NI 43-101 Technical Report on **Resources Wate Uranium Breccia** Pipe – Northern Arizona, USA.

Report Prepared for

Energy Fuels Resources (USA), Inc.



And

Uranium One Inc.







SRK Consulting (U.S.), Inc. 357600.030 March 10, 2015

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Summary (Item 1)

Energy Fuels Resources (US) Inc. (Energy Fuels) controls the Wate Uranium Breccia Pipe (the Project), located in northern Arizona. The Project is a mid-stage exploration property with established Inferred uranium resources of 71,000 tons grading 0.79% eU3O8 for 1,118,000 contained pounds eU3O8 (Table 1-2). The Wate Pipe is one of several uranium bearing breccia pipe properties held by Energy Fuels in northern Arizona, which include properties in the exploration, development, and active mining stage. The Wate Pipe had historical drilling and resource estimates, and VANE Minerals (US) LLC (VANE) conducted verification drilling and gamma logging to confirm the historical data and allow for resource estimation for the mineralized breccia pipe during the period of 2008 through 2011. Section 16 further describes current resources that are the subject of this report. The Wate Pipe is an attractive high-grade uranium deposit that justifies further exploration and/or pre-development work.

In February of 2015, Energy Fuels, through its wholly-owned subsidiary EFR Arizona Strip LLC, acquired VANE's 50% interest in the Project. The Project is held by the Wate Mining Company LLC joint venture (the "LLC") between VANE and Uranium One Americas, Inc. (U1), and U1 continues to own 50% of the LLC. Energy Fuels will assume VANE's role as Manager of the LLC.

The Wate Uranium Breccia Pipe is located in northwestern Arizona, south of the Grand Canyon National Park in Coconino County. Prior owners advanced the Wate Pipe to the point of internal feasibility study during the 1980's, although the depressed uranium market at the time resulted in the abandonment of the properties and the dissolution of the companies. The Wate Pipe, acquired through the Agreement with U1, had previously been evaluated with sufficient drill results to be considered by the former owner, Rocky Mountain Energy Partners, L.P. (RME), as a mineral resource (historical term not compliant with current resource classifications) sufficient for internal pre-development consideration. VANE acquired the readily available historical exploration information for the Project in 2008. Uranium mineralization is typical of past producing uranium breccia pipe deposits in Arizona, which had grades near 1.0% U3O8 and from 1 to 6 M lbs. of contained U3O8. Mineralization typically occurs at depths of about 600 ft. to 2,000 ft. in a vertical, narrow, cylindrical breccia body that can have dimensions of 300 ft. across or less.

This report is a NI 43-101 Technical Report on resources for the Wate Uranium Breccia Pipe, for Energy Fuels, specifically to reflect the change in ownership; mineral resources have not changed since reported for VANE in 2011. The mineral resources are still current. VANE confirmed high grade intercepts at Wate by re-entering and re-logging (gamma logs) some of the historical drillholes, and by drilling several new drillholes. VANE confirmed (through re-logging of historical drillholes) an intercept of 34 ft. @ 1.67% eU3O8, from 1,489 to 1,523 ft. in depth in drillhole WT-5 and 10.5 ft. @ 0.40% eU3O8 from 1,244.5 to 1,255.0 ft. in depth in drillhole WT-7. VANE drilling/logging results from eight of eleven new drillholes has defined mineralization of similar grades and thicknesses to that in historical holes. The key drillhole intercepts upon which the current resource for the Wate Pipe is estimated, are listed in Table 1-1:

	WT-29A upper	WT- 29A Iower	WT-33	WT- 34	WT-35 (cum)	WT-37 upper	WT-37 middle	WT-37 lower	WT-39 (un-cut)	WT-41	Wt-42 (cum)	WT-5	WT-7
Thickness (ft)	36.0	28.0	25.5	15.0	21.5	20.0	2.5	12.5	64.5	27	35.5	32.5	9.0
Ave Grade (%U3O8)	0.69	1.60	0.45	0.30	0.33	0.37	0.19	1.29	1.45**	1.45	0.25	1.52	0.47
No 0.5 ft interval	72	56	51	30	31	40	5	25	129	54	71	65	18
No. > 0.5% eU3O8	34	49	22	0	6	10	0	20	101	36	4	45	7
High value (%eU3O8)	2.47	4.61	0.97	0.48	0.69	1.39	0.25	3.18	18.35*	2.92	1.12	4.38	1.21
from (ft)	1318.0	1498.5	1421.0	1269.5	1333.5	1299.0	1328.0	1362.5	1448	1453.5	1246	1483.5	1242.5
to (ft)	1354.0	1526.5	1446.5	1284.5	1370.0	1319.0	1330.5	1375.0	1512.5	1480.5	1599.5	1516.0	1251.5
GT (Ft-%)	24.7	44.7	11.5	4.5	7.1	7.3	0.5	16.1	93.6	39.1	8.71	49.3	4.3

Table 1-1: Significant Drill intercepts for the Wate Pipe at 0.15% eU₃O₈ cutoff

Note: WT-35 and WT-42 represent cumulative intercept intervals; WT-5 and WT-7 are re-logs of historical holes

WT-36, WT-38, and WT-40 did not encounter +0.15% mineralization

* Two 0.5 ft intervals at 10.3% and 18.4%, respectively in WT-39

** Two 0.5 ft intervals capped at 7.0% in WT-39 - results in 1.29% average grade

History

The Arizona Uranium Breccia Pipe District was prospected for uranium in the 1950s and again in late 1970s, after uranium was discovered in copper bearing breccias, such as those in the Orphan Mine in the Grand Canyon. This region produced approximately 23 M lbs of U_3O_8 prior to the decline of uranium prices in the late 1980s. Most deposits are small to intermediate in size, with a typical breccia pipe having dimensions of 300 ft. in diameter and 2,000 ft. or more vertically.

The Wate Pipe contains several drill holes with + 0.50%, eU_3O_8 mineralization grades and an exploration potential (historically estimated resources) of between 70,000 tons grading $0.80\% eU_3O_8$ (1.1 million contained pounds eU_3O_8), and 146,000 tons grading $0.83\% eU_3O_8$ (2.4 million contained pounds eU_3O_8). This exploration potential, or historically reported non-CIM-compliant resources/reserves for the Wate Pipe, cannot be relied upon until adequately demonstrated with sufficient drilling. Historical drilling encountered reported "ore grade" mineralization in 17 of 23 drillholes.

Geology

The high-grade uranium deposits in breccia pipes in northern Arizona were deposited in solutioncollapse features that originated in the Mississippian Redwall Limestone and propagated upward through the overlying Pennsylvanian and Permian redbeds and sandstones during several periods of karstification. Uranium was deposited after karstification.

As uranium dissolved in groundwater moved northward from southern Arizona through the sandstones during the early Mesozoic (~200 Ma), it was channeled by the impermeable layers above and below the sandstones. Uranium minerals precipitated in reducing environments influenced by the pre-existing sulfides or hydrocarbon-bearing material present in the limestones, shales, siltstones, and sandstones. This results in concentrations of uranium mineralization in the open space of near vertical sub-cylindrical breccia bodies, which occur in sections of the nearly flat-lying upper Paleozoic sedimentary rocks that comprise the Colorado Plateau on both sides of the Grand Canyon.

Resources – Wate Pipe

The Wate Pipe had an internal company-derived mineral resource completed in the late 1980s, which is not compliant with current CIM standards for reporting mineral resources. VANE gathered the historical information in 2008, conducted drillhole validations through re-entering historical drillholes and re-logging (gamma-logs) in 2009 and 2010, and drilled several new drillholes in 2010. Not all the historical information is available, yet there is sufficient drillhole information to allow for definition of mineralized shapes for the historically defined mineralization. SRK modeled the mineralization in four discrete zones within the Wate Pipe, and completed resource estimation by industry standard procedures that are compliant with CIM definitions for NI 43-101 reporting.

	Wate Breccia Pipe Inferred Resource								
	0.15% eU ₃ O ₈ Cutoff*								
Zone	Zone Cutoff U3O8% Tons (000) Ib-U3O8 (000)								
1	0.15	0.84	58	971					
2	0.15	0.61	11	130					
3	0.15	0.31	2	10					
4	0.15	0.58	1	7					
		0.79	71	1,118					

Table 1-2: Current Inferred Resources for the Wate Pipe at 0.15% eU₃O₈ cutoff

* Note: Inferred Uranium resources refers to global in-place CIM definitions of resources to which a mine design has not yet been applied; although the above stated resources meet the definition of having the "potential for economic extraction" at the cutoff provided. Resources are current, effective as of March 22, 2011, the date of the most recent drilling information.

A 0.15% eU_3O_8 cutoff equates to an in-place dollar value per ton, at a \$38/lb U₃O₈ price, of \$114/ton; deemed more than sufficient to cover the cost of mining and processing a ton of material. The natural lower threshold of mineralization in the Wate Pipe is approximately 0.15% eU_3O_8 as well. Both suggest that a 0.15% cutoff grade is acceptable for Wate.

Property, Mining Rights, and Location

Through acquisition of VANE's interests in Wate Mining LLC, Energy Fuels is the current Manager of the Property. Energy Fuels and joint venture partner U1 hold the Project property through a state mineral exploration permit on Arizona State lands, which is in the process of conversion to a mining lease.

Exploration/Development Potential

The SRK estimate of resources for the Wate Uranium Breccia Pipe is conservative with respect to historical estimates of tonnage, yet similar in grade, in large part due to the minimal amount of historical drilling data available for the Project. VANE acquired historical reports that state the intercepts in all historical drillholes; however, the gamma logs and geological logs that back up the historical intercept data were not available to VANE. Therefore, SRK used the historical intercept data, some of which has been verified by VANE re-logging, to generate the mineralized shapes within which resource estimation was done using only VANE generated data. In SRK's opinion, further drilling or acquisition (if possible) of the historical data will allow for a better estimate of the insitu resources and the potential of increasing the total tonnage and contained pounds of uranium mineralization. Section 16 discusses this further.

Mining

Underground mining methods are typically used for uranium breccia pipes (Wenrich and others, 1995). Historically mined breccia pipes north of the Grand Canyon were accessed by shaft and decline, and were mined by standard open-stope methods.

The Wate Project is near the stage of mining considerations, as resources are defined; however, drilling confirmation of additional historical drillholes will provide greater confidence in the current resource. SRK understands that Energy Fuels and venture partner U1 may seek to complete additional confirmation drilling. The Wate Pipe could advance rapidly from resource estimate to underground exploration and development planning within a six-to-twelve month period without further confirmation drilling.

Metallurgy and Processing

This Project has had no mineral processing or metallurgical testing done, however core samples have been assembled by VANE for this purpose. Historical mining of this deposit type in Arizona developed ores processed by conventional uranium milling technology. Historically, ore was shipped to a mill in Tuba City, AZ, and in the 1980s, uranium ores were shipped to the White Mesa mill in Blanding, Utah. The Shootaring Mill, located in southeastern Utah and owned by Uranium One, was constructed in the 1980s and operated on a test basis. The White Mesa mill, owned and opearated by Energy Fuels is in operation. It is anticipated that future production from the Wate Pipe would be processed at Energy Fuel's White Mesa mill in Utah; a distance by road for truck-hauling of approximately 390 miles.

Milled uranium ore is processed by either acid or alkaline solutions, and uranium is precipitated by either ion-exchange or solvent extraction – industry standard processes. The product, commonly ammonium diuranate, is called "yellowcake" because of its color (Cooper, 1986).

Infrastructure

The portion of the Colorado Plateau south of the Grand Canyon has excellent infrastructure (roads and power) and an established diverse mining industry with a history of past uranium production.

Environmental/Permitting

SRK is unaware of any environmental liabilities for the Project with respect to additional exploration drilling at the Wate Pipe. The author is not a Qualified Person with respect to environmental issues. However, a brief site visit indicated there was little disturbance to the ground by previous drilling. Drillholes from the 1980s were only discovered because the capped drill casing extended above the soil by at least 6 inches; in other cases, there was no surface sign of drillholes other than scattered drill cuttings. The footprint of the breccia pipe exploration targets and historical mines are quite small, easily being located on about 25 acres. Permitting at this stage of the Project is handled as Plans of Operations through the Arizona State Land Department.

U1 initiated, and VANE completed a Mineral Development Report (MDR) for submission to the Arizona State Land Department. The MDR addresses, at scoping level of study, the mining processing and eventual closure and reclamation of the Project, for the purpose of obtaining a mining lease with an established production royalty rate payable to the state of Arizona. The MDR is reportedly in the final stages of approval (pers. Comm. K. Hefton, 2015) by the Arizona State Land Department. Approval of the MDR will allow for commercial mining, subject to obtaining requires environmental permits.

Conclusions and Recommendations

The VANE-U1 joint venture's exploration expenditures from November 2008 to the completion of drilling (March 2011) on the Project is approximately US\$1,364,000; primarily for drilling.

The Project represents an attractive advanced-stage exploration property with current estimated resources established of over 1.0 million pounds eU_3O_8 , and the potential to increase the total resource tons and contained pounds with additional confirmation drilling. Energy Fuels considers the mineral resources at the Wate Pipe to be sufficiently as a minimum threshold for a decision to proceed underground to allow for detailed drill definition of the resources.

The Project has all the inherent opportunity and/or risk associated with a resource stage property, including quantity and quality of the resource database, commodity price fluctuations, defining metallurgical characteristics, and addressing permitting and potential mining options.

SRK recommends an additional drilling program to advance the Project to a point of maximum resource definition, and the potential for project development. This can best be accomplished by additional drilling from an exploration shaft rather than by drilling from surface.

Prior to committing to an exploration shaft, SRK recommends a scoping level study and preliminary economic assessment to determine the potential economic viability of the project and the break-even resource to justify a decision to go underground.

Table of Contents

	Sur	nmary	v (Item 1)	ii
1	Intr	oduct	ion (Item 2)	. 1
	1.1	Terms	of Reference and Purpose of the Report	1
		1.1.1	Sources of Information	1
		1.1.2	Terms of Reference	1
		1.1.3	Definitions of Terms	2
		1.1.4	Purpose of Report	2
		1.1.5	Conclusions and Recommendations	2
	1.2	Source	es of Information	2
	1.3	Minera	al Resources Statements	2
	1.4	Qualifi	cations of Consultants (SRK) and Site Visit	2
	1.5	Effecti	ve Date	3
2	Rel	iance	on Other Experts (Item 3)	. 4
3	Pro	perty	Location and Description (Item 4)	. 5
	3.1	Prope	rty Location	5
	3.2	Minera	al Titles	5
		3.2.1	Mineral Rights in Arizona	5
		3.2.2	Requirements to Maintain the Claims in Good Standings	6
		3.2.3	Mining Venture Agreement	6
		3.2.4	Exceptions to Title Option	6
	3.3	Royalt	y Agreements and Encumbrance	7
		3.3.1	Required Permits and Status	7
	3.4	Enviro	nmental Liabilities	7
4	Acc	essib	ility, Climate, Local Resources, Infrastructure and Physiography (Item	5)10
	4.1	Acces	s to Properties	.10
	4.2	Climat	е	.10
		4.2.1	Vegetation	.10
	4.3	Physic	ography	.10
	4.4	Local	Resources and Infrastructure	.11
		4.4.1	Access Road	.11
		4.4.2	Water Supply	.11
		4.4.3	Electrical Power Supply	.11
		4.4.4	Buildings and Ancillary Facilities	.11
		4.4.5	Population	.11
		4.4.6	Economy	.11

SRł NI 4	Consi 3-101	ulting Technical Report on Resources Wate Uranium Breccia Pipe – Northern Arizona, USA.	Page ix
		4.4.7 Local Resources	
		4.4.8 Regional Infrastructure	
5	Hist	tory (Item 6)	
	5.1	Ownership	14
		5.1.1 Wate Pipe	14
		5.1.2 Project Expenditures	15
	5.2	Historic Mineral Resource Estimates	15
6	Geo	blogic Setting (Item 7)	
	6.1	Regional Geology	
		6.1.1 Geology of Breccia Pipes	
		6.1.2 Other Productive Uranium Breccia Pipes in the Region	20
	6.2	Local Geology	21
		6.2.1 Local Lithology	21
		6.2.2 Alterations	23
		6.2.3 Structure	23
		6.2.4 Mineralization	23
7	Dep	oosit Types (Item 8)	
8	Ехр	loration (Item 9)	
	8.1	Wate Pipe – VANE Exploration	
	8.2	Geophysical Surveys	
	8.3	Summary	
9	Dril	ling (Item 10)	
	9.1	Drill Results from Wate Pipe	
	9.2	Planned Drilling	
	9.3	Recommendations	
10	San	npling Preparation, Analysis and Security (Item 11)	
	10.1	RC/Rotary/ Spot Core Drilling	
	10.2	Wireline Diamond Core Drilling	
	10.3	Gamma Logging	
	10.4	Analytical Procedures	40
	10.5	Sample Preparation and Assaying	40
	10.6	Quality Controls and Quality Assurance	40
	10.7	Sample Security	40
	10.8	Analytical Laboratory Certification	41
	10.9	Radiometric Analyses	41
11	Data	a Verification (Item 12)	

12	Mineral Processing and Metallurgical Testing (Item 13)	46
13	Mineral Resource Estimate (Item 14)	47
	13.1 Drillhole Database	.47
	13.2 Assay Data – Population Domain Analysis	.52
	13.3 Mineralization Envelopes	.53
	13.4 Composition	.58
	13.5 Specific Gravity Measurements (Bulk Density)	.58
	13.6 Block Models	.58
	13.7 Mineralization Zones	.58
	13.8 Dynamic Anisotropy and Search Orientation	.59
	13.9 Mineralization Indicator Assignment, Zones 2-4	.60
	13.10Domain Assignment, Zone 1	.60
	13.11Grade Estimation and Resource Classification Criteria	.62
	13.12Block Model Validation & Mineral Resource Sensitivity	.66
	13.13Resource Statement	.66
	13.14Sensitivity of the Resource Model	.67
	13.15Conclusions and Recommendations	.67
14	Items 15 through 22)	69
15	Adjacent Properties (Item 23)	70
16	Other Relevant Data and Information (Item 24)	71
17	Interpretation and Conclusion (Item 25)	73
	17.1 Categories of Opportunity and Risk	.73
	17.1.1 Resources	.73
	17.1.2 Commodity Price Fluctuation	.73
	17.1.3 Infrastructure	.73
	17.1.4 Development Decision	.73
	17.1.5 Metallurgical Characteristics	.74
	17.1.6 Environmental/Socio-Economic Considerations	.74
18	Recommendations (Item 26)	75
	18.1 Proposed Scoping Study – Phase I	.75
	18.2 Phase II	.75
19	References (Item 27)	77
20	Glossary (Item 27)	79
	List of Abbreviations	.80

List of Tables

Table 1-1: Significant Drill intercepts for the Wate Pipe at $0.15\% eU_3O_8$ cutoff	iii
Table 1-2: Current Inferred Resources for the Wate Pipe at 0.15% eU ₃ O ₈ cutoff	v
Table 4-1: Physiography of Wate Pipe Area Physiography of Wate Pipe Area	.11
Table 5-1: May 2010 Inferred Resources for the Wate Pipe at $0.15\% eU_3O_8$ cutoff	.16
Table 5-2: May 2010 Inferred Resources for the Wate Pipe at $0.15\% eU_3O_8$ cutoff	.16
Table 9-1: Summary of VANE Drilling Wate Breccia Pipe	.34
Table 9-2: Summary of VANE Drilling (including washouts of historical holes)	.35
Table 11-1: Comparison of Historical and VANE re-logs for WT-5 and WT-7	.45
Table 13-1: Selected Historical Drillhole Intercepts – Wate Pipe	.50
Table 3-2: Drillhole Database Statistics – VANE Drillholes (SRK, April 2011)	.51
Table 13-3: Wate Pipe Zone 1 Grade Population Cutoff Thresholds	.53
Table 13-4: Zone 1 Composite Summary Statistics	.58
Table 13-5: Wate Pipe Model Limits	.58
Table 13-6: Estimation Parameters (Domain 0)	.62
Table 13-7: Estimation Parameters (Domain 1)	.63
Table 13-8: Contiguous 0.5ft Higher-Grade intercepts WT-05 & WT-29A	.66
Table 13-9: Inferred Resource by Zone & Total	.66

List of Figures

Figure 3-1:	Energy Fuels Uranium Breccia Pipe Project Location Map	8
Figure 3-2:	Location of Wate Pipe. Section 32, T31N R5W (SRK 2010)	9
Figure 4-1:	Regional Access Roads and Surface Land Ownership in Vicinity of the Wate Pipe	.13
Figure 5-1:	Plan Map and Drillhole traces of Historic Drillholes at the Wate Breccia Pipe (2008)	.17
Figure 6-1:	Geologic Map of Arizona	.25
Figure 6-2:	Stratigraphic Position of Ore in Uranium Breccia Pipes	.26
Figure 6-3:	Characteristics of Uranium Breccia Pipes, Northern Arizona	.27
Figure 8-1:	Wate Pipe Looking Southwest (January 2009)	.31
Figure 8-2:	Typical Breccia Pipe Surface Expression - Miller Pipe Looking Southwest	.32
Figure 9-1:	Locations of VANE and Historic Drillholes at the Wate Breccia Pipe	.37
Figure 9-2:	Sketch Cross Section – Wate Pipe Historical Drillholes	.38
Figure 10-1	: Example Gamma Log Half-Amplitude Method	.43
Figure 13-1	: Cross Section of Historical and VANE drillholes (SRK 2011	.48
Figure 13-2	: Cross Section of Historical and VANE drillholes (SRK 2011)	.49
Figure 13-3	: Wate Pipe Cumulative Relative Frequency Distribution (SRK 2011)	.52
Figure 13-4	: Cross-Section of Mineralized Drillholes and 2-D strings (SRK 2010)	.54

SRK Consulting NI 43-101 Technical Report on Resources Wate Uranium Breccia Pipe – Northern Arizona, USA.	Page xii
Figure 13-5: Oblique View of 2010 Mineralized Shape (SRK 2010)	55
Figure 13-6: Oblique View of 2010 Mineralized Shape (SRK 2010)	56
Figure 13-7: Plan View delineation (SRK 2011)	56
Figure 13-8: Zone 1 Grade shell (SRK 2011)	57
Figure 13-9: Wate Breccia Pipe and Mineralized Zones (SRK 2011)	59
Figure 13-10: Wate Pipe Mineralized Zone 1 and Anisotropy Points (SRK 2011)	60
Figure 13-11: Wate Pipe and Domains 1(Red) 0 (Green) (SRK 2011)	61
Figure 13-12: Wate Pipe Anisotropy Points and Domain 1 (SRK 2011)	62
Figure 13-13: Wate Pipe Estimated Blocks and Anisotropy Points (SRK 2011)	64
Figure 13-14: Wate Pipe Estimated Blocks and Domain 1 Shell (SRK 2011)	65
Figure 13-15: Wate Pipe Estimated Blocks, Drillholes WT-05 & WT-29A (SRK 2011)	65

Appendices

Appendix A: Author Certificates

1 Introduction (Item 2)

1.1 Terms of Reference and Purpose of the Report

1.1.1 Sources of Information

In 2007, VANE entered into a Letter of Intent with Uranium One Exploration U.S.A. Inc. (U1), and subsequently signed a Mining Venture Agreement (the Agreement or the "JV") with U1 effective September 01, 2008, covering approximately 30 breccia pipe targets controlled by U1. The JV subsequently acquired 16 breccia pipe properties from Neutron Energy Inc. through an agreement signed June 3, 2009. The collective properties are either drill discovery stage projects with known mineralized intercepts, or are prospects not yet evaluated by drilling that exhibit surface features similar to known breccia pipes. One property in the portfolio, the Wate Pipe, has current mineral resources. The Wate Pipe, upon completion of current resource estimation in 2011, was spun off into Wate Mining LLC (the "LLC"), a joint operating company for which initially U1 was Manager, and subsequently VANE became Manager. In February 2015, VANE sold its 50% Interest in the LLC to Energy Fuels.

The Arizona Uranium Breccia Pipe District is located in northern Arizona on extensive, nearly flat plateaus dissected by canyons. The breccia pipes are nearly cylindrical collapse features up to 300 ft. in diameter or greater, and as much as 3,000 ft in vertical extent. Past producing mines in the region contained the highest-grade uranium deposits in the U.S. The uranium is concentrated in ring dikes, fractures, and coatings on the pipe infill breccia material, which consists of fragments of Mississippian through Triassic sedimentary rock formations.

This report is prepared for Energy Fuels, and includes discussion of the change of owners, and work completed on the project since resource were reported in a NI-43-101 technical report for VANE and U1 in May 2011. The report includes discussion of VANE's exploration information gathered since the formation of the JV in September 2008, including information on the Project acquired through the Agreement with U1, and presentation of the current mineral resource estimate for the Wate Pipe, dated 2011. This Technical Report uses currently available project information, as of the effective date this report. This report has been prepared at the request of Energy Fuels Resources (US) Inc., with offices at 225 Union Blvd., Suite 600, Lakewood, CO, 80228. Energy Fuels is listed on the NYSE MKT under the symbol "UUUU, and on the Toronto Stock Exchange under the symbol "EFR" (web site: www.energyfuels.com). This report is prepared for the benefit of Energy Fuels.

1.1.2 Terms of Reference

VANE initially commissioned SRK Consulting (U.S.), Inc. (SRK) in January 2010 to prepare a report compliant with the Canadian National Instrument 43-101 (NI 43-101) requirements on the Wate Uranium Breccia Pipe. The report titled *"NI 43-101 Technical Report on Resources, Wate Uranium Breccia Pipe"* and dated May 19, 2010, describes the initial resource estimate. That report was updated on November 04, 2010 with additional drillhole information, and again in 2011 with information from the most current drilling, VANE drillhole WT-42, as of March 22, 2011. This technical report on mineral resources is prepared according to NI 43-101 guidelines for the benefit of Energy Fuels, based on the current mineral resources (2011). NI 43-101 regulations, as revised in 2011, have been used as the format for this report.

This report is prepared using the industry accepted CIM "*Best Practices and Reporting Guidelines*" for disclosing mineral exploration information, and the Canadian Securities Administrators revised regulations in NI 43-101 (*Standards of Disclosure For Mineral Projects*), and Companion Policy 43-101CP. This report on resources is compliant with "*CIM Standards on Mineral Resources and Reserves: Definitions and Guidelines*" (November 2010).

1.1.3 Definitions of Terms

This report generally uses American units of measure, as these are the commonly used units of measure in the United States. Analytical results are reported as parts per million (ppm) contained for uranium (the element U, often analyzed for and expressed as U_3O_8). This report will state uranium determinations by the equivalent of chemical analyses as percent (%) U_3O_8 . This report will state uranium determinations by conversion of radiometric probe measurements (gamma logs) as percent (%) eU_3O_8 ("e" for equivalent). Uranium and some elements may be reported as percent (%), and trace elements are commonly reported in parts per million (ppm).

Tables and Figures are numbered consecutively and referenced in the major sections of the report.

Market prices are reported in US\$ per pound of U₃O₈. Tons are short tons of 2,000 lbs.

Energy Fuel's Wate Uranium Breccia Pipe (the Project) is here referring to the U1 held property contributed to the Mining Venture Agreement dated September 01, 2008 (the Agreement or the "JV" with VANE Minerals (US) LLC), and subsequently transferred to the Operating Agreement for Wate Mining Company LLC, dated February 23, 2011.

1.1.4 Purpose of Report

The purpose of this report is to provide the reader with a review of the exploration activities conducted on the Wate Uranium Breccia Pipe, a discussion of the geology of the exploration targets, known deposits and the deposit model, a discussion of historical and current exploration results, and presentation of current mineral resource estimates for the Wate Pipe.

1.1.5 Conclusions and Recommendations

SRK concurs that the geological evidence, historical exploration, evidence of uranium mineralization, and VANE's exploration results from 2009 through 2011 support the Project as a viable exploration program for breccia pipe-hosted uranium mineralization, and support the resources stated for the Wate Pipe. SRK recommends that Energy Fuels continue confirmation drilling on the Wate Pipe with the goal of further defining the uranium resources, preferably through underground exploration and fan drilling from an exploration shaft.

1.2 Sources of Information

The authors reviewed data provided by VANE and from publicly available sources, and conducted field investigations to confirm the data. Those data sources include hard copy data and files and digital files located in the offices of VANE in Tucson, Arizona. VANE's geologist and Chief Operating Officer, Kris Hefton, facilitated the data review and onsite investigations, and provided historical and Project information. The Atomic Energy Commission and the U.S. Geological Survey generated publicly available data on the district. Private exploration data for the Project was derived from the exploration activities of prior historical mining and exploration companies.

1.3 Mineral Resources Statements

Mineral resources, as estimated by SRK for the Wate Pipe, are stated in Section 16 of this report.

1.4 Qualifications of Consultants (SRK) and Site Visit

Allan V. Moran, R.G., C.P.G.

Allan Moran conducted a site review of the Project on January 07, 2009; and conducted a review of data and maps in the offices of VANE Tucson, Arizona, on December 10, 2008 and reviewed additional information in August of 2010, in January and February of 2011, and in March of 2015. Mr. Moran is a "Qualified Person" as defined by NI 43-101, is the primary author, and is the Qualified Person responsible for all sections of this report.

Frank A. Daviess, MAusIMM., Resource Geologist

Frank Daviess is a "Qualified Person" as defined by NI 43-101, and is the Qualified Person responsible for the resources reported for the Wate Pipe in Section 16 of this report. He has not visited the Wate Pipe.

1.5 Effective Date

The effective date of this report, March 22, 2011, is the date SRK received the most current drillhole database information for the Wate Uranium Breccia Pipe, through VANE's drillhole WT-42. There has been no additional drilling since 2011. The updated resource estimation presented in this report is based on data received as of that date. All other information is current as of the report date of March 10, 2015.

2 Reliance on Other Experts (Item 3)

The author, as a Qualified Person, has relied upon VANE for the basic data that supports the Project exploration results. SRK has examined the project data and in the opinion of the authors, that information is both credible and verifiable in the field. It is also the opinion of the author that no material information relative to the Project has been purposely neglected or omitted from the database. Sufficient information is available to prepare this report, and any statements in this report related to deficiency of information are directed at historical information that is missing or information which, in the opinion of the authors, has not yet been gathered, is intended to be gathered, or is recommended information to be collected as the project moves forward.

The Authors have relied on the work of others (VANE) to describe the land tenure and land title in Arizona (Section 3.2 – Mineral Titles); and the data appear credible. The author is not qualified with respect to environmental laws in Arizona, as regarding issues addressed in Section 3.4 of this report – Environmental Liabilities; however, the environmental issues noted are considered minimal.

This report includes technical information, which requires subsequent calculations to derive subtotals, totals, and weighted averages. Such calculations inherently involve a degree of rounding and consequently can introduce a margin of error. Where these rounding errors occur, SRK does not consider them material.

The author's statements and conclusions in this report are based upon the information at the time of the property visits, and the exploration database as of the effective date of this report. Surface exploration has ceased as of the date of this report while the next phase of the Project is determined. It is to be expected that new data and exploration results may change some interpretations, conclusions, and recommendations going forward.

The author and SRK are not insiders, associates, or affiliates of Energy Fuels, VANE or its parent company, or of U1. The results of this Technical Report are not dependent upon any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings between Energy Fuels, VANE, U1, and the authors or SRK. SRK will be paid a fee for its work in accordance with normal professional consulting practice.

Property Location and Description (Item 4)

The Wate Project is located in the northwestern part of Arizona in the Colorado Plateau physiographic province. The breccia pipe uranium district of northern Arizona produced approximately 23 Mlbs of U_3O_8 prior to the decline of uranium prices in the mid-1980s. Existing resources of about 13 Mlbs of U_3O_8 have been reported to be contained in several breccia pipes, and the rise in uranium prices since 2005 has spurred exploration activity and plans by some companies to reactivate existing mines. Most breccia pipe deposits are small to intermediate in size (1 to 6 million contained pounds U_3O_8).

The Wate Pipe has uranium mineralization verified by VANE drilling, and a historically determined potential of 1.1 to 2.4 million contained pounds eU_3O_8 . Current Inferred resources for the Wate Pipe stand at 71,000 tons grading 0.79% eU_3O_8 , for 1,118,000 contained in-situ pounds U_3O_8 . The Wate Pipe is similar to breccia pipes that have been historically mined.

The Wate Pipe is located on 160 acres in a single square parcel, which is the subject of a Mineral Lease application, described as the S ½ of the NE ¼ and the N ½ of the SE ¼ of Section 32, Township 31 North, Range 5 West. All of Section 32 is State of Arizona land; surface and mineral ownership, held by Energy Fuels under Prospecting Permit until approval of the Mineral Lease is finalized.

3.1 **Property Location**

3

The Wate Uranium Breccia Pipe is shown with respect to other uranium breccia pipe occurrences in the Colorado Plateau of Arizona in Figure 3-1.

The Wate Pipe is located approximately 5 mi NW of Indian Route 18 (to Hualapai Hilltop), which runs NE from Route 66 approximately 5 miles west from Grand Canyon Caverns. The Wate Pipe is located on State Land and is located approximately 9 mi south of the Grand Canyon National Park boundary. The Wate Pipe is held by VANE under Arizona State Land Exploration Permit No. 08-113503, renewed July 9, 2010), and is part of the Agreement between VANE and U1, now U1 and Energy Fuels. The Wate Pipe is located in the southeast quarter of Section 32, T31N, R5W (Figure 3-2. The former owner (Rocky Mountain Energy) completed a minimum of 23 historical drillholes at Wate. They encountered significant uranium mineralization from 1,300 to 1,600 feet in depth in 17 of the 23 drillholes, with a reported average grade to the mineralization of +0.80% eU₃O₈.

3.2 Mineral Titles

Information relating to the exploration permit on State Land is on file with the Arizona State Land Department.

3.2.1 Mineral Rights in Arizona

State Mineral Exploration Permits are issued by the Arizona State Land Department, 1616 W. Adams Street, Phoenix, Arizona, 85007, USA, and use the specified "¼ ¼ ½ Section" designator for township/range/section system that conforms to the original General Land Office cadastral survey in use in the western states since the late 1800s.

SRK did not verify land ownership, but did examine evidence of the Arizona State Mineral Exploration Permit; and, SRK did verify the project lands as Arizona State lands.

A 2012 U.S. Department of Interior Record of Decision to withdraw approximately 1 million acres of U.S. Forest Service lands around the Grand Canyon National Park from mineral exploration and development activity, as further describes in Section 17 of this report, does not affect private or Arizona State Lands, including the Wate Pipe.

3.2.2 Requirements to Maintain the Claims in Good Standings

State Mineral Exploration Permits have a life of 5 years and require annual combined payments and expenditures of \$11 per acre for years 1 and 2, \$21 per acre for years 3 and 4, and require conversion to a Mineral Lease prior to development. The Mineral Exploration Permit is in the process of being converted to a Mineral Lease.

3.2.3 Mining Venture Agreement

A Mining Venture Agreement between VANE Minerals (US) LLC and Uranium One Exploration U.S.A. Inc. (U1) dated September 01, 2008 (Agreement or the "JV") applies to the Wate Uranium Breccia Pipe property position. The Agreement between VANE and U1 (now Energy Fuels and U1) has the following general provisions:

- Each party to the Agreement has a vested 50% interest;
- VANE shall be the Manager of the project operations and shall have a 51% vote on the Management Committee during Exploration Evaluations;
- At such time as the Manager or the Management Committee determine or recommend that a property or target undertake a Prefeasibility Evaluation or a Production Feasibility Study, the property shall be conveyed into a Target LLC (limited liability company) that will function independently from the Agreement;
- U1 shall be the Manager of the Project operations and shall have a 51% vote on the Management Committee relating to Prefeasibility Evaluations, Productions Feasibility Studies, all mining and milling operations, and all feasibility, development, and mining conducted after formation of a Target LLC;
- The Term of the Agreement is until December 31, 2012 unless sooner terminated or the parties mutually agree to an extension;
- There is an Area of Interest that encompasses all the existing properties, and allows for inclusion of additional properties at each participants percentage interest;
- There are provisions for annual Work Plans and Budgets to be determined by the Management Committee;
- Expenditures will be shared according to the participant's ongoing interest in the Agreement, beginning at 50% each; with allowance for dilution; and
- The Agreement includes the form and general content of a Target LLC agreement, including accounting principles, calculation of royalty interest, and transfers of interest. The Wate Mining Company LLC has been organized and registered with the Arizona Corporation Commission.

The Agreement does not include VANE or U1 properties on the north rim of the Grand Canyon.

On February 23, 2011, VANE and U1 signed the Operating Agreement for Wate Mining Company LLC (the Operating Agreement), which segregated the Wate Pipe from the exploration JV. Initially U1 was the Manager of the Operating Agreement.

On April 15, 2011, Uranium One Exploration U.S.A. Inc. was merged into Uranium One Americas, Inc. (U1).

On May 25, 2012, VANE became Manager of the Operating Agreement.

On February 17, 2015, Energy Fuels announced in a press release (Energy Fuels In, Feb. 2015) the purchase of VANE's rights and interests in the Operating Agreement, through its wholly-owned subsidiary EFR Arizona Strip LLC, and assumed VANE's position as Manager of the Operating Agreement.

3.2.4 Exceptions to Title Option

There are no known exceptions to title known to the authors, or identified by Energy Fuels for the Wate Uranium Breccia Pipe.

3.3 Royalty Agreements and Encumbrance

Application for conversion to a Mineral Lease has been completed. When converted to a state mining lease (Mineral Lease), a royalty is assigned by the State of Arizona – Energy Fuels has no State Mineral Lease for the Project presently. The assigned royalty is based on a valuation of the proposed mining project.

To convert a State Mineral Prospecting Permit to a Mineral Lease, requires the submission of a Mineral Development Report (MDR) to the Arizona State Land Department. Work toward that end was the only significant work conducted on the Project since the mineral resources were estimated in 2011. Initiated by U1, and subsequently completed and filed with the Arizona State Land Department by VANE, the MDR is a comprehensive report that examines the potential for economic development, in order for the State to issue a Mineral Lease and assign a royalty rate.

The MDR was filed on November 19, 2012, and following public comment was revised on October 27, 20014. The process to convert to a Mineral Lease is well advanced, and in the final stages of State approval (pers. Comm., K.Hefton, 2015).

3.3.1 Required Permits and Status

The state lands are covered by Arizona State Mineral Exploration Permits, which are administered by the Arizona State Land Department, and allow for exploration drilling once a Plan of Operations detailing the drilling program and including an archaeological and plant report, is submitted and approved.

Permits to conduct drilling on all lands in Arizona are further administered by the Arizona Department of Water Resources (ADWR). For exploration drilling, ADWR requires a Notice of Intent to Drill and Abandon an Exploratory/Specialty Well be filed with the ADWR. No other permits are required for exploration drilling.

Upon approval of a Mineral Lease, Energy Fuels will have State approval to mine, subject to receipt of operational Air Quality and Aquafer Protection Permits.

3.4 Environmental Liabilities

SRK is unaware of any environmental liabilities for the Project, and no potential liabilities that would affect additional exploration drilling. Existing environmental liabilities are not described in any of the project files. The author is not a Qualified Person with respect to environmental issues. However, a brief site visit indicates there was little disturbance to the native ground by previous drilling. Drillholes from the 1980s were only discovered because, in some cases, the drill collar extended above the soil by at least 6 inches. The previous owner reclaimed all drill sites and many of the historical drillhole collars for the Wate Pipe have not been located.



Figure 3-1: Energy Fuels Uranium Breccia Pipe Project Location Map



Figure 3-2: Location of Wate Pipe. Section 32, T31N R5W (SRK 2010)

4 Accessibility, Climate, Local Resources, Infrastructure and Physiography (Item 5)

The Arizona Breccia Pipe District is located on the Colorado Plateau physiographic province. The portion of the Arizona Breccia Pipe District south of the Grand Canyon has excellent infrastructure including road networks, rail access, power, and proximity to population centers such as Flagstaff and Kingman for staging, services, and labor. An established diverse mining industry with a history of past production for uranium has been active in the Arizona Breccia Pipe District. Several uranium breccia pipe projects are being considered for development or re-activation. Energy Fuels currently mines uranium ores from the Pinenut mine, north of the Grand Canyon,; they are trucking ore to their White Mesa Mill near Blanding, Utah, approximately 310 miles.

4.1 Access to Properties

Access to the Wate Pipe, as shown on Figure 3-2, is approximately 70 miles west on US Highway 40 from Flagstaff, Arizona to Seligman, then approximately 25 miles northwest on US Highway 66 to the community of Grand Canyon Caverns, continuing 45 miles via paved road Indian Route 18 northeast from 5 miles west of Grand Canyon Caverns, Arizona, then approximately 4.5 miles to the northwest on mostly unimproved dirt access roads to the southeast quarter of Section 32, T31N, R5W. Access is available year-round; a site visit was conducted in January 2009.

4.2 Climate

The regional climate is semiarid, with hot, relatively dry summers and cold winters. According to the Western Regional Climate Center (<u>www.wrcc@dri.edu</u>), the average annual precipitation at Flagstaff, Arizona, for 45 years was 22.7 in, with most of the precipitation occurring as rain during July and August with another minor maximum as snow in December and January. The average maximum temperature at the Flagstaff station during the winter months was between 42 and 49°F and during the summer months was between 78 and 82°F. The average minimum temperature at the Flagstaff station during the winter months was between 15 and 22°F and during the summer months was between 41 and 51°F (<u>www.climate-zone/climate/united-states/arizona/flagstaff/</u>). Flagstaff is approximately 100 miles in a straight-line distance southeast of the Wate Uranium Breccia Pipe, and at a slightly higher elevation.

4.2.1 Vegetation

Range grasses and sagebrush cover the flat areas near the Wate Pipe. There are only limited commercial woodlands in the Kaibab National Forest, and none near the Wate Pipe.

4.3 Physiography

The physiography of the Project area is characterized by a relatively flat plateau that is part of the Grand Canyon subsection of the Colorado Plateau physiographic province. The topography is determined by the resistance to erosion of the Kaibab Limestone of Permian age; therefore, the Kaibab limestone is the dominant lithology in outcrop in the area. When streams cut through the plateau cap rock, canyons are developed as the ephemeral streams cut down into the less resistant underlying formations. The area is drained through north- and northwestward-flowing creeks, such as Cataract Creek in Cataract Canyon, which flow down the dip-slope of the strata into the Colorado River and the Grand Canyon to the north of the Project area.

Surface water is scarce and ground water supplies are deep and limited. Summer rainstorms cause flash flooding in some of the areas. Few lakes or reservoirs are present. Grazing for sheep and cattle is the major land use, and the major support to the economy is tourism to the Grand Canyon, which is nearby. The Wate Uranium Breccia Pipe is on Arizona State lands outside the Grand Canyon National Park.

Total relief of the Project topographic map quadrangle is approximately 200 ft. Altitudes range from 5,900 to 6,100 ft amsl.

Exploration Target	1:24,000 Scale Quadrangle Name	Latitude of SE Corner	Longitude of SE Corner	Approximate Highest Elevation (ft)	Approximate Lowest Elevation (ft)	Approximate Amount of Relief (ft)
Wate Pipe	Higgins Tank	36°00'N	112°45'W	6,100	5,900	200

Table 4-1: Physiography of Wate Pipe Area

4.4 Local Resources and Infrastructure

Grand Canyon Caverns is a very small community of several families located on U.S. Highway 66, and is a local tourist stop en-route to the Hualapai Reservation, and is the nearest seasonal community to the Wate Pipe. Peach Springs, the largest town of the Hualapai Tribe, is located 6 miles west on U.S. Highway 66 from the Route 18 turn-off to the Wate Pipe

4.4.1 Access Road

The access from Interstate 40 and Flagstaff gives way to two-lane paved Highway 66 and Indian Route 18 to within five miles of the Project, and then on maintained, graded gravel roads that are part of the public access for the region of local ranches (Figure 4-1).

4.4.2 Water Supply

There is currently no readily available water supply for the Project. Nearby ranch wells intersect water at approximately 2,500 to 3,000 ft below the surface in the Redwall aquifer, as the mile-deep Grand Canyon nearby is the natural water table in the region. Surface ponds (tanks) are used to collect surface water run-off for cattle ranching. Ranches in the area have constructed a network of water pipelines and tanks for a stable water supply for cattle. Water for drilling is obtained from this network by agreement with the ranches. Potable water is currently hauled from local ranches or from the town of Grand Canyon Caverns

There are no flowing surface waters in the immediate area of the Project, as creeks are ephemeral. Groundwater, while likely to be present in deep drillholes, is not sufficiently defined as to quantity or quality.

4.4.3 Electrical Power Supply

There is a high-voltage regional electrical grid in the region, extending across northern Arizona from the various power plants in the greater region. There is local power to nearby ranches and rail stations.

4.4.4 Buildings and Ancillary Facilities

There are no buildings or ancillary facilities on the Project. Scattered local ranch houses and outbuildings are present in the general region.

4.4.5 Population

The sparse population in the region is scattered between a few local ranches and the towns and communities of Peach Springs, Grand Canyon Caverns, and Seligman.

4.4.6 Economy

The economy is heavily dependent on tourism, as the nearby Grand Canyon is one of the most visited national parks in the U.S.

4.4.7 Local Resources

The population of Coconino County is approximately 125,000, of which 60,000 live in Flagstaff. With an area of 18,617 mi² for Coconino County, the population density outside of Flagstaff is approximately 3.8 people/mi². Flagstaff and Kingman are the nearest towns to provide services to support exploration in the region.

4.4.8 Regional Infrastructure

The Grand Canyon rail system from Williams to Grand Canyon Village is nearby, with a crossroads at Anita Station; however, it is primarily a tourist attraction. There is a major east-west railroad accessible in Flagstaff that is sub-parallel to US Highways 40 and 66.

Power for the project would be tied into the existing national power grid.



Figure 4-1: Regional Access Roads and Surface Land Ownership in Vicinity of the Wate Pipe

5 History (Item 6)

Breccia pipes are the highest-grade uranium deposit types in the United States, with average grades of 0.5 to $1.0\% U_3O_8$ and with total production from 1 million to more than 6 Mlbs of U_3O_8 . The breccia pipe district of northern Arizona produced approximately 23 Mlbs of U_3O_8 prior to the decline of uranium prices in the mid 1980s. Individual pipes have been known to contain more than 6 Mlbs of U_3O_8 at an average grade of about $1\% U_3O_8$. Ore is mined from open stopes that are usually accessed by vertical shafts or declines. Most of the uranium ore that was produced from the breccia pipes was trucked from the mine sites to the White Mesa Mill located in Blanding, Utah. On March 21, 2005, Denison Mines announced their intention to resume processing at the White Mesa Mill, now owned by Energy Fuels. There is currently an estimated combined resource of 13 Mlbs of U_3O_8 in several breccia pipes in northern Arizona that are awaiting production decisions. On June 14, 2006, Denison announced plans to reopen the Arizona 1 breccia pipe mine north of the Grand Canyon. Production from the Arizona 1 mine commenced in late 2009, with ore being trucked to their White Mesa mill near Blanding, Utah; Energy Fuels completed mining of the Arizona 1 pipe in 2014, and is currently mining the Pinenut pipe.

Breccia pipes occupy relatively small surface areas and in most cases can be covered by one to four 20-acre mining claims. Thus, land acquisition costs and surface environmental disturbance related to exploration and mining are minimal.

5.1 Ownership

The most prevalent player in the 1970s to 1990s uranium exploration and production from the Arizona breccia pipes was Energy Fuels Nuclear, Inc. (EFNI), which ceased all activity in the region in the early 1990s, and many of the exploration properties were dropped.

Much of the historical exploration information generated by EFNI and other companies is not available; however, some information has been acquired by VANE and/or was available from Arizona State Land Department files. Rocky Mountain Energy explored the Wate Pipe during the same period.

5.1.1 Wate Pipe

Rocky Mountain Energy (RME), a subsidiary of Union Pacific Railroad, discovered the Wate Breccia Pipe in the mid-1980s. Twenty-three drillholes to depths up to 2,000 feet were drilled. All were mineralized, and 17 holes were mineralized with reported "ore grades" (SRK notes that the term "ore" is a historically used term, and is not appropriate at this stage of the project). RME Partners, L.P. and limited partnership between RME and Overseas Resource U.S.A., a subsidiary of Taiwan Power Co., a nuclear utility company, completed most of the work. The work on the Wate pipe progressed to internal studies on reserve estimation and potential project development. In 1991, an internal reserve estimate was completed. In 1992, an internal evaluation was completed by RME Partners in support of their plan to convert the State Land Mineral Exploration Permit to a Mineral Lease. The conceptual evaluation examined reserves (resources by current reporting definitions), a preliminary mine plan, and surface site facilities. In 1998, The Arizona State Land Department conducted an independent evaluation of the Wate breccia pipe uranium mineralization and an appraisal of Arizona State Mineral Lease 11-52290 (lease covering the property at that time). That study was undertaken in order to provide the State of Arizona with a break-even uranium price for the project's possible development, a valuation of the lease, and a market study of similar project royalty rates.

Summary reports of some of the work programs at the Wate pipe are available, but much of the detailed project information, including drillhole data, is not yet available to VANE. VANE has been in contact with Taiwan Power Co., and has ascertained that copies of all the detailed project data are in their possession; However, VANE has been unable to secure copies of the information.

The Wate Pipe is a nearly vertical circular to elliptical column of brecciated rock that has a slight plunge to the north with a diameter of 170 ft at 1,200 ft in depth, narrows to 60 ft in diameter at 1,600 ft depth, and expands to 160 ft diameter at 1,700 ft depth and below. The Hermit shale/Esplanade sandstone contact is at about 1,500 ft in depth, which is approximately the location of the best thickness and grade of mineralization. Details of the mineralized intercepts for each drillhole are not available, merely the figures from historical reports. VANE started a program of re-entering the historical drill holes with rotary and core rigs, cleaning out the holes to depth, and then re-logging the drillholes for confirmation of hole deviations indicated on maps and for confirmation of grades. The reported average grade for uranium mineralization is +0.80% eU₃O₈, and VANE's confirmation logging of historical drillholes has confirmed high grades (see Section 9).

5.1.2 Project Expenditures

Total project expenditures by Energy Fuels Nuclear Inc. and Rocky Mountain Energy Partners LP (RME) for the exploration properties are unknown. Approximately US\$500,000 to \$1,000,000 in historical exploration dollars are estimated to have been spent on the various properties by EFNI, based on the number and depth of drillholes (±1,500 ft). The historical expenditures by RME for the U1 breccia pipe properties, in particular the Wate Pipe, are estimated at +\$2,000,000.

5.2 Historic Mineral Resource Estimates

The Wate Pipe has historically reported resources/reserves. The details of the methodology used to define the historical mineral resources/reserves that were estimated by RME Partners LP for the Wate Pipe have not been reviewed by a Qualified Person or reconciled with CIM definitions of resource classification, and are therefore not relied upon by Energy Fuels. However, those historical resource/reserve numbers are relevant and important to Energy Fuels, and considered material to the project and are thus presented here as exploration potential to be verified by confirmation drilling and gamma logging of historical drillhole intercepts.

Based on historical drillhole intercepts, the Wate Pipe has mineral exploration potential between 70,000 and 146,000 tons grading from 0.80% to 0.83% eU_3O_8 , for 1.1 to 2.4 million contained pounds eU_3O_8 . Some, but not all, of the details supporting that estimate are documented in a historical internal document by RME Partners LP. (Anonymous)

In May 2010, SRK, completed a NI 43-101 technical report on resources for the Wate Pipe, for a portion of the mineralization. That report entitled "NI 43-101 technical Report on Resources, Wate Uranium Breccia Pipe, Northern Arizona, USA", and dated May 19, 2010, presented the initial resource estimate for the Wate Pipe by current CIM compliant standards for resource classification and reporting. The Qualified Person's responsible for that initial resource are the same as the authors of this report. That initial resource estimate used similar procedures to that reported in Section 16 of this report, but with two fewer VANE drillholes and with no information on the grade of historical intercepts; therefore, was a preliminary estimate of only part of the historically defined mineralization as determined from VANE information. SRK reported in May 2010 the resources, stated in Table 5-1 below, as then current and CIM compliant Inferred mineral resources. It should be noted that the zone designation in Table 5.1 is not the same as used for current resources stated in Section 16.

	Wate Breccia Pipe Inferred Resource,								
	0.15% eU₃O₅* cutoff.								
Zone	eU₃Oଃ%	Tons	Tons eU ₃ O ₈	Pounds eU₃O ₈					
1	0.38	11,000	43	87,000					
2	0.72	4,000	28	57,000					
3	1.11	4,000	45	89,000					
4	0.95	24.000	232	463.000					
Total	0.80	44,000	348	696,000					

Table 5-1: May 2010 Inferred Resources for the Wate Pipe at 0.15% eU₃O₈ cutoff

* Note: Inferred Uranium resources refers to global in-place CIM definitions of resources to which a mine design has not yet been applied; although the above stated resources meet the definition of having the "potential for economic extraction" at the cutoff provided.

In July and August 2010, VANE acquired historical reports that provide the mineralized intercept information previously lacking for most of the historical drillholes. While the back-up gamma and geological logs were not in VANE's possession, that historical information has been used by SRK for an updated resource estimate as presented in the updated technical report dated November 04, 2010 – resources stated in Table 5-2 below. Note that the numbering of the mineralized zones changed from top down to bottom up; such that the Table 5-2 Zone 1 corresponds to Zone 4 on the initial resource in Table 5-1.

Wate Breccia Pipe Inferred Resource									
	0.15% eU₃O₀ Cutoff*								
Zone	Cutoff	U ₃ O ₈ %	Tons (000)	Pounds U ₃ O ₈					
1	0.15	0.82	45,000	739,000					
2	0.15	0.61	11,000	130,000					
3	0.15	0.31	2,000	10,000					
4	0.15	0.58	1,000	7,000					
Total		0.76	58,000	886,000					

Table 5-2: May 2010 Inferred Resources for the Wate Pipe at 0.15% eU₃O₈ cutoff

* Note: Inferred Uranium resources refers to global in-place CIM definitions of resources to which a mine design has not yet been applied; although the above stated resources meet the definition of having the "potential for economic extraction" at the cutoff provided.

SRK is reporting current resources in Section 16 of this report, which supersedes the resources stated in Tables 5-1 and 5-2.

The above reported historical resources for VANE, and the current mineral resources stated in Section 16, were reported in NI 43-101 technical report format, using CIM compliant resource classifications; however, it is important to note that VANE is not a Canadian listed company, so the reports were not filed on SEDAR, but were made public by VANE on their corporate website.

The current mineral resources reported in Section 16, are effective as of March 22, 2011, the date of the most current drilling information for the Project.



Figure 5-1: Plan Map and Drillhole traces of Historic Drillholes at the Wate Breccia Pipe (2008)

6 Geologic Setting (Item 7)

A breccia consists of coarse-grained angular fragments surrounded by finer-grained silt and sand particles and cemented by calcite or other minerals. A breccia pipe is a vertical cylindrical shape of broken rock and is usually caused by collapse of overlying rock into a cave, such as caves in the Redwall Limestone.

The high-grade uranium deposits in breccia pipes in northern Arizona were deposited in solutioncollapse features that originated in the Mississippian Redwall Limestone and propagated upward during several periods of karstification. Uranium was deposited during a later period, with and without other minerals, but commonly with minor amounts of copper.

6.1 Regional Geology

The geologic formation present at the surface across most of the Kaibab Plateau of northern Arizona is the Kaibab Limestone of Permian age (shown in blue on the Arizona geologic map; Figure 6-1). The Kaibab is overlain by a few outlier hills of Triassic-age Moenkopi Formation. The Kaibab plateau is underlain by a thick sequence of Paleozoic sedimentary rocks that crops out in the Grand Canyon (Figure 6-1), which are ultimately underlain by Precambrian granitic and gneissic rocks in the bottom of the Grand Canyon. The plateau-forming Kaibab limestone has gentle southerly dips of a few degrees, other strata have only minor deformation in broad regional folds with nearly horizontal dips. Nearly all of the breccia pipes have their bases in the lower part of the Redwall Limestone, approximately 3,000 ft below the Kaibab plateau. It is unlikely that any breccia pipes will be found where a thick Redwall Limestone section is absent, since karsting in the Redwall is believed to cause the overlying brecciation. The Redwall Limestone regionally pinches out between Holbrook and the Four Corners area, at least 100 mi to the east of the project area.

Many of the breccia pipes in northern Arizona are aligned along northwest- and northeast-trending zones (N45°W and N50°E) which are likely areas of increased fracture density overlying Precambrian faults and zones of weakness (Wenrich and Sutphin, 1989). These northwest- and northeast-trending joints, as well as the ring fracture system surrounding each breccia pipe, were imposed on the Mississippian Redwall Limestone prior to the deposition of the overlying Pennsylvanian and Permian Supai Group rocks, and later propagated upward through these units. The fracture systems apparently localized groundwater movement during Mississippian time and controlled the development of the karst and cave systems in the Redwall Limestone. The larger caves probably coincide with the intersection of the northwest-trending faults with the northeast-trending fractures, as these intersections would have localized the groundwater flow. The later north-south fabric observed in the Permian sandstones does not appear to be related to breccia pipe distribution (Wenrich and Sutphin, 1989).

6.1.1 Geology of Breccia Pipes

Thousands of breccia pipes occur in northern Arizona, although it has been estimated that only about 8% are mineralized and less than 1% contain economic concentrations of uranium (Wenrich and Sutphin, 1988) [SRK note: This estimate is apparently based solely upon surface evaluations of mineralization, not on the results of industry drilling of breccia pipe targets]. Many of these breccia pipes have been dissected by canyons, such as the Grand Canyon, which provide cross-sectional views to clarify the stratigraphic relationships (Figure 6-2).

Physical Characteristics

The breccia pipes average approximately 300 ft in diameter and range from 130 ft (40 m) to 650 ft (200 m) in diameter in the subsurface. Some breccia pipes are as much as 0.5 mi in diameter in surface expression. Part of the larger footprint of the breccia pipes derives from dissolution of carbonate cement or gypsum beds in Permian-age Toroweap Formation and Kaibab Limestone.

The breccia pipes cut vertically through more than 800 ft of the rock column in various areas north of the Grand Canyon. The total stratigraphic section affected by breccia pipes throughout the district

consists of the Mississippian Redwall Limestone and Surprise Canyon Formation; the Pennsylvanian and Permian Supai Group, the Permian Esplanade Sandstone of the Supai Group, Hermit Shale, Coconino Sandstone, Toroweap Formation, and Kaibab Limestone; and the Triassic Moenkopi Formation and Chinle Formation (Figure 6-2 and Figure 6-3). The total section affected by the brecciation could total 3,000 vertical feet (900 m).

The surface expression of a breccia pipe is frequently a cone-shaped depression in the Kaibab Limestone surface that is filled with redbeds of the Moenkopi Formation that have collapsed into the pipe, leaving a "bulls-eye" target with red Moenkopi in the center and light brown Kaibab on the periphery. Moenkopi Formation does not occur in all pipes. Surface expressions of breccia pipes, in the field and in air-photographs, can be subtle and easily overlooked.

Origin of Breccia Pipes

Dissolution of the Redwall Limestone during the Late Mississippian (approximately 330 million years ago [Ma]) created extensive karst topography and formed numerous caves in the thick Redwall Limestone. Only two known breccia pipes extend down to the underlying Temple Butte Formation, and these occur in the western part of the region where the Temple Butte Formation is a thicker limestone; it thins regionally to the east. Karstification occurred soon after formation of the Redwall Limestone, as evidenced by the deposition of the overlying Late Mississippian-age Surprise Canyon Formation in erosion channels and sinkholes on the upper surface of the Redwall. When the cave roof collapsed, overlying formations were deposited or subsided into the resulting sinkhole. After later formations were deposited, later periods of cave formation and limestone dissolution renewed the collapse features, such that later formations collapsed into the breccia pipe. No fragments of formations younger than the Chinle Formation have been found in the breccia pipes.

This gravitational collapse produced steep-sided, pipe-like bodies that are filled with angular to rounded fragments of overlying formations that range in size from finely ground material to large house-sized boulders.

Origin of Uranium Mineralization

Two separate mineralizing events may be responsible for the metallic minerals in the breccia pipes. The early metallic mineralization deposited cobalt, copper, iron, lead, nickel, and zinc. The later uranium-mineralizing event occurred after deposition of the Triassic Chinle Formation at about 200 Ma, based on U-Pb analyses from the Hack, Kanab North, EZ-1, EZ-2, and Canyon pipe deposits (Ludwig and others, 1986).

The source of the uranium is not known, although there are several hypotheses pertaining to the source of the mineralizing fluids. Some call for rising fluids, some for descending fluids, some for groundwater, and some for hydrothermal fluids.

One hypothesis suggests that mineralized fluids were derived from igneous rocks, traveled laterally along the Coconino-Hermit contact, and encountered reducing fluids derived from the marine units cut by the pipes. The minor, uneconomic quantities of uranium mineralization in units above the Coconino-Hermit contact support this idea.

Another hypothesis suggests that the uranium was derived from the Chinle Formation, and entered the pipe by either moving down the pipe's throat directly or by migrating laterally through a permeable formation such as the Coconino Sandstone. Precipitation of the uranium occurred when the metal-rich oxidizing solutions encountered the highly reduced breccia pipe environment (Krewedl and Carisey, 1986). Hydrocarbons, which probably migrated out of the Brady Canyon Member of the Toroweap Formation, caused reduction in the EZ-2 breccia pipe.

Another hypothesis suggests that the uranium in these deposits was derived by leaching from volcanic ash in the Chinle, and was mobilized by groundwater movement resulting from changing hydrologic gradients caused by regional uplift to the southwest. Because the lead isotope ratios of galena in mineralized pipes are more radiogenic than those of sulfides from uranium-poor pipes or occurrences away from the pipes, it is likely that fluids that passed through the pipes had interacted with the Proterozoic basement (Ludwig and Simmons, 1992).

Another hypothesis relies on the passage of three separate fluids: a sulfide-bearing (H_2S) fluid, metal-rich fluids or brines, and solutions containing uranyl complexes. The presence of extensive bleaching in the pipes and adjacent sandstones indicates the passage of sulfide-bearing (probably H₂S-rich) fluids early in the history of the pipes (Gornitz and others, 1988). The base metals (Co, Cu, Ni, Pb, and Zn) may have been deposited at this time, or possibly were transported by NaCl-rich brines, which have been observed in fluid inclusions. The uranium would have been transported as a uranyl ([UO₂]²⁺) complex in an oxidizing fluid and was precipitated when it encountered the sulfiderich reducing environment in the pipes (Wenrich and others, 1989). The uranium mineralization probably occurred around 200 Ma, when uranium-rich waters either moved northward from their silicic volcanic source rock in the Mogollon highlands through the Redwall carbonate section (or perhaps through the Surprise Canyon Formation channels) or one of the Pennsylvanian Supai aguifers. The 260 Ma uranium ages determined by Ludwig and Simmons (1988) suggest this mineralizing event may have begun as early as Late Permian. The upward-circulating mineralizing fluids encountered either reducing waters higher in the section or a reducing medium, such as pyriterich sulfide deposits previously precipitated from the brines. Petroleum compounds (such as pyrobitumen and sparse others) are abundant in a few pipes, but are not present in all pipes. Due the higher elevations in the source area (the Mogollon highlands to the south), regional hydraulic gradients would drive the fluids upward when they encountered permeable zones such as the breccia pipes. The relatively low fluid inclusion temperatures (80 to 173°C) in sphalerite, dolomite. quartz, and calcite suggest relatively low-temperature mineralizing fluids, though higher than the normal geothermal gradient on the Colorado Plateau (Wenrich, 1988).

6.1.2 Other Productive Uranium Breccia Pipes in the Region

Breccia pipe mines that produced uranium in the 1980s were the Hack 1, Hack 2, Hack 3, Pigeon, Pinenut, Hermit, Arizona 1, and Kanab North pipes, all located north of the Grand Canyon. Energy Fuels is currently mining uranium from the Pinenut pipe. Examples of other breccia pipe uranium deposits in Arizona include the Orphan Lode, Canyon, and Ridenour. The Canyon Mine, located south of the Grand Canyon, was developed in 1991-1992; it shut down after the infrastructure was developed. The current owner of the Canyon Mine, Energy Fuels, is evaluating re-start of development. Outside Arizona, examples of breccia pipes include the Apex mine in southwest Utah, the Temple Mountain Pipe in Utah, and the Pryor Mountains District in south-central Montana.

Mining of the breccia pipes began in the Grand Canyon region during the 1870s, although the commodities were primarily copper and minor amounts of silver, lead and zinc. In 1951, uranium was first recognized in the Orphan breccia pipe (Chenoweth, 1986). From 1956 to 1969, the Orphan Mine yielded 4.26 Mlbs of uranium oxide (U_3O_8) with an average grade of 0.42% U_3O_8 . The Orphan Mine also produced 6.68 Mlbs of copper, 107,000 oz of silver, and 3,400 lbs of vanadium oxide (V_2O_5) .

By the 1950s, the uranium breccia pipe mines included the Orphan, Grandview, Riverview, Ridenour, Grand Gulch, Savannic, Cunningham, Copper Mountain, Copper House, Old Bonnie Tunnel, Snyder, and Hack Canyon mines.

- Concentrically inward-dipping beds that surround a shallow basin;
- Amphitheater-style topography caused by preferential erosion along the ring fracture of a breccia pipe;
- Concentric drainage, soil, and vegetation patterns, such as a circular gully around a central hill or a circular patch of grass surrounded by desert vegetation;
- Breccia and possibly silicified hills of breccia; and
- Altered and mineralized rock, such as bleaching of normally red rock caused by the reduction of iron, supergene copper minerals as malachite and azurite, or secondary alteration products of sulfides (pyrite, marcasite, chalcopyrite, galena, sphalerite, and uraninite), such as goethite altered from pyrite.

Surface expression of pipe mineralization is generally located along the ring fractures of the pipe and is characterized by supergene copper minerals, minor increases in gamma radiation, barite, calcite,

goethite, and more rarely pyrite or marcasite (Wenrich, 1985). The highest gamma radiation commonly occurs in comminuted rock or in fracture zones. Most economic uranium pipes contain a pyrite cap that commonly oxidizes to goethite in pseudomorphs after pyrite cubes, concretions, botryoidal masses, and boxwork fracture fillings.

Copper mineralization at the surface of pipes usually occurs as supergene minerals such as malachite, brochantite, chrysocolla, and azurite. Less oxidized zones contain nodules rich in the copper sulfides chalcocite, covellite, chalcopyrite, enargite, tennantite, digenite, and djurleite, with some galena and sphalerite.

Not all shallow structural basins on the plateaus are likely to be uranium-bearing breccia pipes. Depressions in the Kaibab Limestone may be collapse features related to development of karst in the Kaibab and/or to dissolution of gypsum in the underlying Toroweap Formation. These collapse features have characteristics of ordinary sinkholes, with near-vertical walls, no tilted beds, and a flat bottom containing un-cemented rubble.

Geophysical Characteristics

Geophysical techniques, including CSAMT, surface and airborne magnetics, SP, resistivity, VLF, and IP, have been tested as an exploration tool. Although these techniques are useful, and on occasion can detect a pipe structure when directly above, none of these are cost effective on a regional scale. However, recent application of the airborne VTEM and MegaTEM methods resulted in detecting pipes and appear to be cost effective on the regional scale. Geophysical techniques are useful in mapping structural trends along which pipes occur.

Exploration geophysics are useful at the local scale (Wenrich and others, 1995). Diagnostic differences in electrical conductivity have been identified by scalar audiomagnetotelluric and E-field telluric profile data for at least one ore-bearing pipe (Flanigan and others, 1986). Ground magnetometer surveys show subtle magnetic lows over several pipes, possibly due to alteration of detrital magnetite within reduced zones associated with the uranium deposits (Van Gosen and Wenrich, 1989). Because the uranium ore is deeply buried (>1,000 ft), gamma-radiation is generally not detectable at the surface (Wenrich, 1986). Scarce weak gamma radiation anomalies detected at the surface are coincident with ring fracture zones and are less than 1 m thick (Wenrich, 1985).

Although there are geophysical techniques that can detect a breccia pipe, as of the date of this report, no geophysical method capable of proving the presence of uranium at depth has been developed aside from wireline down-hole geophysics (gamma logging) used in drill holes. The presence of uranium must be proved by drilling and assaying/gamma logging.

6.2 Local Geology

The Kaibab Limestone of late Permian age crops out across most of the northwestern quarter of the state, except where it is buried by Late Tertiary and Quaternary volcanic rocks. The overlying, less resistant redbeds of the Moenkopi Formation of early Triassic age have been almost completely removed by erosion, but are locally present as thin layers or where protected by collapse into depressions.

6.2.1 Local Lithology

The most common alteration of rock surrounding the breccia pipes consists of bleaching of normal hematitic pigment in redbed clastic sediments. In addition, liesegang banding in some areas indicates iron remobilization, as does the alteration of pyrite in the cap to goethite. The presence of supergene copper minerals (such as malachite) is also common in some breccia pipes.

Surface Formations

The Kaibab Limestone (officially named the Kaibab Formation of latest Leonardian to earliest Guadalupian age [approximately 275 to 285 Ma]) is predominantly a light gray, cliff-forming limestone and dolomite, with some interbeds of sandstone, red sandy mudstone, bedded gypsum,

and conglomerate. The lower member of cherty, massive, cliff-forming limestones contains a normal marine fauna of brachiopods, horn corals, bryozoans, pelecypods, and crinoids. The Kaibab Formation ranges from 300 to 600 ft (100-200 m) thick across northern Arizona, with the thickest sections in the western part of the state (Blakey and Knepp, 1989).

The Kaibab Formation is subdivided into two members: the lower Fossil Mountain Member and the upper Harrisburg Member. The Fossil Mountain Member consists of medium to dark gray, cliff- or ledge-forming, cherty, limy dolomite or dolomitic limestone with abundant fossils, such as brachiopods, bryozoans, crinoids, and sponges. To the east of the Grand Canyon, the formation becomes increasingly sandy with significant chert. The Harrisburg Member consists of white to gray slope-forming gypsum with overlying and interbedded gray or light brown carbonate and red siltstone beds that are 1 to 5ft thick (Cheevers and Rawson, 1979). The Harrisburg Member is commonly found on the North Rim. The Fossil Mountain Member records a marine transgression from the east and the sea at its maximum westward extent, while the Harrisburg Member records a regression and is usually absent due to pre-Triassic erosion south of the Grand Canyon.

The Moenkopi Formation unconformably overlies the Kaibab Formation and consists of a westwardthickening wedge of fine-grained red sandstone and mudstone to siltstone in the east and progressively increasing amounts of carbonate to the west of the Colorado Plateau (Blakey, 1989). In the area of Energy Fuels's breccia pipes, the basal part of the Moenkopi Formation consists of thin-bedded, maroon to red-brown siltstones and fine-grained sandstones that weather easily. The Kaibab-Moenkopi contact is identified as the last occurrence of light brown cherty carbonates and the first occurrence of red siltstones or basal conglomerate (Cheevers and Rawson, 1979).

Underlying Formations

The Toroweap Formation conformably (and locally unconformably) underlies the Kaibab Formation. The Toroweap consists of massive limestone in the western Grand Canyon, but is progressively thinner and more magnesian eastward and is relatively inconspicuous at the east end of the canyon (McKee, 1969). As with the Kaibab Formation, the Toroweap Formation records a marine transgression and regression; the lower portion consists of relatively thin, weak, slope-forming units, the middle portion is a massive limestone to dolomite, and the upper portion consists of slope-forming redbeds, thin residual limestones, and local beds of gypsum.

The Coconino Sandstone underlies the Toroweap Formation. The Coconino Sandstone consists of clean well-sorted quartz sand in southerly-dipping cross-bedded white sandstones of eolian origin. The formation thins progressively northward and westward from a maximum thickness of 500 ft along the Mogollon Rim in central Arizona to a narrow tongue that wedges out near the Arizona-Utah border (McKee, 1969). It is approximately 100 ft thick in the central Grand Canyon. The large-scale, wedge planar cross-stratification dips as much as 34° south and resulted from large, transverse-type sand dunes that indicate wind transportation of sand from the north.

The Hermit Formation underlies the Coconino Sandstone. The Hermit Formation consists of approximately 300 ft of brick red shaly siltstone, sandy shale, and fine-grained sandstone. In the eastern Grand Canyon, it erodes easily into a slope or bench; in the western canyon, it contains a higher percentage of resistant rock and forms cliffs and narrow ledges. The Hermit Formation increases in thickness to 1,000 ft in the western Grand Canyon (McKee, 1969). The Hermit Formation has been assigned an Early Permian age based on seed ferns and plants in the eastern Grand Canyon (McKee, 1969).

The Supai Formation underlies the Hermit Formation. The Supai Formation consists of approximately 700 ft of red sandstone and shale and purplish limestone to the west (McKee, 1969). The Supai Formation is assigned an Early Pennsylvanian (Morrow) age for the basal strata and Early Permian (Wolfcamp) age for the upper units, based on marine fossils in limestone tongues and lenses interbedded with Supai redbeds in the western Grand Canyon (McKee, 1969).

The Redwall Limestone unconformably underlies the Supai Formation. The Redwall Limestone forms massive cliffs of light gray cherty limestone and dolomite stained red from the overlying Supai and Hermit formations. It is 500-700 ft thick and consists of four members (in descending order): the

Horseshoe Mesa, Mooney Falls, Thunder Springs, and Whitmore Wash Members (Beus, 1989). The Horseshoe Mesa Member is a microcrystalline limestone that is 35 to 125 ft thick in the Grand Canyon, is thin bedded, and weathers into a series of receding ledges. The Mooney Falls Member is a massive, pure limestone, microcrystalline to coarse grained, and is 200 to 350 ft thick. The Thunder Springs member typically consists of thin limestone beds in the west and dolomites in the east that are interbedded with thin beds or lenses of opaque white chert, forming banded cliffs. It is thickest under the Kaibab Plateau, where it reaches 235 ft in thickness (Beus, 1989; McKee, 1969). None of the productive breccia pipes extend below the Thunder Spring Member of the Redwall Limestone (Wenrich, 1985). The underlying Whitmore Wash Member is a thick-bedded carbonate unit that forms a resistant cliff about 100 ft thick. It is a uniformly fine-grained dolomite in the eastern Grand Canyon and is an even, fine-grained limestone in the western part of the canyon.

6.2.2 Alterations

The most common alteration of rock surrounding the breccia pipes consists of bleaching of normal hematitic pigment in redbed clastic sediments. In addition, liesegang banding in some areas indicates iron remobilization, as does the alteration of pyrite in the cap to goethite. The presence of supergene copper minerals (such as malachite) is also common in some breccia pipes.

6.2.3 Structure

Ring fractures surround the breccia pipe and mark the zones of down-dropping and potential areas of richest mineralization. These ring fractures can show two or more times background radiation at surface. Background radiation is generally approximately 100 counts per second (CPS) on a scintillometer. Other zones of weakness, faulting, or collapse can also measure 200 to 1,400 CPS.

6.2.4 Mineralization

Uranium Breccia Pipe Mineralogy

The uranium mineralization occurs in the breccia zone within the core of the pipe, as well as in the annular ring fractures surrounding the breccia pipe. The economic uranium mineralization occurs typically as uraninite (UO₂), and locally as hexavalent (oxidation) products of uraninite such as carnotite [K₂(UO₂)₂(VO₄)₂·3H2O].

The supergene copper minerals, uranium-bearing minerals, vanadium-bearing minerals, and the more common minerals such as pyrite, galena, barite, and sphalerite are usually megascopic in size. The obvious presence of these minerals (or their alteration products) at the surface or in drill core indicates the presence of an underlying mineralized breccia pipe. The rarer primary metallic minerals, such as the nickel-cobalt-iron sulfides (siegenite, vaesite, gersdorffite, etc.), are microscopic and distinguishable only in thin sections.

Mineralization observed at the surface of the breccia pipes commonly consists of nodules and concretions located along fractures and associated with pyrite and goethite. The primary mineralization of the unoxidized zones is typically within a comminuted sandstone matrix surrounding breccia fragments of various overlying formations. The primary uranium mineral is uraninite, with associated sphalerite, galena, chalcopyrite, tennantite, millerite, siegenite, and molybdenite. The mineralized rock can be enriched in Ag, As, Ba, Cd, Co, Cr, Cs, Cu, Hg, Mo, Ni, Pb, Sb, Se, Sr, U, V, Zn, and the rare earth elements; the best indicators of mineralized pipes are Cu, Pb, Zn, Ag, and particularly As.

Energy Fuel's Breccia Pipe Mineralization

All of the breccia pipe properties controlled by Energy Fuels, including the Wate Pipe, show typical signs of mineralized breccia pipes. These signs commonly include one or more of the following criteria:

• Inwardly dipping Kaibab Limestone strata that is frequently overlain by maroon-red Moenkopi Formation suggesting depressions or collapse breccia;
- Elevated radiation that is two or more times background;
- Evidence of mineralization such as secondary iron or copper minerals; and
- Less commonly alteration in the form of bleaching of normally iron-bearing rocks.

In addition, several of the pipes have uranium mineralization defined in drilling.

The Wate pipe is typical of uranium breccia pipes, and has sufficient drilling to define current resources.

Geochemistry

Numerous metals are enriched in uranium breccia pipes, but the best pathfinder elements are As, Pb, and Zn. There is a strong depletion in Ca, Mg, and Na in the uranium-mineralized zones, with a strong enrichment in Sr, Ba, K, and Cs (Wenrich, 1985). Elevated abundances of some elements in the mineralized breccia pipes are: <2 to 2,400 ppm Ag, 0.5 to 111,000 ppm As, 4 to 100,000 ppm Ba, <2 to 2,900 ppm Cd, 0.66 to 26,000 ppm Co, <1 to 290,000 ppm Cu, <0.01 to 140 ppm Hg, <2 to 24,000 ppm Mo, <2 to 62,000 ppm Ni, <4 to 84,000 ppm Pb, 0.13 to 2,900 ppm Sb, <0.1 to 3,000 ppm Se, 4 to 5,800 ppm Sr, 0.63 to >210,000 ppm U, <4 to 50,000 ppm V, and <4 to 260,000 ppm Zn (Wenrich and others, 1995).

The only zoning recognized in primary uranium mineralization involves concentration of nickelcobalt-iron-copper arsenide and sulfide minerals in sulfide caps above uranium mineralization. Secondary and supergene minerals are present wherever mineralized rock has been exposed to oxidation, such as canyon dissection or fracture-controlled oxidation (Verbeek and others, 1988; Wenrich and others, 1990).

Wall-rock alteration associated with the uranium breccia pipe deposits consists of bleaching (reduction) of iron oxide minerals in red sandstone by oxygen-poor fluids. Alteration can extend 100-350 ft (30 to 100m) outward into wall rock (Wenrich and others, 1992). These deposits oxidize rapidly (within six months) after exposure to oxygen, either in surface weathering or in open underground drifts (Wenrich and others, 1995)



Arizona geology map, from Arizona Geological Survey; Kaibab formation shown in Blue (Pm)

Figure 6-1: Geologic Map of Arizona



Near the Grand Canyon, Northern Arizona Source: VANE, 2007

Figure 6-2: Stratigraphic Position of Ore in Uranium Breccia Pipes



Source: Finch, 1992

Figure 6-3: Characteristics of Uranium Breccia Pipes, Northern Arizona

7 Deposit Types (Item 8)

The uranium breccia pipes in northern Arizona are called Solution-Collapse Breccia Pipe U Deposits, which is U.S. Geological Survey Model 32e (Finch, 1992). The deposit description is summarized and updated by Wenrich and others (1995). The description indicates that these deposits consist of pipe-shaped breccia bodies formed by solution collapse and contain uraninite and associated sulfide and oxide minerals of Cu, Fe, V, Zn, Pb, Ag, As, Mo, Ni, Co, and Se.

Characteristics of uranium bearing breccia pipes, including the Wate Pipe, are described in Section 6.3. See Figure 6-2 and Figure 6-3 for schematic cross sections of a typical mineralized breccia pipe.

8 Exploration (Item 9)

The discussion in this section is related to historical exploration; Energy Fuels has not conducted exploration on the Project.

Exploration for breccia pipes is directed at recognition of the subtle surface expression of breccia pipe targets, followed by land acquisition and cursory surface examination to include limited mapping, sampling, and radiometric surveys of surface outcrops. Targets with sufficient evidence of a breccia pipe target are identified and prioritized for drilling to confirm that the target is a collapse breccia and not a sinkhole-type depression, and to target potentially mineralized stratigraphic contacts at depth, such as the Coconino sandstone/Hermit shale contact. This is a reasonable approach, since the substantive evidence of breccia pipes and uranium mineralization comes from drilling to 600 to 1,500 ft in depth. Historical exploration concepts and approach were appropriate for the targets, as was initial drilling to define pipes and uranium mineralization.

The following is a description of the work completed to date on the Wate Pipe by VANE, the most current exploration on the property for which full documentation is available. Historical exploration results are described in Section 5 (History).

8.1 Wate Pipe – VANE Exploration

VANE pursued three avenues of advancing this highly prospective breccia pipe:

- VANE determined that Taiwan Power, a former owner through RME Partners LP, has a hard copy of all project data generated during exploration, including internal resource estimation and proposed exploration/mine development. VANE unsuccessfully conducted negotiations with Taiwan Power to acquire a copy of the entire dataset. This data will allow, upon data verification, resource estimation for the entire extent of the pipe; whereas, current drillhole information, as described in Section 13, used only VANE drillhole data to estimate grade for the Wate Pipe resources.
- VANE conducted a limited program to clean out and re-enter historical drillholes located in the field. As of this report, three drillholes have been cleaned out with rotary and core drill rigs, resurveyed down-hole for verification of hole deviation, and re-logged with gamma probes for verification of the thickness and grade of historical uranium intercepts. Two independent logging companies performed gamma logging: Geophysical Logging Services and Century Wireline Services. Results are confirmatory and are presented in Section 10 of this report.
- VANE drilled several new holes at the Wate Pipe, confirming historically reported grades and thicknesses of mineralization, as described in Section 13 of this report

Figure 8-1 shows a photograph of drilling at the Wate Pipe in January 2009. The topographic relief is minimal, as are outcrop exposures for mapping/sampling. A similar size breccia pipe, the Miller Pipe is shown in Figure 8-2 for comparison and for visualization of subtle surface features.

8.2 Geophysical Surveys

In the spring of 2007, Geotech Ltd. of Canada conducted a helicopter electromagnetic (EM) survey (VTEM) over a portion of the South Rim of the Grand Canyon, at 150 m line spacings (this work was performed for other companies). The survey was conducted over known breccia pipes, including VANE's Miller and Red Dike pipes. In November/December of 2008, PetRos EiKon Inc., a geophysical data processing company in Canada, provided VANE some summary interpretive work that evaluated the magnetic and VTEM data over the Miller, Miller SW, and Red Dike pipes. The objective of PetRos EiKon was to determine what geophysical parameters might define breccia pipes, and utilize that information as a basis for future exploration. PetRos EiKon concluded that VTEM survey data can indeed define EM anomalies related to breccia pipes (as it clearly does for the Miller Pipe), and in conjunction with larger-scale magnetic anomalies and topographic features, can be a useful tool. Not all of the known breccia pipes in the area of study could be resolved by this approach. SRK concludes that the use of geophysical surveys may be problematic, given the high

cost and the need for very tight line spacing (50-75m) to avoid missing small pipe surface expressions.

8.3 Summary

Typically, there is little to no surface expression of uranium mineralization on breccia pipe targets. The VANE program of identification of prospective pipe targets, followed by shallow drilling to define pipe geometry, and deep drilling to test favorable stratigraphy in the pipes for uranium mineralization was a well-planned and focused exploration program, appropriate for the deposit type.

VANE has pursued drilling verification to confirm historical drilling results for the Wate Pipe. VANE exploration expenditures from September 2008 through March 2011 on the Wate Breccia Pipe are approximately US\$1,364,000, of which drilling accounts for approximately \$1,110,000.



Figure 8-1: Wate Pipe Looking Southwest (January 2009)



Figure 8-2: Typical Breccia Pipe Surface Expression - Miller Pipe Looking Southwest

9 Drilling (Item 10)

The discussion of drilling in this section is specific to VANE's drilling, for which full documentation is available. Previous historical drilling is not fully documented. Energy Fuels has not conducted drilling on the Project.

The evaluation of breccia pipes requires moderately deep to deep drilling, typically to depths of 1,200 to 2,000 ft. The major difficulty results from the small diameter (typically 100 to 300 ft) of the pipe. Any deviation from vertical in the drilling, and the drillholes will soon exit the sides of the pipe. A particular challenge in drilling breccia pipes is the tendency for sometimes extreme deviation in the drillholes due to the brecciated nature of the strata internal to the pipe.

The drilling program for the Wate Pipe was designed to confirm historical drillhole intercept grades with re-logs of historical drillholes (if the holes could be re-entered), and new drillholes to confirm historical grades in the areas of known mineralization. Drilling can be conducted essentially year-round.

VANE was successful in finding and re-entering four historical drillholes: WT-2, WT-5, WT-7, and WT-29. Attempts to unearth and re-enter other historical holes proved difficult. WT-29A drifted out of the original drillhole (WT-29) to create a new nearby hole at the level of mineralization.

Including WT-29A, VANE drilled eleven new holes, some form surface and others as wedge core holes; WT-32 through WT-42, not including wedge-hole WT-40 which was lost.

Del Rio Drilling & Pump Inc., a Chino Valley, Arizona-based drilling company, conducted the rotary drilling for VANE. Del Rio used down-hole hammer and tri-cone rotary drilling methods, with injection of foam to lift drill cuttings. Brown Drilling, a Kingman, Arizona-based drilling company, conducted the diamond core drilling. The primary purpose of the drilling was to create a drillhole for gamma probing, and to gather lithological information. In the case of rotary drilling, where mineralization is noted or suspected, spot-core is collected for lithological verification and for a sample to be used for chemical analysis. Diamond core drilling was done late in the project to better control hole deviation and to obtain core for metallurgical testing. A summary of VANE's drill program to date for the Wate Pipe is listed in Table 9-1.

Drillhole Name	Total Depth (ft)	Comments		
WT-2	1,600	Clean-out historical hole and re-log – barren		
WT-5	1,540	Clean-out historical hole and re-log – 34 ft @ 1.61% eU ₃ O ₈		
WT-7	1,645	Clean-out historical hole and re-log – $10.5 \text{ ft} @ 0.40\% \text{ eU}_3O_8$		
WT-29A	1,600	New VANE hole, drilled out of Historical WT-29. 36 ft @ 0.69% and 28 ft @ 1.60% eU_3O_8		
WT-33	1,500	New VANE hole. 25.5 ft @ 0.45% eU ₃ O ₈		
WT-34	1,580	New VANE hole. 15 ft @ 0.30% eU ₃ O ₈		
WT-35	1,530	New VANE hole. 21.5 cumulative ft @ 0.33% eU ₃ O ₈		
WT-36	1,570	New VANE hole. Weakly mineralized (0.02% eU ₃ O ₈ over 80 cumulative ft)		
WT-37	1,490	New VANE hole. Several intercepts including 20 ft @ 0.37% and 12.5 ft @ 1.29% eU ₃ O ₈		
WT-38	1,558	New VANE hole. Weakly mineralized from 0.01 to 0.10% eU ₃ O ₈		
WT-39	1,658	New VANE hole. Highest grade encountered to date (18.3%); 64.5 ft @ 1.45% eU ₃ O ₈ un-cut, or 1.29% if 3 assays >6.0% are cut to 4.6%		
WT-40	Hole lost	Wedge hole from WT-39, lost prior to reaching depth of mineralization		
WT-41	1,603	New VANE hole, 27.0 ft @ 1.45% eU ₃ O ₈		
WT-42	1,690	New VANE hole. Close offset to WT-42, with cumulative of 35.5 ft @ 0.25% eU_3O_8 (across peripheral ring fracture (?)).		

 Table 9-1: Summary of VANE Drilling Wate Breccia Pipe

Drillhole collar locations were surveyed by Northland Exploration Surveys, Inc. SRK considers the drilling methods, equipment used, drill orientations, and nominal drill spacing to be adequate to support the exploration goals of VANE and preliminary resource estimations.

A summary of available historic information on the previous drill programs for the Wate Pipe is listed in Section 5. This information was available because the Wate Pipe is on State land and some historic records (reports) were available from the Arizona State Land Department. Complete information on historical drilling such as drill logs and gamma logs is lacking.

In July and August 2010, VANE acquired historical reports for drilling at the Wate Pipe, which provided from/to summary drill intercept radiometric composites for each historical drillhole; information that VANE did not previously have. However, that information is lacking the 0.5 ft interval data that is commonly derived from gamma logs, and typical of the data from VANE holes. The historical drillhole gamma logs and geological logs are also not in Energy Fuel's possession. Nevertheless, the historical drillhole composite interval data is useful in establishing the mineralized envelopes used for resource estimation (See Section 13).

9.1 Drill Results from Wate Pipe

Upon the formation of the Mining Venture Agreement with U1, VANE appropriately concentrated exploration activities to the confirmation of historically reported high grades in the Wate Pipe. The work in 2008 consisted of locating the historical drillhole collars in the field and successfully reentering three drillholes to clean out the holes and allow confirmation of grades through gamma logging. This was completed for drillholes WT-2, WT-5, and WT-7. The results are very encouraging, with WT-5 and WT-7 encountering high grades (Table 9-2); WT-2 encountered weak mineralization but no resource grade material. As VANE does not currently have access to the historical drillhole logs or drillhole intercepts for the Wate drilling, VANE's re-logging of the holes cannot be directly compared with the historical data at this time, with respect to grade and thickness of mineralization. The re-logging generated down-hole surveys that have replicated the drift of the historical holes as shown on plan maps.

VANE re-logged three historical holes and part of WT-29, and drilled eleven new holes. Two of the re-logged historical holes, WT-5 and WT-7, confirmed historical high grades. Eight of the eleven new

VANE holes encountered significant mineralized intercepts as listed in Table 10-2, also encountering high-grade mineralization.

Drillhole				
Name	From (ft)	To (ft)	Intercept Grade	
WT-2	0	1600	Barren, maximum of 5 ft @ 0.01% eU_3O_8 at 1238 to 1238 ft	
WT-5	1124.0	1126.5	2.5 ft @ 0.03% eU₃O ₈	
WT-5	1385.5	1387.5	2.0 ft @ 0.04% eU₃O ₈	
WT-5	1457.0	1458.5	1.5 ft @ 0.04% eU₃O ₈	
WT-5	1486.0	1488.5	2.5 ft @ 1.08% eU₃Oଃ	
WT-5	1489.0	1523.0	34.0 ft @ 1.67% eU ₃ O ₈ ; including 9.0 ft @ 4.22%*	
WT-7	1215.5	1219.5	4.0 ft @ 0.04% eU ₃ O ₈	
WT-7	1227.5	1232.5	5.0 ft @ 0.03% eU ₃ O ₈	
WT-7	1234.0	1236.5	2.5 ft @ 0.03% eU ₃ O ₈	
WT-7	1244.5	1255.0	10.5 ft @ 0.40% eU ₃ O* ₈	
WT-7	1262.0	1263.0	1.0 ft @ 0.03% eU₃O ₈	
WT-7	1264.5	1266.0	1.5 ft @ 0.03% eU₃O ₈	
WT-29A	1318.0	1354.0	36.0 ft @ 0.69% eU ₃ O ₈	
WT-29A	1498.5	1526.5	28.0 ft @ 1.60% eU ₃ O ₈	
WT-33	1421.0	1446.5	25.5 ft @ 0.45% eU ₃ O ₈	
WT-34	1269.5	1284.5	15.0 ft @ 0.30% eU ₃ O ₈	
WT-35	1333.5	1370.0	21.5 ft (cumulative) @ 0.33% eU ₃ O ₈	
WT-36	1188.5	1519.5	80 ft (cumulative) @ 0.02% eU ₃ O ₈ over 331 ft; high value of 0.12%	
WT-37	1299.0	1319.0	20 ft @ 0.37% eU ₃ O ₈	
WT-37	1328.0	1330.5	2.5 ft @ 0.19% eU ₃ O ₈	
WT-37	1362.5	1375.0	12.5 ft @ 1.29% eU ₃ O ₈	
WT-38	983.5	1196	212.5 ft @ 0.02% eU ₃ O ₈ , including 8.0 ft @ 0.09% and 9.5 ft @	
			0.08%	
WT-38	1213.5	1377.5	164 ft @ 0.01% eU ₃ O ₈ , including 6.5 ft @ 0.05% eU ₃ O ₈	
WT-39	1448.0	1512.5	64.5 ft @ 1.45% eU ₃ O _{8, i} ncluding 1.5 ft @ 11.6% with a high assay	
			of 18.3%; confirmed by chemical assay from core as well.	
WT-41	1453.5	1480.5	27.0 ft @ 1.45% eU ₃ O ₈	
WT-42	1246.0	1599.5	Cumulative of several intervals: 35.5 st @ 0.025%	

Table 9-2:	Summary of VANE	Drilling (including wa	ashouts of historical holes)
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* As reported on the Century Wireline Services gamma logs. VANE may have reported a slightly different intercept thickness and grade.

All confirmation re-logging of Wate historical drillholes, and new VANE drillholes was done with both Century Wireline Services and Geophysical Logging Service.

WT-42 was a core hole wedged off of WT-39 that deflected from the original target, and resulted in an very close offset to WT-41, as further described in Section 16.1 and shown in Figure 16-2

9.2 Planned Drilling

Drilling to date has demonstrated Inferred resources in excess of 1.0 million pounds eU_3O_8 , a perceived threshold to advance the project further through underground exploration and development. Energy Fuels plans are to further drill define the mineralization at the Wate Pipe, but likely as fan drilling from stations at different levels from an exploration shaft, as vertical drilling can only define a portion of the mineralization; vertically oriented mineralization, as in peripheral ring fractures, is not well defined currently, and continued drilling from surface will not help much in defining this mineralization.

9.3 Recommendations

The drilling methods used in the historical drilling at the uranium breccia pipes were typical of the industry standard methods at the time, and are considered valid. The drilling methods employed by VANE are also appropriate for initial exploration and definition of mineralization

It is recommended that Energy Fuels consider two avenues for further drilling:

- Core-hole wedge drilling offsets to target one or more historical drill intercepts at the Wate Pipe. Targeting specific areas of the breccia pipe may require directional-drilling equipment as well.
- Fan drilling from different stations in an exploration shaft. The decision to proceed to underground exploration will allow for detailed fan drilling form various vertical positions that will cross the vertically oriented mineralization and allow for more detailed definition of mineralized shapes.

Additional confirmation drilling information, whether from surface or underground, in conjunction with the acquired historical database gamma-logs, if achievable, will provide more data and enhance the confidence level in the resource estimate for the Wate Pipe presented in Section 16 of this report.



Figure 9-1: Locations of VANE and Historic Drillholes at the Wate Breccia Pipe



Note: New VANE drillholes are not shown on this figure – see Section 16 for sectional depiction of holes used in current resource estimation

Figure 9-2: Sketch Cross Section – Wate Pipe Historical Drillholes

10 Sampling Preparation, Analysis and Security (Item 11)

This section refers to sampling the method, analysis and security of VANE, for the most current exploration drilling on the Project. Energy Fuels has not conducted any sampling on the Project.

10.1 RC/Rotary/ Spot Core Drilling

RC and/or rotary drilling in the Arizona breccia pipes is done using the injection of foam to lift cuttings from the hole. Since the targeted depths (up to 1,500 ft) are above the water table, this is the best drilling method to use for early stage exploration. Drilling by RC and/or conventional rotary with mud from surface is impractical due to the karst nature of the formations.

VANE contracted Del Rio Drilling for rotary drilling, which uses a Portadrill TLS 532 drill rig capable of drilling to 3,500 ft depths if conditions are favorable. Drillholes can be 8 inches or 6 inches in diameter; typically with 8-inch drillholes used to set surface casing in broken ground. Drilling is by conventional rotary methods using a down-hole hammer drill, with foam injection to lift drill cuttings. Rotary drill cuttings suspended in foam are collected and washed to generate a small amount of rock chips for geological logging, on 10 ft intervals. Rotary cuttings are retained in chip trays as a permanent record to compliment the wireline down-hole logs. Rotary cuttings were not collected by VANE for assay purposes.

The rotary drilling method employed does not necessarily produce a good sample for analysis; however, the primary purpose of the drillhole is to provide geological information and an open hole within which to run the gamma-logging tool.

Core drilling is done as spot core collected from the rotary drill rig. This is done to verify lithologies, confirm presence of breccia, and for short intervals of whole core to confirm uranium mineralization with sufficient sample for analysis. Spot core is done where needed, at the discretion of the geologist sitting the drill rig. Spot core is typical HQ size (2.5 inch diameter), and from a few inches to a foot or more in length. A typical core run in 20 ft. Uranium mineralization as uraninite is commonly associated with other sulfide minerals, and would look dark gray or black in color in drill cuttings. Spot core allows the opportunity to verify mineralization in solid rock and provide ½ core samples for chemical analysis to compare with the gamma log.

10.2 Wireline Diamond Core Drilling

Wireline diamond core drilling, although more expensive, provides the best sample and better control of deviation and therefore is suited for post-early stage exploration.

VANE contracted Brown Drilling for wireline diamond drilling. Brown Drilling used both a Discovery 3 rig and Longyear 44 rig. Holes were drilled from surface using HQ core and reduced to NQ core as needed. Wedges were set down hole to deflect new holes to areas where additional evaluation was required.

The drilling and sampling methods are therefore appropriate and acceptable for the Arizona breccia pipe targets.

10.3 Gamma Logging

Down-hole gamma logging tools have been an industry standard method of collecting drillhole information for uranium exploration since the 1960s. The drillhole is probed (gamma logged) and surveyed for deviation by independent logging contractor Geophysical Logging Services, from Prescott, Arizona, using industry standard gamma logging equipment and procedures. Century Geophysics (Century Wireline Services) of Tulsa, Oklahoma (field office: Meeker, Colorado) is used for QA/QC gamma logging as a check on Geophysical Logging Services, if needed. This is an

acceptable industry practice to determine in-situ uranium grade (further described in Section 10.6 – Radiometric Analyses) and provide replicate logs as an additional QA/QC check.

SRK is of the opinion that the sampling method and approach used are appropriate for the mineralization, and are standard industry practice.

10.4 Analytical Procedures

Industry-standard analyses for chemical uranium (expressed as either ppm or percentage U or U_3O_8) are typically done by two methods; induction coupled plasma-mass spectrography (ICP-MS), and X-ray fluorescence spectrometry (XRF). The ICP method, which involves an acid digestion of the sample, can also be used for analysis of many other elements. ICP analyses for uranium comprise the primary method of the analyses performed on spot core samples by VANE.

10.5 Sample Preparation and Assaying

Sample preparation relates to drill samples. VANE's exploration was conducted by rotary drilling and wireline diamond drilling; samples are currently not regularly used for analyses. However, core from Hole WT-39 was assayed to verify gamma probe grade. Digital down-hole gamma log data are converted to equivalent assays; therefore, the process is described in this section as an analytical procedure. Spot core samples are used to verify lithologies and to obtain samples for chemical analysis, in order to correlate with the gamma log. Spot core samples could also be used for bulk density measurements, for mineralogical work, and for radiometric analyses to compare with gamma log determined eU_3O_8 .

The preparation of samples for analyses involves one of two methods. Samples for ICP analyses typically are prepared by sample digestion with four acids to achieve maximum dissolution of elements; analysis is performed on the solution. Samples for XRF analyses are prepared by fusion of the sample material with another compound to form a glass-like disk. The fusion technique of sample preparation minimizes particle size effects that could otherwise cause problems with the measurement process. Numerous trace elements can also be determined from the same fused disk. The disks themselves can be stored indefinitely. Standard ICP analyses sample preparation was used for VANE samples of core.

10.6 Quality Controls and Quality Assurance

The system of QA/QC protocols for VANE's exploration projects is limited to the gamma logging analytical technique. VANE uses Geophysical Logging Services for independent gamma logging services. If there was a need, due to spurious data or obvious errors in the data, VANE would do check logging with another independent gamma logging company – Century Geophysical. For clean-out and re-logging of historically mineralized drillholes at the Wate Pipe, VANE used both Geophysical Logging Services and Century Geophysical to provide replicate gamma logs and downhole surveys.

At this stage in the drilling project, insufficient samples have been collected for ICP chemical analysis to warrant a rigorous sample QA/QC program. A QA/QC program will be important and is recommended upon further drilling. That program should include chemical analysis from spot core samples, the insertion of standards, blanks, and duplicates, and duplicate independent gamma logging.

10.7 Sample Security

Rotary chip samples collected at the drill site and spot core samples were kept under the supervision of VANE staff geologists. Gamma logs were generated and presented in digital and graphical format from the contractor to VANE.

10.8 Analytical Laboratory Certification

Actlabs was the analytical lab used for the Project. This Canadian headquartered lab is an internationally known lab that has provided analytical services to the mining industry for some time. Actlabs' Quality System is accredited to international quality standards through International Organization for Standardization/International Electro-technical Commission (ISO/IEC) 17025 (ISO/IEC 17025 includes ISO 9001 and ISO 9002 specifications) and CAN-P-1579 (Mineral Analysis) for specific registered tests by the Standards Council of Canada.

10.9 Radiometric Analyses

The basic analysis that supports the uranium grade reported in the uranium bearing breccia pipes is the down-hole gamma log created by the down-hole radiometric probe. That data is gathered as digital data on approximately 1.0 in intervals as the radiometric probe is inserted or extracted from a drillhole.

The down-hole radiometric probe measures total gamma radiation from all natural sources, including potassium (K) and thorium (Th) in addition to uranium-bearing minerals. In most uranium deposits, K and Th provide a minimal component to the total radioactivity, measured by the instrument as CPS. At the Project, the uranium content is high enough that the component of natural radiation that is contributed by K from feldspars in sandstone and minor Th minerals is expected to be negligible. The conversion of CPS to equivalent uranium concentrations is therefore considered a reasonable representation of the in-situ uranium grade. Thus, determined equivalent uranium analyses are typically expressed as ppm eU_3O_8 ("e" for equivalent) and should not be confused with U_3O_8 determination by standard XRF or ICP analytical procedures. Radiometric probing (gamma logs) and the conversion to eU_3O_8 data have been industry-standard practices used for in-situ uranium determinations since the 1960s. The conversion process can involve one or more data corrections; therefore, the process used for the Uranium Breccia Pipe Project is described here.

The typical gamma probe is about 2 inches in diameter and about 3 ft in length. The probe has a standard sodium iodide (NaI) crystal that is common to both hand-held and down-hole gamma scintillation counters. The logging system consists of the winch mechanism (which controls the movement of the probe in and out of the hole) and the digital data collection device (which interfaces with a portable computer and collects the radiometric data as CPS at defined intervals in the hole).

Raw data is typically plotted by WellCAD software to provide a graphic down-hole plot of CPS. The CPS radiometric data may need corrections prior to conversion to eU_3O_8 data. Those corrections account for water in the hole (water factor) which depresses the gamma response, the instrumentation lag time in counting (dead time factor), and corrections for reduced signatures when the readings are taken inside casing (casing factor). The water factor and casing factor account for the reduction in CPS that the probe reads while in water or inside casing, as the probes are typically calibrated for use in air-filled drillholes without casing. Water factor and casing factor corrections are made where necessary, but VANE drillholes are typically open dry holes.

Conversion of CPS to % eU_3O_8 is done by calibration of the probe against a source of known uranium (and thorium) concentration. This was done for the gamma probe at the former U.S. Atomic Energy facility in Grand Junction, Colorado. The Grand Junction calibration facility in Colorado was used by Geophysical Logging Services. The calibration calculation results in a "K-factor" for the probe; the K-factor is 6.12331⁻⁶ for gamma probe 2PGA2337. The following can be stated for thick (+60 cm) radiometric sources detected by the gamma probe:

10,000 CPS x K = 0.612% eU₃O₈

As the total CPS at the Wate Breccia Pipe Project is dominantly from the uraninite uranium mineralization, the conversion K factor is used to estimate uranium grade, as potassium and thorium are not relevant in this geological environment. The calibration constants are only applicable to source widths in excess of 2.0 ft. When the calibration constant is applied to source widths of less than 2.0 ft, widths of mineralization will be over-stated and radiometric determined grades will be understated.

The industry standard approach to estimating grade for a graphical plot is shown in Figure 10-1, and is referred to as the half-amplitude method.

The half-amplitude method follows the formula:

 $GT = K \times A;$

where GT is the grade-thickness product,

K is the probe calibration constant, and

A is the area under the curve (cm-CPS units).

The area under the curve is estimated by the summation of the 1.0 cm (grade-thickness) intervals between E1 and E2 plus the tail factor adjustment to the CPS reading of E1 and E2, according to the following formula:

 $A = [\Sigma N + (1.38 \times (E1 + E2))];$

where A is the area under the curve,

N is the CPS per unit of thickness, here 1.0 cm, and

E1 and E2 are the half-amplitude picks on the curve.

This process is used in reverse for known grade to determine the K factor constant.

The procedure used at VANE's Uranium Breccia Pipe Project is to convert CPS per anomalous interval by means of the half-amplitude method; this results in an intercept thickness and eU_3O_8 grade.

In conclusion, VANE's sample preparation, methods of analysis, and sample and data security are being implemented with acceptable industry standard procedures, and are applicable to the uranium deposits at the Project.



Source: SRK, 2006

Figure 10-1: Example Gamma Log -- Half-Amplitude Method

11 Data Verification (Item 12)

SRK Data verification has been accomplished by the following:

- Visual inspection of alteration, rock types, and structure in outcrop and at prospects on VANE's breccia pipe properties;
- Location in the field of historical drill sites that are marked with drillhole identification and correspond to location on maps;
- Observation in the field of more than two times background radiation, as shown by a hand-held scintillometer;
- Copies of external lab test results (geochemical) that also confirm uranium mineralization in select samples;
- Examination of gamma logs to verify mineralized intercepts;
- Examination of replicate gamma logs from a second contract logging company; and
- Comparison of VANE gamma-log data composite intervals with historically reported composite intervals for the re-logging of WT-5 and WT-7

Visual inspection in the field confirms the geology as typical of uranium breccia pipes. Malachite and boxwork iron oxides (limonite and hematite) and casts after former pyrite are visible in some outcrops. Elsewhere, gently inward-dipping stratigraphy toward a depression or semi-circular topographic low area suggests stratigraphic collapse indicative of a breccia pipe. The authors did not directly confirm, visually or through sampling, the uranium mineralization, as identification is often difficult in oxidized and weathered outcrops. However, the analytical results of VANE's sampling verify uranium mineralization where identified in some prospects. The inward dipping stratigraphy is notable in outcrop at the Wate Pipe.

Also visible in the field are historical drill roads and drill sites. A number of RME's former drillholes have been located in the field. At the Wate pipe, the drillhole collars were covered with a few inches of dirt and were located by carefully scraping away the top layers of soil cover to define the drillholes.

Historical drill core prior to VANE's drilling is not available for inspection. Visual inspection confirms the geology as described by VANE. Inward dipping Kaibab Limestone, semi-circular areas of Moenkopi red mudstone internal to Kaibab limestone, brecciated beds, higher than background CPS on the scintillometer, locally copper oxide mineralization, alteration, and iron-oxides along fractures and after former sulfides are visible in outcrop; and all are indicators of breccia pipes, although often subtle or difficult to identify. At this early stage of exploration, there are no data verification issues for the Project. The geological concepts and exploration targets are verifiable in the field.

VANE drilling in 2008 and 2009 has verified the mineralization historically reported and has confirmed high grades for which historical information is not yet available at the Wate pipe. Reentering of historical drillholes at the Wate Pipe and new down-hole surveys have verified the historical drillhole deviations and the traces portrayed on plan maps.

Comparison of historically reported versus VANE re-logged mineralized intervals in WT-5 and WT-7 are shown below in Table 13-1. The 0.5 ft interval data from VANE re-logs using both Century Wireline Services and Geophysical Logging Services were selected to match composite intervals listed in RME reports for the historical holes.

	From(ft)	To (ft)	Interval	Grade (%U3O8)
WT-5				
VANE-Century Wireline Services	1486.0	1519.5	33.5	1.69
VANE-Geophysical Logging Services	1483.5	1517.0	33.5	1.46
RME-Historical Intercepts reported	1491.0	1524.5	33.5	1.17
VANE-Century Wireline Services	1489.5	1495.5	6.0	4.99
VANE-Geophysical Logging Services	1489.5	1495.5	6.0	3.87
RME-Historical Intercepts reported	1493.0	1499.0	6.0	4.44
WT-7				
VANE-Century Wireline Services	1243.5	1254.5	11.0	0.38
VANE-Geophysical Logging Services	1241.0	1252.0	11.0	0.38
RME-Historical Intercepts reported	1245.0	1256.0	11.0	0.34

Table 11-1: Comparison of Historical and VANE re-logs for WT-5 and WT-7

Source: SRK, 2010

Note: Selected intervals in Table 14-1 may not exactly match mineralized intervals listed elsewhere in this report

The comparison shows that VANE re-logs of historical drillhole verify the drillhole survey trace as well as the thickness and grade of mineralization for WT-5 and WT-7.

SRK's conclusion is that the historical data has been verified for some drillholes at the Wate Pipe, and that VANE's drilling of new holes provides sufficient new information to validate mineralization where historical information is currently not available. At the Wate Pipe, VANE has verified a portion of the historical drillhole database by re-entering and re-logging the old holes, and has confirmed similar grades in nearby new drillholes, as demonstrated in a comparison of WT-5 with WT-29A in Section 13.11 (Table 13-8). This database provides confidence that the historical data are valid and can be sufficiently replicated with additional confirmation drilling.

SRK is of the opinion that there is sufficient verifiable information to adequately define Inferred mineral resources as stated in section 16 of this report.

12 Mineral Processing and Metallurgical Testing (Item 13)

SRK recommends that the core from drillholes WT-29A, WT-39, and WT-41 be evaluated with preliminary mineralogical, geochemical, and metallurgical testing, to verify the uranium mineralization is amenable to standard processing methods. No mineral processing or metallurgical testing has been completed for this project as of the date of this report. However, core from mineralized intervals has been collected for this purpose.

Historical mined uranium-bearing breccia pipe ores in Arizona were transported by truck to the White Mesa mill in Blanding, Utah, currently owned by Energy Fuels. The processing for Arizona breccia pipe uranium ores was done at the White Mesa mill in Blanding, using conventional uranium milling circuits. The Blanding Mill has continued to process alternative feed sources during the period of low uranium prices, and is now accepting mined uranium ores as feed. Currently, there are no uranium processing options in Arizona, and none are known to be in the planning stages.

13 Mineral Resource Estimate (Item 14)

This section on Mineral Resources relates to historical drilling and more recent drilling conducted by VANE in the period on 2009 to 2011. No drilling has been conducted since 2011. The mineral resources stated in this Section are as of March 22, 2011, the date of the most current drill information, and the mineral resources are still current as of the date of this report.

During 2010 SRK completed an updated resource estimate for the Wate Pipe, using information available at that time. Subsequent to the completion of that resource Vane successfully targeted two new drillholes, WT-39 and WT-41, that intersected higher grade mineralization as predicted by the model; providing at least a conceptual validation of the delineation of the mineralization. During the 2011 update, only the primary resource zone, constituting more than 80% of the resource (Zone 1), was remodeled as discussed below. The resources for Zones 2-4 are those calculated from the 2010 model (previously reported in a NI 43-101 technical report dated November 04, 2010), as the most recent drilling since 2010 did not intersect those Zones.

The mineral resources stated in this section for the Wate Pipe have been classified according to the "CIM Standards on Mineral Resources and Reserves: Definitions and Guidelines" (November 2010). Accordingly, the Resources have been classified as Inferred. There are no Measured or Indicated resources and no mineral reserves are currently established for the Project.

Historically, 21 drillholes defined the mineralization for the Wate Pipe. VANE has cleaned and relogged two historical holes that verify mineralization, and drilled 13 new holes in the Wate Pipe. In addition, a number of historical holes, located on a cross-section and on a plan map, were digitized for down-hole location and form part of the drillhole geological database; composite assay data for mineralized intercepts in these historical holes was made available to VANE in July/August 2010. As there are no backup geological or gamma logs to verify the reported intercepts, the historical drillholes were used solely for the definition of mineralized shapes; only VANE drillhole eU_3O_8 grade determinations were used for grade estimation.

13.1 Drillhole Database

The drillhole database is composed of 21 historical drillholes and 15 drillholes completed or relogged by VANE since 2008. The 36 drillholes total 63,303.5 ft. of drilling. VANE's 15 new and relogged drillholes total 23,985.5 ft. of drilling. VANE re-opened/re-logged two mineralized holes, WT-5 and WT-7. Selected drillhole information is summarized in Table 16-1. As stated in Section 13 and Table 13-1, VANE drill hole gamma logging has verified the historical drillhole intercepts for WT-5 and WT-7 with very good correlation. It should also be noted that in the re-logs of WT-5 and WT-7 by VANE, the downhole survey data compared favorably with the historic RME survey data which provides confirmation as to the accuracy of the RME downhole survey data.

There was sufficient information from new logs, the historical drillhole cross-section, and a plan map showing the interpreted map of the pipe perimeter at various elevations, to construct a 3D depiction of the pipe shape for the area of mineralization.

Historical drillhole intercepts are available to VANE in the form of drill depth, composite interval (intercepts picks) and interval composite grades. That information became available to VANE in July/August 2010 in RME historical progress reports for the drilling at Wate. Historical gamma-logs from which the interval eU_3O_8 data were derived are not available to VANE; therefore, for all historical holes except WT-5 and WT-7, the historical drillhole intercepts cannot be verified. SRK considers the historical intercept data partially verified by VANE and thus reasonable to assume that the entire database of historical holes is sufficiently accurate to be used for delineation of the mineralized shapes within which block model construction and grade assignment was accomplished using VANE-only 0.5 ft. eU_3O_8 data.

The limitation in using all the historical drillhole intercepts for grade assignment comes from the disparity in sample data intervals; 0.5 ft. from VANE data and large composite intervals from historical holes. All VANE holes have 0.5 ft. interval eU_3O_8 data, and all of the historical holes are

composited (intercept) intervals. Some of the holes, such as WT-09A, and WT-13, as highlighted in Table 16-1, have over 50 ft. @ $+1.0\% eU_3O_8$. These large composite intervals, for which the compositing criteria are not known, offer no insight to the actual grade distribution internal to the composite interval, and they cannot be satisfactorily compared to nearby VANE holes that have 0.5 ft. grades. The side-by-side comparison of historical versus VANE holes is demonstrated in Figure 16-1. It shows the mineralized shape created from all data and the comparison of WT-29 and VANE's WT-29A. WT-29 has two composite intercepts internal to the mineralized shape, whereas WT-29A has 56 0.5 ft. intervals that range in grade from 0.14% to 4.60% eU_3O_8 . The two holes are about 12 ft. apart, and the compositing in WT-29 to 30.5 ft. @ 0.83% is difficult to relate directly to the variable grade in WT-29A; yet overall, all holes show good continuity of mineralization.



Figure 13-1: Cross Section of Historical and VANE drillholes (SRK 2011

In contrast to Figure 13-1, Figure 13-2 shows that locally significant variation can occur in two immediately adjacent drillholes, such as WT-39 with historical hole WT-9A, and even WT-41 and WT-42; in both cases the hole pairs are less than 10 feet apart. This results in difficulty to accurately define the mineralized boundaries, and the interpolated block grades internal to a mineralized shape become a blended grade; a combination of the higher and lower grades. The likely explanation for these close-hole differences in grade is stepping across a mineralization-controlling pipe-boundary fault structure. Such a structure cannot be accurately defined by vertical drilling alone.



Figure 13-2: Cross Section of Historical and VANE drillholes (SRK 2011)

Table 13-1 is a list of selected reported historical mineralized intervals to demonstrate the quality of the data. It is not a complete list of historical drillhole intercepts.

Hole_ID	From (ft)	To (ft)	Interval	% U3O8
WT-08	1292.5	1326.5	34	0.074
WT-08	1455	1459.5	4.5	0.149
WT-08	1502	1503	1	0.258
WT-09A	1294	1300.5	6.5	0.211
WT-09A	1307	1310.5	3.5	0.11
WT-09A	1491	1498.5	7.5	0.125
WT-09A	1510	1570.5	60.5	1.431
WT-10	1437.5	1441	3.5	0.141
WT-10	1462	1489.5	27.5	0.214
WT-10	1490	1509	19	0.297
WT-11	1490	1497	7	0.418
WT-11	1497.5	1520.5	23	0.53
WT-11	1545.5	1587.5	42	0.149
WT-13	1428	1482	54	1.172
WT-14	1468	1490	22	0.515
WT-15	1454	1487.5	33.5	0.772
WT-25	1484	1507	23	0.558
WT-25	1508.5	1536.5	28	0.576
WT-25	1538	1573.5	35.5	0.169
WT-26	1460	1466	6	0.494
WT-26	1495.5	1500.5	5	0.156
WT-26	1503	1504.5	1.5	0.185
WT-28	1460	1466	6	0.488
WT-28	1495	1503	8	0.111
WT-28	1503.5	1510	6.5	0.16
WT-29	1310	1340.5	30.5	0.827
WT-29	1501	1504.5	3.5	0.047
WT-29	1506.5	1509	2.5	0.075
WT-29	1509	1533.5	24.5	0.58
WT-30	1347	1382.5	35.5	1.94
WT-30	1457.5	1458.5	1	0.172
WT-30	1496.5	1499	2.5	0.041
WT-30	1499	1525.5	26.5	1.343
WT-31	1320	1343	23	1.204
WT-31	1373.5	1379.5	6	0.029
WT-31	1453.5	1458	4.5	0.202

Table 13-1: Selected Historical	Drillhole Intercepts – Wate Pipe
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Table 13-2 is a tabulation of the VANE drillhole data for which 0.5 ft. eU_3O_8 data are available, and which was the only data used for grade interpolation and block model grade assignment.

	WT-29A upper	WT-29A lower	WT-33	WT-34	WT-35 (cum)	WT-37 upper	WT-37 middle	WT-37 lower	WT-39 (un-cut)	WT-41	Wt-42 (cum)	WT-5	WT-7
Thickness (ft)	36.0	28.0	25.5	15.0	21.5	20.0	2.5	12.5	64.5	27	35.5	32.5	9.0
Ave Grade (%U3O8)	0.69	1.60	0.45	0.30	0.33	0.37	0.19	1.29	1.45**	1.45	0.25	1.52	0.47
No 0.5 ft interval	72	56	51	30	31	40	5	25	129	54	71	65	18
No. > 0.5% eU3O8	34	49	22	0	6	10	0	20	101	36	4	45	7
High value (%eU3O8)	2.47	4.61	0.97	0.48	0.69	1.39	0.25	3.18	18.35*	2.92	1.12	4.38	1.21
from (ft)	1318.0	1498.5	1421.0	1269.5	1333.5	1299.0	1328.0	1362.5	1448	1453.5	1246	1483.5	1242.5
to (ft)	1354.0	1526.5	1446.5	1284.5	1370.0	1319.0	1330.5	1375.0	1512.5	1480.5	1599.5	1516.0	1251.5
GT (Ft-%)	24.7	44.7	11.5	4.5	7.1	7.3	0.5	16.1	93.6	39.1	8.71	49.3	4.3

Table 3-2: Drillhole Database Statistics – VANE Drillholes (SRK, April 2011)

Note: WT-35 and WT-42 represent cummulative intercept intervals; WT-5 and WT-7 are re-logs of historical holes

WT-36, WT-38, and WT-40 did not encounter +0.15% mineralization

* Two 0.5 ft interval at 10.3% and 18.4% in WT-39

** Two 0.5 ft interval capped at 7.0% in WT-39 - results in 1.29% average grade

13.2 Assay Data – Population Domain Analysis

Figure 13-3 below is the cumulative relative frequency distribution diagram for the Wate Pipe raw eU_3O_8 data. In 2010 using the cumulative frequency distribution diagram (CF plot) as a guide, in conjunction with an examination of the distribution of drillhole data, three "thresholds" were selected. First, a minimum threshold was selected distinguishing lower grade "mineralized" versus non-mineralized material based, subjectively, by choosing an inflection point on the lower grade tail of the CF plot. Second, a threshold was selected above which grades would be considered part of a "higher grade" population, which might require separate grade estimation constraints. Third, an inflection point was selected to identify assays that are to be considered "outliers" to the general distribution and "capped" or set back to a defined threshold. The thresholds identified are tabulated below on Table 13-3 and shown in bold font on the CF plot. An additional intermediate inflection at approximately 0.9, or $1.0\% eU_3O_8$, was initially examined in 2010 as well but with the paucity of data, the analysis of this as a separate population was abandoned.

The 2011 SRK interpretation is that the mineralization within the Wate pipe Zone 1 is not uniform; a higher grade area or "domain" (Domain 1) is bounded by lower grade material; this is visually apparent as well as reflected on the distribution diagrams. Alternative thresholds for the capping of higher grade values were examined; the selected process was to apply a cap of 3.2% to all data in all domains prior to compositing for the estimation of grade. The higher grade domain was subsequently re-estimated using a database capped at 4.6% using a "soft boundary" constraint whereby values external to the delineated domain along with values internal to it were applied.



Figure 13-3: Wate Pipe Cumulative Relative Frequency Distribution (SRK 2011)

Population	Threshold (eU ₃ O ₈ %)
Mineralized	≥0.17
Domain 0 Cap	≥3.2
Domain 1 Cap	≥4.6

Table 13-3: Wate Pipe Zone 1 Grade Population Cutoff Thresholds

13.3 Mineralization Envelopes

For the purpose of identifying mineralized versus non-mineralized material within the overall pipe structure, drillholes were digitized by VANE personnel from a plan map in a historical RME report with down-hole survey ticks, allowing for a 3D depiction of all the historical drillholes – essentially generating a down-hole survey for each hole. VANE provided SRK with an Excel spread sheet database of combined historical drillhole intercepts and VANE drillhole 0.5 ft. eU_3O_8 data.

In 2010 SRK created wireframe shapes of mineralization in Leapfrog® software using all drillhole data. The process involved creating 2-D strings around mineralized drillholes on sections. Figure 16-3 demonstrated how 2-D strings were created around mineralized drillholes. A set of 2-D strings were created in space on parallel sections and linked to create a 3-D solid shape, as shown in Figure 13-4 and Figure 13-5.



Figure 13-4: Cross-Section of Mineralized Drillholes and 2-D strings (SRK 2010)



Figure 13-5: Oblique View of 2010 Mineralized Shape (SRK 2010)

The mineralized shapes created in Leapfrog were then exported to Datamine® Studio 3 software. In Datamine, the initial Leapfrog 3-D shapes were modified on orthogonal sections to result in a better fit (tighter) to the drillhole data, with extensions to the interpreted pipe boundary where possible. The shape shown in Figure 13-5 was modified to that shown in Figure 13-6, which is the shape (grade shell) used to constrain the 2010 block models and as can be noted from the displays envelopes both mineralized and non-mineralized intercepts. For the 2010 model indicators of "local potential" mineralization were assigned to blocks within the global mineralization wireframes as described in Section 13.9.

For the 2011 update enough intercepts were available to interpret "hard" mineralization boundaries for the primary zone, Zone 1, (which represents over 80% of the resource estimated in 2010.) To accomplish this the grade shell used in 2010 was sliced to form plan view strings (Figure 13-7) which were modified and re-linked to form a much "tighter" representation where all assay values inside the shape are used for grade assignment (Figure 13-8). Zones 2 through 4 remain unchanged since the 2010 update.



Figure 13-6: Oblique View of 2010 Mineralized Shape (SRK 2010)



Figure 13-7: Plan View delineation (SRK 2011)



Figure 13-8: Zone 1 Grade shell (SRK 2011)

Page 58

13.4 Composition

Subsequent to capping raw assays were down-hole composited into two foot lengths. While the selection of the two foot composite length was somewhat arbitrary, it was intended to reflect the selectivity that might be obtained on the margins of potentially mineable units during underground mining or subsequent radiometric sorting. For Zones 2-4 "Discriminator", or "indicator", codes were assigned to composites values based on the grade populations of Table 13-3 and were used for the modeling of these zones in 2010. For the primary mineralized zone (Zone 1) indicators or discriminators were not used as a "hard boundary" (with 607 internal composites) was constructed for the mineralization; obviating the requirement for mineralized versus non-mineralized discriminators. The Zone 1 mineralization was also spatially differentiated with the delineation of higher and lower grade Domains (as soft boundaries) which eliminated the requirement for a "higher grade" threshold. Table 13-4 summarizes the composite statistics. The Domain databases are identical except for capping thresholds.

eU ₃ O ₈ % for 2-Foot Composites				
Population	All	Domain 0	Domain 1	
Number Of Values	28310	607	607	
Maximum Value	9.7150	3.2	4.435	
Minimum Value	0.00	0.00	0.00	
Mean	0.0149	0.614	0.622	
Variance	0.021	0.427	0.474	
Standard Deviation	0.1452	0.654	0.689	
Coefficient Of variation	9.7	1.07	1.11	

Table 13-4: Zone 1 Composite Summary Statistics

13.5 Specific Gravity Measurements (Bulk Density)

A tonnage factor of 13 ft³/ton was assigned to all material.

13.6 Block Models

SRK constructed a block model using the Datamine Studio3[®] mining software package for the Wate Breccia Pipe. Block sizes are initially 1ft by 1ft in plan and 2ft vertically. The model has the following spatial limits (Table 13-5):

Table 13-5: Wate Pipe Model Limits

Breccia Pipe Model Limits					
Direction	Minimum(ft)	Maximum(ft)			
Easting	427,400	427,700			
Northing	1,830,000	1,830,200			
Elevation	4,300	4,800			

13.7 Mineralization Zones

Within the Wate Pipe, four more or less vertically separated zones of mineralization have been identified (with additional drilling one or more of these may be combined); for convenience, these were enumerated as zones one through four from bottom to top (note that for previous estimations the zone designations were different). For each of the zones, global mineralized envelopes were

constructed to represent the maximum overall global limits of potential mineralization as discussed in 13.3. Figure 13-9 displays the zones superimposed on the overall breccia pipe wireframe (which was provided to SRK and created from RME plan interpretations by VANE). In some cases, the mineralized shapes extend beyond the pipe wireframe, but significant mineralized drillhole intercepts do as well. SRK is of the opinion that the accuracy of the mineralized zone wireframes is at least that of the overall pipe wireframe; therefore honored wireframes derived from drillholes over the interpreted pipe boundary. Zone codes one through four were assigned to model block positions.



Figure 13-9: Wate Breccia Pipe and Mineralized Zones (SRK 2011)

13.8 Dynamic Anisotropy and Search Orientation

With the extremely limited data set available, variograms and indicator variograms yielded very scattered and generally non-interpretable results. Given the variation of lower and higher grade values, and the lack of closely spaced values, very erratic results were obtained with very high nugget values relative to sills. In particular, no preferential orientations (anisotropies) of the continuity of mineralization could be observed.

The dynamic anisotropy option in Datamine Studio3[®] allows the anisotropy rotation angles for defining the search volume and variogram models to be defined individually for each cell in the model. The search volume is oriented precisely and follows the trend of the mineralization. The rotation angles are assigned to each cell in the model; it is assumed that the dimensions of the ellipsoid, the lengths of the three axes, remain constant. A point file, where each point has a value for dip and dip direction, was created for each zone wireframe and are intended to represent the preferential "down dip" direction, which varies locally, over the vertical and horizontal extent of the wireframes. Since the three axes of the search volume are orthogonal and only two rotations are used (dip and dip direction) the orientation of all three axes are explicitly defined. The point values are taken from the orientation of the triangular facets that comprise the surface of a wireframes or digital terrain model.

For zones one through four, planes were constructed to represent the overall trend or orientation of mineralization. These are subjective geological interpretations based on the overall geometries of the mineralized shapes, the location of significant mineralized drillhole intercepts within them and presumed behavior such as a "draping" of the mineralization at the contact with the breccia pipe boundaries. These are converted to points each with a unique orientation and can be seen as the
"arrows" on Figures13-10, 13-12 and 13-13. Values for dip and dip direction were assigned to model block positions.



Figure 13-10: Wate Pipe Mineralized Zone 1 and Anisotropy Points (SRK 2011)

13.9 Mineralization Indicator Assignment, Zones 2-4

For the 2010 model (Zones 2-4 were unchanged in 2011) the mineralization envelopes define the maximum overall "broad global limits" of potential mineralization, clearly a pattern of mineralized versus non-mineralized can be observed in the drillholes with significant mineralized intercepts varying from a few to tens of feet in extent. For the purpose of assigning indicators of "local potential" mineralization to blocks within the global mineralization wireframes described in Section 16.7 above, the composite file, described in Section 16.4, was used with indicators of 1 if its composited value exceeded the lower grade population threshold (identified on 3) or 0 otherwise. These 1 and 0 values were then assigned (nearest neighbor) into the deposit model block positions using the dynamic anisotropy orientations described in Section 16.8 above. Large search distances with 2 to 1 anisotropies (search along the orientation is twice that of across) were employed.

13.10Domain Assignment, Zone 1

Within the overall mineralization a higher grade domain has been identified, possibly the result of remobilization or higher porosity, and a wireframe delineation of the area was constructed as shown in red below on figure 13-11 and 13-12 below.



Figure 13-11: Wate Pipe and Domains 1(Red) 0 (Green) (SRK 2011)



Figure 13-12: Wate Pipe Anisotropy Points and Domain 1 (SRK 2011)

13.11 Grade Estimation and Resource Classification Criteria

As noted above the 2011 model update was restricted to the primary resource zone, constituting more than 80% of the resource (Zone 1). The resources for Zones 2-4 are those calculated from the 2010 model and the grade estimation methodology remains that used in 2010.

With the limited sample set available (and erratic variography) an inverse to the distance power of two was chosen to weight grades selected in the search ellipse. The orientation of the search ellipse was controlled by the dynamic anisotropies as discussed in Section 16.8. Table 16-6 and Table 16-7 below summarize the interpolation parameters for the Zone 1 Domains.

	Search Dis	tance	(feet)		Minimum Number Of Composites	Maximum From One Drillhole
SVOL	CLASS	x	Y	z		
1	Inferred	100	50	25	3	2
2	Inferred	200	100	50	3	2

Table 13-6: Estimation Parameters (Domain 0)

	Search Distance (feet)				Minimum Number Of Composites	Maximum From One Drillhole
SVOL	CLASS	Х	Y	z		
1	Inferred	25	12.5	6	3	2
2	Inferred	50	25	12	3	2

Table 13-7: Estimation Parameters (Domain 1)

For both Domains, to preserve local grade variation, a search neighborhood strategy with two search ellipse (SVOL) volumes was employed. Only blocks not estimated with the first set of parameters were estimated with a subsequent expanded search. A minimum of three two-foot composites was required, with a maximum of two from any given hole, for estimation with either of the search volumes.

Initially both Domains were assigned grades using a database capped at $3.2 \ \%eU_3O_8$ with the Domain 0 parameters above. Subsequently model blocks, inside of the area delineated as Domain 1, were re-interpolated using a database capped at $4.6 \ \%eU_3O_8$ with the constrained Domain 1 parameters tabulated above. A "soft boundary" has been formed where the influence on values in excess of 3.2 were confined to blocks internal to the Domain while values external to the Domain were also used. This can be seen on Figure 13.13 where the grade transition across the Domains is not abrupt and on Figure 13.14 where all blocks estimated with grades in excess of $3.2 \ are$ constrained to Domain 1. Figure 13.15 displays a cross section through the higher grade Domain 1 and Table 13-8 summarizes the intercepts.

Estimation parameters used in 2010 for Zones 2-4 are similar to those tabulated above. For the $0.15\% eU_3O_8$ threshold (Indicator 1) a minimum of three two-foot composites was required, with a maximum of two from any given hole, for estimation with either of the search volumes. For the 2.9% eU_3O_8 threshold (Indicator 3) a minimum of one two-foot composites was required, with a constrained search distance. Hard boundary zonal controls were employed in that blocks coded with an indicator of 3 were assigned grades using only indicator 3 composites to form the higher grade zone. Indicator 3 blocks not assigned grades during this process and blocks coded indicator 1 were subsequently interpolated using only composites coded as indicator 1.

For future models, alternative methods could be adopted. With considerably more data, multiple indicator kriging or conditional simulation methodologies could be examined. The grades of $eU_3O_8\%$ were estimated using the dynamic search orientation as described above, with a two-to-one anisotropy (search along primary orientations was twice that across).



Figure 13-13: Wate Pipe Estimated Blocks and Anisotropy Points (SRK 2011)



Figure 13-14: Wate Pipe Estimated Blocks and Domain 1 Shell (SRK 2011)



Note: WT-29A on left and WT-05 on right in Figure 16.15 above; holes are approximately 54ft apart; cross-sectional view looking North.

Figure 13-15: Wate Pipe Estimated Blocks, Drillholes WT-05 & WT-29A (SRK 2011)

					WT-05	13.5' eU	J₃O ₈ % (0	.5 ft inte	rvals)				
3.13 top	2.32	3.13	3.13	3.50	3.98	4.00	4.00	4.00	4.00	4.00	4.00	3.78	3.47
3.03	2.67	2.47	2.43	2.02	1.74	1.91	2.20	2.21	1.97	1.98	1.66	1.07 btm	
	WT-29A 12' eU ₃ O ₈ % (0.5 ft intervals)												
0.91 top	1.47	0.91	0.99	1.94	2.62	2.99	2.93	2.89	2.87	2.98	3.66	3.57	3.67
4.00	4.00	3.88	3.10	2.69	2.47	2.10	1.85	1.44	1.14 btm				

Table 13-8: Contiguous 0.5ft Higher-Grade intercepts WT-05 & WT-29A

13.12Block Model Validation & Mineral Resource Sensitivity

The block model was validated visually through a comparison of estimated block grades and those of the original composite file. The comparison is favorable as is a comparison against basic average statistics. As noted, only limited intercepts are available for any comparative analysis on a zone-by-zone basis.

13.13Resource Statement

Table 13-9 lists the resources estimated for each zone and the total for all zones at a cutoff of 0.15% eU_3O_8 . All resources are classified by CIM definitions. The cutoff grade of 0.15% eU_3O_8 is based on a statistical break (Figure 13-3) from essentially non-mineralized to the major population of mineralization (> 0.15%); and the simple estimate that 0.15% equates to 3 pounds U_3O_8 per ton, and at a \$38/pound uranium price, 0.15% eU_3O_8 would have an in-place value of \$114 per ton. That value has a reasonable potential for economic extraction by underground mining methods; no further work was done to determine a true mining cut-off grade at this early stage of the project.

Wate Breccia Pipe Inferred Resource							
0.15% eU3O8 Cutoff*							
Zone	Cutoff	U3O8%	Tons (000)	lb-U3O8 (000)			
1	0.15	0.84	58		971		
2	0.15	0.61	11		130		
3	0.15	0.31	2		10		
4	0.15	0.58	1		7		
		0.79	71		1,118		

Table 13-9: Inferred Resource by Zo

* Note: Inferred Uranium resources refers to global in-place CIM definitions of resources to which a mine design has not yet been applied; although the above stated resources meet the definition of having the "potential for economic extraction" at the cutoff provided.

13.14Sensitivity of the Resource Model

As a check on the model, the following analysis was performed:

- VANE drillhole data were composited to single intercepts within the wireframe shapes;
- All drillhole data assay intervals (including historical intercepts) were then used in the block model grade estimation; and
- The result is a block model that replicates a "polygonal" or nearest-neighbor resource with one composite for each mineralized horizon in each hole

The tonnage and grade generated are not considered a reportable resource estimate for two reasons:

- There is very minimal discrimination of grade because of the long intercept intervals, particularly in Zone 1 and this is not acceptable to SRK as industry standard procedure; and
- There is no back-up information for the historical drillholes to allow verification of that data; therefore the data are not sufficient for reporting of resources.

While the numbers generated by this method are not reportable as a resource, it allows for use of all the drillhole data on the same basis to determine an approximation of the tons and grade that might result if all the data were used; and thus, a check on the method used for reporting resources. The result presents a check that a resource approximating 1.0 million pounds U_3O_8 is achievable, as shown in Table 13-10.

Table 13-10: Mineralization Inventory Analysis Using all Drillhole Data as Long-interval composites

Wate Breccia Pipe Mineralization – Check Analysis					
0.15% eU3O8 Cutoff – All drillholes used as composite data*					
Zone	Cutoff	U3O8%	Tons (000)	lb-U3O8 (000)	
1	0.15	0.64	75	972	
2	0.15	1.10	11	239	
3	0.15	0.19	6	22	
4	0.15	0.31	1	7	
		0.66	93	1,241	

*Note: SRK does not consider the values stated as a reportable resource by CIM or any other standard for reporting mineral resources.

13.15Conclusions and Recommendations

In SRK's opinion, to upgrade any portion of the resource from Inferred to Indicated classification, will require additional eU₃O₈% assay information, either as new drilling or by securing and verifying the historical drilling information, or a combination of both. There is currently insufficient density of drilling information with assay data to determine the optimal spacing of drillhole intercepts that will support an Indicated classification.

The average resource grades of the current resource and the historically reported numbers are similar. This provides a level of confidence, that upon Energy Fuels obtaining additional drilling information, it is reasonable to expect that the historical resource of 1.1 million pounds or more is achievable.

SRK notes that there are current resources located outside the interpreted breccia pipe boundary. SRK considers the pipe boundary to be approximate, and so has honored the drill data rather than truncate the resource model wireframe shapes to the pipe boundary, as SRK considers the accuracy of the wireframes to be at least as good as the pipe boundary. There are also isolated drillhole intercepts internal to the pipe that have not been included in the block model. Therefore, SRK considers the resource model to be neither conservative nor optimistic with respect to modeled data.

SRK notes that the mineralization modeled are largely bodies located internal to the pipe boundary. Historical mine production experience indicates that these breccia pipe deposits typically have mineralization located on the perimeter of the pipes as well, an annular ring mineralization. The RME historical reports and resources modeled the mineralization in this manner. The vertically oriented perimeter mineralization is very difficult to define with vertical drillholes and is best defined by fan drilling off an access shaft developed outside the breccia pipe. SRK has not modeled perimeter mineralization extending vertically on the walls of the breccia pipe, as RME did, as there is insufficient drilling information there to do so. If this mineralization can be sufficiently defined for the Wate Pipe, it offers an upside resource potential. That potential can be defined from drilling off an exploration shaft.

14 Items 15 through 22

Item 15 (Mineral Reserve Estimate) is not applicable to this technical report on mineral resources. There are no mineral reserve estimated for the Wate Pipe.

Item 16 (Mining Methods) and Item 17 (Recovery Methods) are not applicable to this technical report on mineral resources.

Item 18 (Project Infrastructure) is not applicable to this technical report on mineral resources other; basic information is provided in Section 3.5

Item 19 (Market Studies and Contracts) is not applicable to this technical report on mineral resources

Item 20 (Environmental Studies, Permitting and Social and Community Impact) is not applicable to this technical report on mineral resources). See Section 16 (Other Relevant Data and Information) for basic information.

Item 21 (Capital and Operating Costs), and Item 22 (Economic Analysis) are not applicable to this technical report on mineral resources

15 Adjacent Properties (Item 23)

There are no immediately adjacent mineral properties that have bearing upon the Wate Project. However, there is another uranium-bearing breccia pipe located less than 10 miles to the southeast of the Wate Pipe. While this Pipe, named Tank 4 ½, has mineralized intercepts, a resource is not yet defined. The Tank 4 ½ Pipe may provide some infrastructure synergies with Wate, should this project advance to resource status with further drilling.

In addition, there are other uranium mineralized breccia pipes in the immediate area, less than 20 miles distant from the Wate Pipe, including the SBF Pipe, Rose Pipe, and the Sage Pipe; any of which might have possible future bearing on project development scenarios for the Wate Pipe.

16 Other Relevant Data and Information (Item 24)

During 2008, exploration activities in the National Forest south of the Grand Canyon National Park came under scrutiny by various anti-nuclear and anti-mining environmental activist groups. Their efforts were against the U.S. Forest Service (USFS) with regard to Plans of Operation for exploration drilling; suggesting the USFS did not take into account potential environmental damage that could occur as a result of exploration drilling for uranium on National Forest lands near the Grand Canyon National Park. The environmental special interest groups, and some local politicians, were annoyed with the Finding of No Significant Impact (FONSI), as determined by the USFS relating to planned drilling programs. A court case ensued, and the result is that the USFS is now requiring an Environmental Impact Statement (EIS) be done prior to drilling rather than an Environmental Assessment (EA). Some local politicians had taken up the cause and had proposed a ban on uranium exploration and mining within federal lands adjacent to Grand Canyon National Park. On July 21, 2009, the Secretary of Interior issued a 2-year Segregation Order and proposed a 20-year withdrawal of approximately 1 M acres of federal lands from mineral entry under the Mining Act of 1872, consisting of BLM lands north of the Grand Canyon and USFS lands south of the Grand Canyon. A regional EIS was initiated to study the potential impacts of mining and the Draft EIS was released in February 2011, with the public comment period ending on May 4, 2011. The decision to withdraw the lands from mineral entry for 20 years was issued by a Us Department of Interior Record of Decision (ROD) on January 9, 2012.. The ROD forced a halt to the drilling of exploration targets in the National Forest (U.S Department of Interior, Jan. 2012). The 20-year withdrawal of activities for uranium on Forest Service lands adjacent to the Grand Canyon National Park is still in effect.

This withdrawal has no effect on private or State lands in the region, and no effect on Energy Fuel's ability to continue working on the Wate Pipe, which is on Arizona State lands, well outside of National Forest lands.

As briefly discuss in Section 3.3, Subsequent to the cessation of drilling activities in 2011, a Mineral Development Report was completed by VANE and submitted to the Arizona State Land Department, to aid in the process of conversion of the Mineral Prospecting Permit to a Mineral Lease. The MDR was filed on November 19, 2012, and following public comment was revised on October 27, 20014. The process to convert to a Mineral Lease is well advanced, and in the final stages of State approval (pers. Comm., K.Hefton, 2015).

The MDR is a comprehensive report that examines the potential for economic development, in order for the State to issue a Mineral Lease and assign a royalty rate. The MDR is, in the authors' opinion, a document similar in scope and content to a Preliminary Economic Assessment (PEA). While not a PEA NI 43-101 Technical Report, it addresses all the typical Sections in this technical report on resources, and in addition incudes discussion on the following topics (Wate Mining Company LLC, 2012):

- Economic Feasibility
 - Market Analysis
 - Costs and Operational Economic Parameters
 - State Trust Revenues
- Environmental Assessment, which includes:
 - Soils,
 - Drainage and Erosion
 - Water Resources,
 - Biology
 - Cultural Resources
 - Hazardous materials
 - Wastes

- Air Quality
- Visual and Noise Impacts
- Socio-Economic Impacts
- Mine Operations Plan, which includes:
 - Site development
 - Mining
 - Processing
 - Infrastructure
 - Safety
- Reclamation and Closure Plan

While the intent of the MDR is to provide a potential mining and processing scenario to the State for their purposes of determining a Mining Lease royalty rate; many of the inputs and discussion are applicable to a PEA. SRK's understanding is the MDR had received comment and feedback from the Arizona State Land Department, was revised by VANE in 2014, and has been accepted by the State as part of the Process of final approval of the Mineral Lease (approval pending). The MDR provides additional Project information beyond the scope of this technical report on resources.

17 Interpretation and Conclusion (Item 25)

The Wate Uranium Breccia Pipe has been historically explored to the point of resource estimation and planned project development. Recent drilling confirmation by VANE has confirmed historically defined high grades in excess of $1.0\% eU_3O_8$, and has provided sufficient drilling information to estimate current resources compliant with the CIM classification of "Inferred" resources.

The Wate Pipe is an exploration target for potentially underground-mineable high-grade uranium mineralization (greater than $0.5\% U_3O_8$). The Wate Pipe has current estimated Inferred resources by CIM definitions of 71,000 tons grading $0.79\% eU_3O_8$ for 1,118,000 contained pounds eU_3O_8 . This resource is based on only partial confirmatory data with respect to historical drilling and resource estimates, and is therefore considered by SRK to be a conservative estimate of the total uranium mineralization in the pipe. The Wate Pipe is a high-grade uranium deposit that justifies further drilling and pre-development work. The project will have all the inherent opportunity and risk of similar mid-stage exploration properties, as defined in the sections below.

The Project represents an attractive mid-stage exploration property with current estimated resources established, and the potential to increase the total resource tons and contained pounds. Energy Fuels has reached an interim goal of achieving a resource estimate of +1.0 million contained pounds, which Energy Fuels considers a minimum requirement to justify an exploration shaft for fan drilling to sufficiently define the mineralization for mine planning purposes. Having reached that goal, Energy Fuel's preference is to advance the property by underground exploration.

17.1 Categories of Opportunity and Risk

17.1.1 Resources

The major opportunity at the Project is to define additional uranium grades and intersections in the Wate Pipe, to fully explore the extent of the deposit, and thus potentially add to the current resource. The potential for vertically oriented perimeter mineralization exists, which represents an up-side exploration potential best defined by fan drilling from an exploration shaft.

17.1.2 Commodity Price Fluctuation

Uranium spot market prices have come off the record highs near $100/1b U_3O_8$ of several years ago, yet remain in the 40/1b range. This represents both an opportunity and a project risk, since prices could fluctuate significantly. However, the relatively high grade of the exploration target suggests that a uranium-bearing breccia pipe with grades in excess of $0.50\% U_3O_8$ would be an attractive exploration target even at 40/1b.

17.1.3 Infrastructure

The area has well-developed infrastructure, with easy access by paved roads, available electricity, labor, and equipment, and therefore offers few impediments to the opportunity for potential project development. However, water is a precious commodity and generally occurs at >3,000 ft depths. Well drillers in the vicinity are experienced at completing successful water wells to this depth, and this risk is therefore possible to mitigate.

17.1.4 Development Decision

The relatively small deposit size and the depth suggests that a point will be reached where it is more attractive to sink a shaft and explore the deposit with underground drilling, than to continue drilling from surface. This is a purely business financial risk decision point: whether to drill for maximum resource definition from surface, or to continue exploration toward resource/reserve development from underground. Having reached the 1.0 million pound resource threshold, a next logical decision for Energy Fuels is to sink an exploration shaft and continue to define the mineralization through drift access and fan drilling.

17.1.5 Metallurgical Characteristics

Metallurgical risk factors are cost related. The uranium mining industry is experienced with mining and milling these types of ore deposits, and the current price of uranium is conducive to production. Although there is no metallurgical information yet available, there is nothing unusual anticipated with the uranium mineralization at Wate. Any potential development of Wate would likely require shipment of ore to the existing White Mesa mill in Blanding, Utah,

17.1.6 Environmental/Socio-Economic Considerations

Environmental issues are always a risk factor in project development. The risks can usually be mitigated by proactively defining the risks and engaging the local populace and government administrators and regulators. The advantages to uranium breccia pipe mining in Arizona are the recent history of uranium mining activity and the small surface area of potential disturbance. In addition, none of the historical Arizona breccia pipe mines have radioactive mill tailings as a reclamation issue, as all ores were trucked to the mills in Utah. After they were reclaimed in the late 1980s, the former Hack Canyon, Pigeon, and Hermit mines of Energy Fuels located north of the Grand Canyon are nearly indistinguishable from the surrounding land.

The current withdrawal of 1M acres of federal lands in the region places further uncertainty on projects on Forest Service lands; however, this withdrawal does not affect any activity on Arizona State Land such as the Wate Pipe.

Mine development on Arizona State lands would be beneficial economically to Arizona's state budgetary difficulties and has been viewed in a positive light by the Arizona governmental agencies, which is a positive aspect of the project.

SRK considers the upside opportunities to justify continued exploration activities at the Wate Pipe. In SRK's opinion, the risks are operational and commodity price driven, and all but the commodity price can be quantified and mitigated as the project moves forward.

18 Recommendations (Item 26)

To advance the Project, SRK recommends two avenues for Energy Fuels to acquire additional drilling information for the Wate Pipe:

- If possible, secure the historical drill data for the Project;
- Conduct additional drilling at the Wate Pipe to increase the confidence and perhaps the classification of the current resource.

SRK recommends a completion of the acquisition of all historical project data from Taiwan Power if financially acceptable terms can be agreed. That historical database will provide sufficient additional information to allow for updating of the 3-D geological model and achieve an increased confidence in the resource estimate. VANE had attempted and nearly exhausted the possibility of securing that back-up historical data. Therefore, the primary recommendation is further confirmation drilling.

SRK recommends Energy Fuels conduct in-fill drilling to demonstrate sufficient continuity to mineralization, and to hopefully increase the confidence classification of the resource. At this point in time it may be more advantageous, technically and from a cost perspective, to conduct further resource definition drilling from an exploration shaft.

SRK does not consider it feasible to define resources to an Indicated or Measured classification without close-spaced underground drilling, as fan drilling from several different levels of an exploration shaft.

A program to develop an exploration shaft and underground resource definition drilling may be justified by the +1.0 million pound Inferred resource at the Wate Pipe; however, a scoping study will determine that in greater detail.

As the cost to develop an exploration shaft is substantial, SRK recommends the next step in the program should be a scoping study to determine the economic potential of the project, as a Phase I program. A Phase II program would include the exploration shaft, extensive underground resource definition drilling, and a pre-feasibility study. The recommended programs and budgets are presented below.

18.1 Proposed Scoping Study – Phase I

A Phase I program will consist of a scoping study to determine the economic viability of the current Inferred resource, by developing a mine plan and costing the conceptual mining, processing, and infrastructure for development of the Wate Pipe mineralization. The objective is to verify that a 1.0M pound resource is sufficient to develop at break-even or better economics.

The current resource model would be used for development of a conceptual mine plan with shaft access. Mine development capital and operating costs would be estimated. Processing options would be conceptually reviewed and costs estimated accordingly. Surface facilities and other infrastructure costs would be estimated as well. A technical economic model will be produced to determine the potential economic viability of the project.

Phase I-Scoping Study:

Scoping Study Report (Preliminary Economic Assessment NI 43-101) \$200,000

The estimated time to complete a scoping study is approximately 4 to 6 months.

18.2 Phase II

Contingent upon positive economics in the Scoping Study, a Phase II program would include the cost to develop an exploration shaft, conduct extensive underground resource definition drilling, collect a sufficient sample volume for a comprehensive metallurgical test program to verify the metallurgical tests currently being conducted, and conduct a pre-feasibility level study.

SRK Consulting NI 43-101 Technical Report on Resources Wate Uranium Breccia Pipe – Northern Arizona, USA.	Page 76
Construction of an exploration shaft to 1500 feet @ \$10,000/ft	\$15,000,000
Development of 3 sub-levels and drill stations for fan drilling	\$ 1,000,000
Underground Core drilling, 8,000 feet @ \$100/ft	\$ 800,000
Surface infrastructure for Shaft	\$10,000.000
Pre-Feasibility engineering study and contingency	\$ 1,000,000
Sub-Total Phase II	\$27,800,000

The estimated time and cost for Phase II work is approximately at 18 to 24 months and US\$27.8 million.

19 References (Item 27)

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20 Glossary (Item 27)

Assay:	The chemical analysis of mineral samples to determine the metal content.
Background Radiation	That portion of the radiometric total count reading (CPS or counts per second) that are attributable to non-recoverable uranium, potassium and thorium radiation on gamma logs
Concentrate:	A metal-rich product resulting from a mineral enrichment process such as gravity concentration or flotation, in which most of the desired mineral has been separated from the waste material in the ore.
Crushing:	Initial process of reducing ore particle size to render it more amenable for further processing.
Dilution:	Waste, which is unavoidably mined with ore.
Dip:	Angle of inclination of a geological feature/rock from the horizontal.
Fault:	The surface of a fracture along which movement has occurred.
Footwall:	The underlying side of an orebody or stope.
Gangue:	Non-valuable components of the ore.
Grade:	The measure of concentration of gold within mineralized rock.
Hanging wall:	The overlying side of an orebody or slope.
Lithological:	Geological description pertaining to different rock types.
Milling:	A general term used to describe the process in which the ore is crushed and ground and subjected to physical or chemical treatment to extract the valuable metals to a concentrate or finished product.
Mineral/Mining Lease:	A lease area for which mineral rights are held.
Radiation	Or radioactivity; meaning the emissions of alpha, beta, and gamma rays from naturally occurring minerals and rocks.
Scintillometer	A hand-held instrument or down-hole probe that detects radiation as counts per second (CPS)
Sedimentary:	Pertaining to rocks formed by the accumulation of sediments, formed by the erosion of other rocks.
Spectrometer	An instrument that measures CPS radioactivity and differentiates the total CPS spectral radiation emissions into that derived from potassium (K), uranium (U), and thorium (Th), the most commonly occurring radioactive elements found in rocks and minerals.
Stratigraphy:	The study of stratified rocks in terms of time and space.
Strike:	Direction of line formed by the intersection of strata surfaces with the horizontal plane, always perpendicular to the dip direction.
Sulfide:	A sulfur-bearing mineral.
Tailings:	Finely ground waste rock from which valuable minerals or metals have been extracted.
Total Count	Total CPS from all radioactive sources, U, K, and Th. Total Count and CPS are commonly used synonymously.
Total Expenditure:	All expenditures including those of an operating and capital nature.

List of Abbreviations

The English system has been used throughout this report unless otherwise stated. All currency is in U.S. dollars. Market prices are reported in US\$ per pound of U_3O_8 . Tons are short tons of 2,000 lbs. The following abbreviations may be used in this report.

Abbreviation	Unit or Term
AA	atomic absorption
CPS	Counts per second; a relative measure of radioactivity using a hand-held scintillometer or a down-hole radiometric probe or counts.
FA	fire assay
ft	foot (feet)
ft²	square foot (feet)
ft ³	cubic foot (feet)
gal	gallon
gpm	gallons per minute
ICP	induced couple plasma
Lb (lbs)	pound (pounds
masl	mean above sea level
NI 43-101	Canadian National Instrument 43-101
Mlbs	Million pounds
OSC	Ontario Securities Commission
%	percent
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
RC	reverse circulation drilling
RQD	Rock Quality Description
SG	specific gravity
st (ton)	short ton (2,000 pounds)
U	Element Uranium, deposited as a uranium oxide (U_3O_8)
U3O8	Formula for uranium oxide that is a common way of reporting uranium determinations by chemical analyses
eU ₃ O ₈	Equivalent U_3O_8 determined by calibrations of scintillometer probes to a sample of known uranium concentration.
XRF	x-ray fluorescence

Units of Measure

The following list of conversions is provided for the convenience of readers that are more familiar with the Imperial system or the metric system.

Linear Measure

Analytical Values	
1 pound =	16 oz = 0.454 kg
1 short ton =	2000 pounds = 0.9072 tonne (metric ton)
Weight	
1 square mile =	640 acres = 259 hectares
1 acre =	0.4047 hectare
Area Measure	
1 mile (mi) =	1.6093 kilometers
1 yard (yd) =	0.9144 meter
1 foot (ft) =	0.3048 meter
1 inch (in.) =	2.54 centimeters

gram/tonne (g/t) = 1.0ppm

100ppm U₃O₈ = 84.8ppm U

Analytical results are reported as parts per million (ppm) contained for uranium (the element U, often analyzed for and expressed as U_3O_8). Uranium determinations by the equivalent of chemical analyses will be stated in this report as ppm U_3O_8 . Uranium determinations by conversion of radiometric probe measurements will be stated in this report as ppm eU_3O_8 ("e" for equivalent). Other elements are reported as percent (%), or are reported as parts per million (ppm).

Appendix A: Author Certificates

CERTIFICATE of AUTHOR

Allan V. Moran

Associate Principal Geologist SRK Consulting (U.S.), Inc. 3275 W. Ina Rd, Suite 240 Tucson, Arizona, U.S.A. 85741 Phone: 520-544-3688 Email: **amoran@srk.com**

CERTIFICATE of AUTHOR

- 1. I, Allan V. Moran, a Registered Geologist and a Certified Professional Geologist, do hereby certify that:
- 2. I am currently employed as a consulting geologist to the mining and mineral exploration industry, as Principal Geologist with SRK Consulting (U.S.) Inc., with an office address of 3275 W. Ina Rd., Tucson, Arizona, USA, 85741.
- 3. I graduated with a Bachelor's of Science Degree in Geological Engineering from the Colorado School of Mines, Golden, Colorado, USA; May 1970.
- 4. I am a Registered Geologist in the State of Oregon, USA, #G-313, and have been since 1978. I am a Certified Professional Geologist through membership in the American Institute of Professional Geologists, CPG 09565, and have been since 1995.
- 5. I have been employed as a geologist in the mining and mineral exploration business, continuously, for the past 44 years, since my graduation from university.
- 6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101. The Technical Report is based upon my personal review of the information provided by the issuer. My relevant experience for the purpose of the Technical Report is:
 - Vice President and U.S. Exploration Manager for Independence Mining Company, Reno, Nevada, 1990-1993
 - Manager, Exploration North America for Cameco Gold Inc., 1988-2002
 - Exploration Geologist for Freeport McMoRan Gold, 1980-1988
 - Uranium exploration experience from 1975 to 1980 with Kerr McGee Resources, and Freeport Exploration
 - Experience in the above positions working with and reviewing resource estimation methodologies, in concert with resource estimation geologist and engineers.
 - As a consultant, I completed several NI 43-101 Technical reports, 2003-2010.
- 7. I am responsible for the content, compilation, and editing of all sections of the technical report titled "NI 43-101 Technical Report on Resources, Wate Uranium Breccia Pipe, Northern Arizona", and dated March 10, 2015 (the "Technical Report") relating to Energy

Fuels Resources (US) Inc's interest in the Project. I have personally visited the Project in the field on January 04, 2009.

- 8. I have had prior involvement with the property that is the subject of the Technical Report; specifically, a prior NI 43-101 technical report dated May 19, 2010, and updated reports dated November 04, 2010 and May 13, 2011, as referenced in Section 1.1.2 of this report.
- 9. I am independent of the issuer applying all the tests in Section 1.5 of National Instrument NI 43-101.
- 10. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- 11. 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.
- 12. As of March 22, 2011, the Effective Date of the Report (effective date of current resources), to the best of my knowledge, information and belief, the portions of the Technical Report I am responsible for (all Sections) contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated in Tucson, Arizona, March 10, 2015.

was spanped for the exclusive This signed authors approval, any other use is not authorized

Allan V. Moran



CERTIFICATE of AUTHOR

Frank A. Daviess

Principal Resource Geologist

SRK Consulting (U.S.), Inc.

Email: <u>fdaviess@comcast.net</u>

- I, Frank A Daviess do hereby certify that:
 - 1. I am currently employed as a consulting resource geologist to the mining and mineral exploration industry and I am currently under contract as an associate Principle Resource Geologist with SRK Consulting (U.S.) Inc., with an office address of 7175 W. Jefferson Avenue, Suite 3000 Lakewood, Colorado, U.S. 80235.
 - 2. I graduated from the University Of Colorado, Boulder, Colorado, USA with a B.A. in Geology in 1971 and a M.A. in Natural Resource Economics and Statistics in 1975
 - 3. I am a Member of the Australasian Institute of Mining and Metallurgy (Registration No. 226303).
 - 4. I am a Registered Member of the Society for Mining, Metallurgy and Exploration, Inc. (Registration No. 0742250).
 - 5. I have been employed as a geologist in the mining and mineral exploration business, continuously, for the past 40 years, since my graduation from university.
 - 6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with professional associations (as defined in NI 43-101) and past relevant work experience I fulfill all the requirements to be a "qualified person" for the purposes of NI 43-101. I have authored sections of the Technical Report. The Technical Report is based upon my personal review of the information provided by the issuer. My relevant experience for the purpose of input to the Technical Report is:
 - Specialization in the estimation, assessment and evaluation of mineral resources including uranium since 1975.
 - Specialization in uranium resource estimation experience as an Ore Reserve Analyst, US Department of Energy, Resource Division, Grand Junction, CO, 1975-1978
 - 7. I am responsible for the Mineral Resource Estimate section (Section 13) of the technical report titled "NI 43-101 Technical Report on Resources, Wate Uranium Breccia Pipe, Northern Arizona", and dated March 10, 2015 (the "Technical Report") relating to Energy Fuels Resources (US) Inc's interest in the Project. I have personally not visited the project site in the field.
 - 8. I have had prior involvement with the property that is the subject of the Technical Report; specifically, a prior NI 43-101 technical report dated May 19, 2010, and updated reports dated November 04, 2010 and May 13, 2011, as referenced in Section 1.1.2 of this report.
 - 9. I am independent of the issuer applying all the tests in Section 1.5 of National Instrument NI 43-101.
 - 10. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
 - 11. 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.

12. As of March 22, 2011, the Effective Date of the Report (effective date of current resources), to the best of my knowledge, information and belief, the portions of the Technical Report I am responsible for (Section 13 – Mineral Resource Estimate) contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

_Dated in Denver, Colorado, March 10, 2015

Signature of Co-Author

Frank Daviess

("Signed")

("Sealed")