section shows the stratigraphy as normal, but Eastman (1978) argues that some of the stratigraphy may be overturned. The evidence is in conflict and needs to be resolved.

along the Gypsum Valley paleochannel note minor tyuyamunite, [Ca(UO<sub>2</sub>) 2 (VO<sub>4</sub>) 2.nH<sub>2</sub>O]. No petrographic work has been completed on the PUP, see Chapter 18.1, Recommendations.

The Pitchfork Mine proper shows two mineralized zones within the Salt Wash Member. These may be two separate mineralized zones within the Salt Wash each in a different sandstone tongue. Alternatively, the mineralized zones may be a single mineralized horizon in the Salt Wash which has been overturned. The evidence is in conflict as described by Eastman (1978) and needs to be resolved.



Photo 7.1: Carnotite mineralization in the Salt Wash Member of the Morrison Fm. (Jms) with minor fine-grained carbonaceous material on one of the historical mine dumps of the PUP.

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#### 7.5 **Tellurian Summary**

The geology of the PUP is well-documented in published literature and is of excellent quality given the history and significance of the development of the Uravan and Lisbon Valley U-V deposits. The PUP is a greenfield-brownfield, early-stage, exploration project where the geology is well-known from past mining and milling operations. Early-stage exploration projects, even in established mining districts like the Page | 36 Gypsum Valley, have risks similar to other mineral exploration projects. The risks are not unique to PUP and are summarized below.

- Variance in the grade and continuity of mineralization from what drilling and estimation techniques interpreted.
- Environmental, social, and political rejection of the Project could cause delays in conducting work or increase the costs from what is assumed.
- Risk associated with delays or additional requirements for regulatory authorizations. •
- Risk associated with the uranium market and sales contracts. •
- Risk associated with uranium mining, recovery, and mineral processing.

The potential quantity and grade of U-V mineralization on the PUP are conceptual. There has been insufficient exploration to define any mineral resource and it is uncertain if further exploration will result in targets being identified as a mineral resource. GEM's PUP exploration effort is focused on the Salt Wash Member as the principal target on the PF-PFE claim blocks.

## 8 DEPOSIT TYPE (ITEM 8)

Chapter 8, Deposit Types is summarized from Hall, et al 2023, the IAEA (2020), and Thorson (2018).

## 8.1 Roll-Front Uranium-Vanadium Deposits

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Figure 8.1 shows the distribution, type, and age of Colorado Plateau U-V deposits. The Colorado and Utah U-V deposits of interest to GEM are typically Sandstone deposits (Type 9), Subtype 9.3 (Roll-Front), Subclass: 9.3.2 (Continental basin, uranium associated with intrinsic reductant); as defined in the *"Descriptive Uranium Deposits and Mineral System Models (IAEA, 2020).* The key components in the formation of roll-front type mineralization include:

- 1 A permeable host formation:
  - Sandstone units of the Jurassic-age Salt Wash Member of the Morrison Formation (Figs. 7.2 and 8.2.
- 2 Source of soluble uranium:
  - Volcanic ash flows which coincide with the deposition of the Salt Wash containing elevated concentrations of U are the probable source of U deposits for the PUP deposit.
- 3 Oxidizing ground waters from well-developed local hydrology to leach and transport the uranium:
  - Groundwaters of the Uravan belt regionally tend to be oxidizing and slightly alkaline.
- 4 Adequate intrinsic reductants within the host formation:
  - Conditions resulting from periodic H<sub>2</sub>S gas migrating along faults and subsequent iron sulfide (pyrite) precipitation created local reducing conditions.
- 5 Time sufficient to concentrate the uranium at the oxidation/reduction interface.
  - Uranium precipitates from solution at the oxidation/reduction boundary (REDOX) as uraninite which is dominant (UO<sub>2</sub>, Uranium oxide) which is dominant, or coffinite (USiO<sub>4</sub>, uranium silicate), Fig. 8.4.
  - The geohydrologic regime of the region has been stable since the Cretaceous and groundwater movement has been controlled primarily by high-permeability paleochannels within the predominantly sandstone formations.

The PUP also shows the characteristics of model 30c, (Descriptive Model of Sandstone Uranium) which is described by the USGS (*Cox, Dennis, and Donald Singer 1992*) *Mineral Deposit Models; USGS Bulletin 1693*. Figs. 8.3 and 8.4 detail the mineralization on the mineral deposit scale.

More than 4,000 sandstone-hosted uranium occurrences host over 1.2 billion pounds of mined and in situ  $U_3O_8$  throughout the Colorado Plateau. Most of the resources are in two distinct mineral systems with deposits hosted in the Triassic Chinle and Jurassic Morrison Formations. In the Chinle mineral system, base metal sulfides typically accompany mineralization.

The Morrison mineral system is characterized by V/U ratios up to 20. The uranium source was likely volcanic ash preserved as bentonitic mudstones in the Brushy Basin Member of the Morrison Formation, and lithic volcanic clasts, ash shards, and bentonitic clay in the lower part of the Chinle Formation.



Fig. 8.1: Distribution of U-V deposit types, clusters, and age of host rock in the Colorado Plateau (from Hall et al, 2023). Note the primary area of interest for GEM is the middle Jurassic-age deposits (circled) which include the Uravan U-V projects and the Pitchfork U-V project.

Vanadium originated from two possible sources: iron-titanium oxides that are extensively altered in the bleached rock near deposits or from similar minerals in variably bleached red beds interbedded with and beneath the Morrison.

Stagnant conditions allowed for prolonged interaction of U- and V-enriched groundwater with ferrous iron-bearing reductants, such as illite and iron-titanium oxides, and rarely organic material such as plant debris. Paragenetically late in the sequence, reducing fluids introduced additional organic matter to some deposits. Reducing fluids and introduced organic matter (now amorphous and altered by radiolysis) may originate from regional petroleum systems where peak oil and gas generation was from ~ 82 to ~ 5 Ma. Current analysis indicates that these reducing fluids bleached rock and protected affected deposits from remobilization during exposure and weathering that followed the uplift of the Plateau (~80 to 40 Ma).

## 8.2 Exploration Model

The exploration model employed at PUP is well-developed and derived from historical mining, extensive academic research, and government-funded geoscience initiatives involved with the U-V production needs of the government. The pertinent aspect of the GEM exploration program includes:

- Ground-based Magnetic-VLF-Radiometric geophysical surveys covering 11.5 line miles (18 line kms) along with field sampling of outcrops and mine dumps.
- Exploration targets identified in the Gypsum Valley paleochannels of the Salt Wash Member of the Jurassic Morrison Formation (Figs. 7.2 and 8.4).
- Verification drilling of the historical resource to comply with current NI-43-101 standards.
- A reconnaissance drilling program to test the geophysical and geochemical targets of the PUP.
- Evaluation of Paradox basin sources of H<sub>2</sub>S and the generation of U-V mineralization.

Bleached sandstones that encase mineralization in the Plateau have been attributed to fluids generated by petroleum systems, and in the Paradox Basin U and V mineralization has been tentatively linked to hydrocarbon emplacement Petroleum systems can create reducing environments critical for the formation of some sandstone-hosted U-V deposits. Consequently, understanding the major petroleum systems, in particular conventional systems that produce hydrocarbon reductants that could migrate into U-host rocks within the Colorado Plateau, is critical to the development of a robust U-V exploration deposit model. The nearby Gypsum Valley-Egnar gas field potentially has a positive impact on the mineralization of the PUP and GEM's nearby Gyp 2 claim block of their Uravan U-V projects.

## 8.3 Radiometric Disequilibrium

Kovschak and Nylund (1981) report no apparent radiometric disequilibrium problems in the Salt Wash U-V deposits of the La Sal area in Utah. Historic mining and milling by Denison and Energy Fuels Resources show that well-calibrated gamma probes used by the mining personnel equate well to the mill head grades indicating no significant disequilibrium exists.

This is generally true of the Salt Wash U-V deposits because of the age of the mineralization and the hydrologic history of the host rocks. Tellurian has no reason to anticipate any disequilibrium conditions within the unmined or new portions of the deposits on the PUP but incorporating this data into the QA/QC program quantifies the radiometric disequilibrium level (Chapter 18.1, Recommendations).



Fig. 8.2: Historically mined paleochannels in the Salt Wash Member of the Morrison Fm. of the Uravan mineral belt. Note that the PUP is on the SE extension of the Gypsum Valley paleochannel of the Salt Wash Member.



Fig. 8.3: Shows the regional development of U-V mineralization in the Uravan mineral belt. The mineralization is shown in the schematic on the 1000-foot to 5000-foot scale.



Fig. 8.4 Showing the mineralized zones of U-V mineralization on the 50-foot to 500-foot scale. This is the classic roll-front model of U-V mineralization utilized in Wyoming, Utah, Colorado, and New Mexico.

### 9 EXPLORATION (ITEM 9)

There is no current exploration to report for the PUP other than the land acquisition, the compilation of historical drilling and mapping from the 1950s through the 1980s, the verification samples, and this technical report.

### 9.1 Tellurian Summary

The exploration of the PUP targets is currently utilizing:

- Well-documented regional geology related to the historic Uravan U-V developments.
- Known exploration and development techniques from the historical to current production.
- Known U-V bearing tongues of the Salt Wash Member of the Jurassic-age Morrison Formation.
- Well-documented models of exploration for sandstone-hosted roll-front U-V mineralization.

Exploration moving forward of the PUP will include:

- A ground-based Magnetometer-VLF-Radiometric survey to further map historic U-V mineralization identified by historic workings and drilling.
- Test drilling of 15,000 feet (approximately 30-35 drill holes) to verify U-V mineralization in the historical resource and to extend mineralization along the strike and at depth.

## 10 DRILLING (ITEM 10)

There is no new drilling to report for the PUP. All previous drilling is historical and used only as an exploration guide. The coordinates of the historic drilling are recorded, the drill logs are available for 102 drill holes, and most of the drill holes are locatable in the field.

## 11 SAMPLE PREPARATION, ANALYSIS, AND SECURITY (ITEM 11)

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All historical sampling, preparation, analytical, and security procedures were conducted following procedures from the 1950s -1980s era and well before NI-43-101 standards. There is nothing to suggest that any of the historic procedures were unusual or that security was lacking at that time. Most historical sample analysis in the Uravan deposits was conducted by company laboratories which were local, unaccredited, and dedicated to the local mines. There is no verifiable historic geochemistry to report on the PUP.

The three verification samples taken as part of the field review are located on the PF claim block of the PUP. Tellurian performed all of the samplings which were standard rock samples of seven to nine pounds each and which were under lock and key until shipment to the lab.

Rock samples are assayed at American Analytical Services in Osburn, Idaho, which is an ISO-17025 accredited lab. Sample preparation and analysis are completed at the laboratory. Samples are weighed, dried, and crushed to > 80% passing 10-mesh. Samples are then split to a 250-gram pulverized split that is > 85% passing 140-mesh size. A chain of custody is recorded from sample collection through the analytical results.

Samples are assayed for Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Fe, Ga, K, La, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, S, Sb, Sc, Sn, Sr, Ti, V, W, Y, Zn, and Zr, using their M-ICP-4A (4 acid)-35 (35 element ICP-OES Scan) analytical method. Rock samples were also analyzed using AAS's ICP-18 element rare earth (RE) scan which includes U and Th and uses the same preparation procedures as the ICP-35 element scan. The assay methods and detection limits are appropriate for the analysis of the elements required and are within standard industry practice.

Elemental uranium and vanadium assays are converted to oxide for standard reporting by:

- Elemental uranium assays are converted to triuranium octoxide (yellowcake), U<sub>3</sub>O<sub>8</sub>, by the formula: (wt% U) X 1.1792.
- Elemental vanadium assays are converted to vanadium pentoxide, V<sub>2</sub>O<sub>5</sub>, by the formula (wt% V) X 1.7852.
- Elemental metal (M) measured in parts per million (ppm) on assay sheets, is converted to wt% M by the formula (ppm M/10000).

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### 12 DATA VERIFICATION (ITEM 12)

Data verification on the PUP consists of the verification of the land position in the field by Tellurian, database review, target concept, and three verification samples tabulated below. All of the samples taken by Tellurian show anomalous values in U and V. The samples are weak to moderately anomalous in pathfinder elements common to roll-front deposits and the Uravan mineral belt.



American Analytical Services 59148 Silver Valley Rd \* PO Box 748 Osburn, ID 83849 (208) 752-1034 be@eacleb.eat

Attn: John Ryan silver4262@yahoo.com

Job #GEM 08/03/2023	[_073123-So Test Result	C S	.net		Analysi Analysi Sample	s: ICP-3 s Code: ] Type: ']	5 Elemen M-ICP-3 Pulp, Pre	t Scan 5-4A p'		Gold E2 6 1/2 N Walla V 201 509	xpress 2nd Ave Valla, W -3797	Suite 20 A 99362	1		
#	Sample Nu	mber		Al <50 ppm	As <5 ppm	Ba <5 ppm	Be <1 ppm	Bi <5 ppm	Ca <50 ppm	Cd <1 ppm	Ce <5 ppm	Co <2 ppm	Cr <2 ppm	Cu <2 ppm	Fe <50 ppm
7	6504	13		10400	18.0	192	1.05	<5.00	52100	6.05	19.6	<2.00	47.8	29.3	5860
8	6504	76		9820	11.0	280	1.02	<5.00	67900	10.6	22.3	3.98	59.8	5.15	4610
9	65043	77		15100	17.8	351	1.15	<5.00	59800	1.22	25.0	2.25	51.5	5.45	7060
	650477	Dup		15100	16.4	354	1.05	< 5.00	59100	1.18	17.9	2.05	51.0	5.32	7040
#	Sample Nu	ımber		Ga <5 ppm	K <50 ppm	La <5 ppm	Li <2 ppm	Mg <50 ppm	Mn <2 ppm	Mo <2 ppm	Na <50 ppm	Nb <5 ppm	Ni <2 ppm	Р <50 ррт	Pb <5 ppm
7	65047	3		<5.00	10300	<5.00	4.15	29100	788	<2.00	297	<5.00	2.55	114	115
8	65047	6		<5.00	10600	<5.00	2.65	30700	698	4.28	377	20.4	4.75	100	43.3
9	65047	7		<5.00	14200	5.88	5.55	20400	542	2.12	699	13.1	5.22	200	40.5
	650477	Dup		<5.00	14100	<5.00	4.18	20400	534	2.48	722	16.0	4.38	200	26.1
#	Sample Nu	ımber	ř	S <50 ppn	Sb <5 ppm	Sc <2 ppm	<mark>Sn</mark> <5 ppm	Sr <2 ppm	Ti <5 ppm	V <5 ppm	W <5 ppm	Y <1 ppm	Zn <2 ppm	Zr <2 ppm	
7	6504	73		151	<5.00	<2.00	<5.00	72.6	257	2780	<5.00	4.52	80.0	14.6	
8	6504	76		1120	<5.00	<2.00	<5.00	107	239	1010	<5.00	4.32	221	11.0	
9	6504	77		241	<5.00	<2.00	<5.00	94.0	440	1500	<5.00	6.20	46.7	16.4	
	650477	Dup		233	<5.00	<2.00	<5.00	95.6	444	1470	<5.00	5.90	46.6	18.8	
Job #GEI Test Re 06/27/2023	American 59148 Silver V Osburn, ID 83 (208) 752-103 lab@aaslab.ne M_062023_RE sults	Analy 'alley Rd • <sup>849</sup> <sup>4</sup> t	vtical So PO Box 7	ervices 48	Analysis Analysis Sample 1	: ICP-MS Ra Code: M-IC Fype: 'Rock,	re Earth Scar PMS-RE-4A Prep'		Attn:John Ry silver4262@y Gold Express 6 1/2 N 2nd A Walla Walla, 201 509-3797	'an ahoo.com .ve Suite 201 WA 99362		Page 2	of 3		
# Sam	ple Number	Ce* <1.00 ppm	Dy* <1.00 ppm	Er* E1 <1.00 <1 ppm pj	1* Gd* 00 <1.00 m ppm	Ho* <1.00 ppm	La* Lu* <1.00 <1.00 ppm ppm	Nd* <1.00 ppm	Pr* S <1.00 <1 ppm p	c* Sm* 1.00 <1.00 pm ppm	Tb* <1.00 ppm	Th* Tn <1.00 <1. ppm pp	n* U* 00 <1.00 m ppm	Y* <1.00 ppm	Yb* <1.00 ppm
7 650473		13.6	<1.00	<1.00 <1	.00 1.08	<1.00	5.13 <1.0	0 7.78	1.79 <	1.00 1.08	<1.00	1.07 <1	.00 1430	4.96	<1.00
8 650476		10.3	<1.00	<1.00 <1	.00 <1.00	<1.00	4.42 <1.0	0 5.87	1.39 <	1.00 1.18	<1.00	<1.00 <1	.00 957	4.25	<1.00
9 650477		14.0	1.17	<1.00 <1	.00 1.36	<1.00	7.36 <1.0	0 7.71	1.82 <	1.00 1.42	<1.00	1.57 <1	.00 712	6.31	<1.00

 Table 12.1:
 Assays of the three verification samples taken on the PUP during the field review.

1.48 <1.00 7.69

<1.00 8.08

1.90

<1.00 1.43 <1.00

1.74 <1.00

694

6.22

14.8

1.21 <1.00 <1.00

QC Report

<1.00

## 13 MINERAL PROCESSING AND METALLURGICAL TESTING (ITEM 13)

There has been no metallurgical testing on material from the PUP.

## 14 MINERAL RESOURCE ESTIMATE (ITEM 14)

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There is a non-NI-43-101 compliant historical mineral resource estimate from the PUP and note the cautionary language:

- There has been insufficient exploration of the relevant property or properties to allow for an estimate of a mineral resource that is compliant with NI-43-101.
- The issuer and the QP have not performed sufficient validation of the historical resource to allow the resource to be compliant with NI-43-101.
- It is uncertain if further exploration will result in the estimation of a mineral resource.
- The exploration target, therefore, does not represent, and should not be construed to be, an estimate of a mineral resource.

## Items 15-22 Not Applicable

## 15 ADJACENT PROPERTIES (ITEM 23)

There are no adjacent U-V properties to the PUP that would hinder or enhance the development of the PUP. GEM's Gyp 2 claim block located on the other side of the Big Gypsum Valley to the west, is likely on the exposed mineralization on the SW limb of the Big Gypsum anticline.

## 16 OTHER RELEVANT DATA AND INFORMATION (ITEM 24)

Tellurian knows of no other relevant data or information on the PUP that would make this report understandable and not misleading in any way.

## 17 INTERPRETATION AND CONCLUSIONS (ITEM 25)

This independent technical report has been prepared following guidelines outlined in National Instrument 43-101, Standards of Disclosure for Mineral Projects ("NI 43-101 Standards") and in NI-43-101-F1. In the opinion of Tellurian Exploration, the PUP represents a viable greenfield-brownfield level target for an exploration project focused on the discovery and development of U-V mineral resources for conventional underground mining and milling and the recovery of U-V resources.

A dedicated effort is recommended to realize the U-V potential of the Property by ground geophysics, dump, and outcrop sampling, confirmation and twinned hole drilling, and modeling.

## **18 RECOMMENDATIONS (ITEM 26)**

Recommendations 18.1 through 18.7 were compiled by Tellurian specifically for the PUP. GEM needs to complete the following recommended steps in these areas for the 2023-2025 field season:

## **18.1 Project Land and Field Status**

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- There are six patented claim in-holdings or adjoining claims to the PUP that need to be incorporated into the land package. These claims are noted in Figs. 4.5 and 5.2.
- The PUP needs a project-wide geologic map at a 1:2400 scale incorporating historic drill log information and the stratigraphic/structural configuration. Cross sections need to be made at 500-foot intervals and modeled into a 3D mineral resource program.
- Tellurian recommends field rock samples be taken on all available Salt Wash Member outcrops and mine dumps to determine geochemical zoning and patterns. A complete geochemical suite including U, V, and Th, along with significant pathfinder elements As, Ba, Cu, Mo, Se, Sb, S, and Zn, will aid in predicting and delineating the deposits. Approximately 100 samples are recommended. Barium is of particular pathfinder importance due to its ability to allow radiogenic radium to substitute into its crystal lattice as the mineral radian barite.
- Tellurian recommends that 20 samples of core have petrographic analysis made and that 20 Radiometric Disequilibrium measurements be made as part of the QA/QC.
- Modeling in 3D needs to be instigated at an early stage and include historic drilling and new surface measurements outlined above in land, geochemistry, and geophysics (below).

## **18.2 Geophysical Surveys**

Tellurian recommends the use of ground-based Mag-VLF-Radiometric surveys on both of the claim blocks of the PUP within the following parameters:

- Survey is approximately 10.5 line miles (18 line kms) based on claim-end lines, with lines spaced 500 feet apart in an SW-NE orientation, and perpendicular to the strike of the mineralization.
- The total survey uses two instruments, one Mag-VLF unit, and the second unit using K-Th-U radiometrics.
- Survey will take one week to complete at three miles per day and another month for processing.

All proposed drilling on the PUP project will require downhole geophysical logging.

 Gamma logs are the industry standard and record an indirect measurement of uranium content in the host rock samples. Gamma radiation measurements are collected in one-tenth-foot depth intervals. A DOE algorithm is used by the logging unit software to convert the gamma-ray readings, measured in counts per second (CPS), into grade reported as equivalent percent uranium (% eU3O8). The results are reported in one-half-foot increments. Mineralized intervals (uranium intercepts) are then defined by applying pre-established grade cutoffs, to report:

- Thickness of each mineralized zone (ft.). Mineralized thickness from gamma logs is considered an accurate representation of the true thickness because the strata are essentially horizontal and drill holes are virtually vertical.
- Average grade within each thickness interval (% eU 308).
- Depth to the top of the intercept (ft.).
- GT (Grade-Tonnage): Calculated as the average grade multiplied by thickness (%ft.) for each intercept interval (usually expressed without units).
- PFN Logging: PFN is considered a direct measurement of true uranium concentration (% U<sub>3</sub>O<sub>8</sub>) and is used to verify the grades of uranium intercepts previously reported by gamma logging.
- PFN logging is accomplished by a down-hole probe in much the same manner as gamma logs. However, only the mineralized interval plus a buffer interval above and below is logged. After reviewing the gamma log from each drill hole, the GEM field geologists will determine if any intercepts warrant PFN logging, based on the GT of the gamma intercepts (GT ≥ 0.10).
- If selected by the field geologist and if the PFN tool is available within a reasonable time frame, the hole will be logged by PFN. As such, the PFN results are employed only as a confirmation of gamma-derived results, but not as a complete replacement or duplication of them.
- Quality control for the PFN is performed at the DOE test pit like that described above for the gamma tool.

## 18.3 Drilling

Tellurian recommends reverse circulation (RC) in the initial Phase 1 drill hole twinning program of the PUP and the reconnaissance property (Phase 2) drilling program; followed by an HQ-size diamond core program for Phase 3 drilling. The following drilling recommendations need to be implemented for maximum results from the drilling effort:

- Tellurian recommends the re-drilling and twining (Phase 1) of at least eight to 10 of the historic drill holes from at least three fences incorporating high, middle, and low-grade zones including the USGS target on the NE (Fig. 6.1). True thickness calculations need to be incorporated due to the moderate to steep dip of the bedding (Fig. 7.3).
- Tellurian further recommends an additional 12-15 angled drill holes (Phase 2) to test the strike length and depth of the PUP land position.
- Based on Phase 1 and Phase 2 results, a Phase 3 HQ core drilling program of at least eight angled drill holes to model the geology in detail in any resource area.
- Detailed descriptions of each of these samples documented by the field geologists. Drill-cutting samples are valuable for lithologic evaluation and also for the description of redox conditions, based on sample color.
- RC drilling for reconnaissance where resources may be discovered with the following stipulations:
  - Sample intervals through mineralized zones should be limited to two feet in length.
  - Each sample interval needs to be "blown" clear of extraneous material for *every* sample to minimize cross-sample contamination. This should take less than one minute for each sample and requires the on-site sampler to verify.

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- A duplicate sample should be taken for quality control and metallurgical studies.
- Core drilling is recommended for ore zone future development work with the following stipulations:
  - Drill core should be at least HQ size.
  - Drilling should proceed slowly through anticipated mineralized zones to maximize core Page | 47 recovery.
  - Contract must state a minimum of 95% recovery through mineralized intervals with a bonus paid on recovery intervals of 100%
  - All drill cores are to be scanned with a hand-held scintillometer/Geiger counter and recorded.
  - Core will be vacuum sealed in plastic bags. Samples selected for laboratory analyses are later cut in one-foot intervals, split by hand longitudinally, and bagged by GEM employees and contractors for shipping.

## **18.4** Sampling and Data Control

- The core should be photographed with RQD/Recovery calculated for every drill run before logging. Mineralized intervals should be photographed after sawing for detail.
- Sampling should be limited to one foot based on lithology, structural, and alteration intervals.
- Tellurian recommends the use of Energy Laboratories, Inc. (Energy Labs), an independent commercial laboratory in Casper, Wyoming which is accredited by the National Environmental Laboratory Accreditation Council, the NRC, U.S. Department of Defense, U.S. Geological Survey, U.S. Department of Energy, and the National Institute of Standards and Technology.
  - Energy Labs has been performing U analyses and testing for over 30 years, holds numerous accreditations, and is considered by Tellurian (QP) to be qualified to secure, handle, and analyze samples.
  - Energy Labs has an industry-standard internal QA/QC system including routine equipment calibration and the use of standards, blanks, duplicates, and spikes.
  - Testing of physical properties (porosity, permeability) has also been performed by Maxim Technologies of Billings, Montana, and Weatherford Laboratories of Casper, Wyoming.
  - Hazen Research and Assayers Canada LTD (now SGS) performed analyses of certain duplicate samples. These laboratories are all independent, certified commercial laboratories.

### 18.5 Analytical and QA/QC

Gold Express will need to maintain a robust QA/QC program of approximately 20% of the assay database going towards QA/QC, with blanks (5%), standards (5%), duplicates (5%), and a lab check program (5%); all in progress as the drilling program develops. All labs utilized must have the appropriate ISO/IEC 17025:2017 accreditations. All industry standard chain-of-custody records must be maintained from the field sample through the lab and to GEM.

 The quality control procedures included the detailed logging of drill cuttings by GEM geologists to gain an understanding of redox conditions within host sandstones and also the consistent calibration of both the in-house gamma logging and PFN logging units at the Casper, Wyoming DOE test pit.

## **18.6** Environmental Permitting

Environmental baseline studies needed for an Environmental Assessment (EA) need to be completed after the ground-based geophysical survey as the land position may change. An EA is estimated to take nine months to complete.

- Tellurian recommends that GEM permit as many drill holes as possible under PoO with < five acres of disturbance on the PF and PFE claim blocks while compiling a property-wide EA.
- Use of a private contractor such as Westland Resources can coordinate state and federal permits.

## **18.7** Estimated Cost to Advance the PUP to Resource Status

The estimated costs to move PUP to the next level of evaluation are outlined below.

TABLE 18.1 ESTIMATED COSTS TO ADVANCE THE PITCHFORK U-V PROJECT TO DISCOVERY STATUS									
Budget Item	Timing		Est'd Costs	Remarks					
	2023-2025		US\$						
Management	Q4 (23), Q1-Q4 (24)	\$	60,000	Project and Corporate					
Plan of Operations	Q4 (23)-Q2 (24)	\$	25,000	BLM document, outside contractor					
Road repair upgrade	Q3 (24)	\$	20,000	Cat work, repair roads, new drill pads					
RC Drilling	Q3-Q4 (24)	\$	1,100,000	23 holes, 11000 feet, all-in costs; drill-gamma-PFN at \$100/ft					
Core Drilling	Q4 (24), Q1 (25)	\$	1,200,000	Eight ddhs, 4000 feet @ US\$300/ft, all in, mineral zones only					
Personnel	Q1-Q4 (24)	\$	150,000	One geologist+ two geotechs, basic field data, sampling					
Travel and Logistics	Q4 (23),Q1-Q4 (24)	\$	50,000	Hotel, food, fuel, vehicle, etc					
Ground geophysics	Q4 (23)	\$	20,000	Two people, two units; US\$1500/day+ processing, 5 days					
Claims Renewal	Q2 (24), Q2 (25)	\$	15,000	Annual renewal 72 claims, August 31 2024 and 2025					
Leases and Agreements	Q4 (23)-Q4 (25)	\$	113,000	Two years; Larson lease, Barret Bros					
Field sampling	Q4 (23), Q2 (24)	\$	7,000	Approx. 100 assays @ US\$70/ assay					
Lab specialties	Q4 (24)	\$	3,000	20 petrographic analysis, 20 diequilibriaum tests					
Claim additions	Q2 (24)	\$	5,000	10 new claims based on geophysics at US\$500/claim					
Survey	Q4 (24)	\$	10,000	New drill holes and claims					
Assays	Q4 (24 ), Q1 (25)	\$	7,000	Prelim leach tests					
Database Management	Q4 (24)-Q1(25)	\$	75,000	Setup and modeling					
Updated Technical Rep.	Q2-Q3(25)	\$	75,000	Maiden resource statement, Initial Assessment					
TOTAL	2023-2025	\$	2,935,000						
Contingency		\$	440,250	At 15%.					
TOTAL ESTIMATED COSTS	US\$	\$	3,375,250.00						

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### DATES AND SIGNATURES (ITEM 28)

## Mark I. Pfau

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### Certificate of Author

As the author of this report titled: The Pitchfork Uranium-Vanadium Project San Miguel County, Colorado, USA; NI-43-101 Technical Report (the "Technical Report"); and dated August 18, 2023, I certify that:

1. My name is Mark I. Pfau, and I hold the position of President and Principal Geologist of Tellurian Exploration, Inc., an independent minerals exploration and resource evaluation consultancy. My office address is 3275 Terrace Drive, Missoula, Montana, 59803, USA.

- 2. I hold the following degrees:
  - BA. Geology, University of Montana, 1976
  - MSc. Economic Geology, University of Idaho, College of Mines, 1981

I hold the following professional memberships:

- Society of Economic Geologists (SEG)
- Mining and Metallurgical Society of America #0141QP
- State of Idaho Registered Professional Geologist
- Geological Association of Canada

3. I have been a professional geologist for 42 years and fulfill the requirements of a Qualified Person as set out in National Instrument 43-101. My experience includes exploration and mine development in North and South America, Asia, Africa, Australia, and Europe. Approximately one-third of that experience is in sediment-hosted deposits of copper, gold-silver, zinc-lead, coal, vanadium, and uranium.

4. I was retained by Gold Express Mines in January 2023 and visited the Uravan Uranium-Vanadium Projects site from June 10-16, 2023. I am responsible for all sections of this report.

5. I have read National Instrument 43-101 and the Technical Report has been prepared by National Instrument 43-101 and NI-43-101 F1 guidelines.

6. I am independent of Gold Express Mines, Inc., the issuer, as per section 1.5 of the Instrument.

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7. Before being retained by Gold Express, Inc. in January 2023, I did not have prior involvement with the Property that is the subject of the Technical Report.

8. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

9. As of the effective date of this technical report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading in any way.

Dated this 18th day of August 2023 and revised on September 10, 2023

Mark I. Ifau

Mining and Metallurgical Society of America (Geology and Ore Reserves) #01410QP

## Appendix A: List of Unpatented Lode Mining Claims of the PUP

#### MINING CLAIMS **Claim Name Location Date** County **County Serial No. BLM Serial No.** PFE 1 4/11/2023 San Miguel 481483 CO106304199 PFE 2 4/11/2023 San Miguel 481484 CO106304200 481485 PFE 3 4/11/2023 San Miguel CO106304201 PFE 4 4/11/2023 San Miguel 481486 CO106304202 PFE 5 4/11/2023 San Miguel 481487 CO106304203 PFE 6 4/11/2023 San Miguel 481488 CO106304204 PFE 7 4/11/2023 San Miguel 481489 CO106304205 PFE 8 4/11/2023 San Miguel 481490 CO106304206 PFE 9 4/11/2023 San Miguel 481491 CO106304207 **PFE 10** 4/11/2023 San Miguel 481492 CO106304208 **PFE 11** 4/11/2023 San Miguel 481493 CO106304209 **PFE 12** 4/15/2023 San Miguel 481494 CO106304210 **PFE 13** 4/11/2023 San Miguel 481495 CO106304211 **PFE 14** 4/11/2023 San Miguel CO106304212 481496 **PFE 15** 4/15/2023 San Miguel 481497 CO106304213 4/11/2023 San Miguel CO106304214 **PFE 16** 481498 **PFE 17** 4/11/2023 San Miguel 481499 CO106304215 **PFE 18** 4/11/2023 San Miguel 481500 CO106304216 **PFE 19** 4/16/2023 San Miguel 481501 CO106304217 **PFE 20** 4/15/2023 San Miguel 481502 CO106304218 **PFE 21** 4/14/2023 San Miguel 481503 CO106304219 **PFE 22** 4/16/2023 San Miguel 481504 CO106304220 **PFE 23** 4/15/2023 San Miguel 481505 CO106304221 **PFE 24** 4/13/2023 San Miguel 481506 CO106304222 **PFE 25** 4/13/2023 481507 CO106304223 San Miguel CO106304224 **PFE 26** 4/13/2023 San Miguel 481508 **PFE 27** 4/13/2023 San Miguel 481509 CO106304225 **PFE 28** 4/13/2023 San Miguel 481510 CO106304226 **PFE 29** 4/12/2023 San Miguel 481511 CO106304227 4/12/2023 San Miguel CO106304228 **PFE 30** 481512 San Miguel **PFE 31** 4/12/2023 481513 CO106304229 CO106304230 **PFE 32** 4/12/2023 San Miguel 481514 **PFE 33** 4/12/2023 San Miguel 481515 CO106304231 **PFE 34** 4/12/2023 San Miguel 481516 CO106304232 San Miguel **PFE 35** 4/12/2023 481517 CO106304233 **PFE 36** 4/12/2023 San Miguel 481518 CO106304234 **PFE 37** 4/13/2023 San Miguel 481519 CO106304235

# PITCHFORK URANIUM-VANADIUM PROJECT (FERMI METALS) UNPATENTED LODE

PITCHFORK URANIUM-VANADIUM PROJECT UNPATENTED LODE MINING CLAIMS						
Claim Name	Location Date	County	<b>County Serial No.</b>	<b>BLM Serial No.</b>		
PFE 38	4/13/2023	San Miguel	481520	CO106304236		
PFE 39	4/13/2023	San Miguel	481521	CO106304237		
PFE 40	4/13/2023	San Miguel	481522	CO106304238		
PFE 41	4/11/2023	San Miguel	481523	CO106304239		
THUNDERBOLT 100	4/10/2023	Montrose	963639	CO106304196		

# PITCHFORK URANIUM-VANADIUM PROJECT UNPATENTED LODE MINING CLAIMS

Claim Name	Location Date	County	<b>County Serial No.</b>	<b>BLM Serial No.</b>
PF-10	12/2/2013	San Miguel	430891	CO101866048
PF-11	12/2/2013	San Miguel	430892	CO101866049
PF-12	12/2/2013	San Miguel	430893	CO101866050
PF-13	12/2/2013	San Miguel	430894	CO101866051
PF-14	12/2/2013	San Miguel	430895	CO101866052
PF-15	12/2/2013	San Miguel	430896	CO101866053
PF-16	12/2/2013	San Miguel	430897	CO101866054
PF-17	12/2/2013	San Miguel	430898	CO101866055
PF-18	11/11/2013	San Miguel	430899	CO105264035
PF-19	11/11/2013	San Miguel	430900	CO105264036
PF-20	11/11/2013	San Miguel	430901	CO105264037
PF-21	11/11/2013	San Miguel	430902	CO105264038
PF-22	11/11/2013	San Miguel	430903	CO105264039
PF-23	11/11/2013	San Miguel	430904	CO105264040
PF-24	11/11/2013	San Miguel	430905	CO105264041
PF-25	11/11/2013	San Miguel	430906	CO105264042
PF-26	11/11/2013	San Miguel	430907	CO105264043
PF-27	11/11/2013	San Miguel	430908	CO105264044
PF-28	11/11/2013	San Miguel	430909	CO105264045
PF-29	11/11/2013	San Miguel	430910	CO105264046
PF-30	11/11/2013	San Miguel	430911	CO105264047
PF-31	11/11/2013	San Miguel	430912	CO105264048
PF-32	11/11/2013	San Miguel	430913	CO105264049
PF-33	11/11/2013	San Miguel	430914	CO105264050
PF-34	11/11/2013	San Miguel	430915	CO105264051
PF-35	11/11/2013	San Miguel	430916	CO105264052
PF-36	11/11/2013	San Miguel	430917	CO105264053
PF-37	11/11/2013	San Miguel	430918	CO105264054
PF-38	11/11/2013	San Miguel	430919	CO105264055
PF-39	12/2/2013	San Miguel	430920	CO101866056