

UPDATED TECHNICAL REPORT  
ON  
ENERGY FUELS RESOURCES CORPORATION'S  
WHIRLWIND PROPERTY  
(Including Whirlwind, Far West, and Crosswind Claim Groups and Utah  
State Metalliferous Minerals Lease ML-49312)

Mesa County, Colorado and Grand County, Utah

Prepared for Energy Fuels Inc.  
*In Compliance with Canadian National Instrument 43-101*  
*"Standards of Disclosure for Mineral Projects"*

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Updated Technical Report on  
Energy Fuels Resources Corporation's

Whirlwind Property

(Including Far West and Crosswind Claim Groups and Utah State  
Metalliferous Minerals Lease ML-49312)

**1.0 Summary**

Energy Fuels Resources Corporation's (EFR) Whirlwind Mine project is located in the Beaver Mesa District of the Uravan Mineral Belt, along the Colorado-Utah state line four miles southwest of Gateway, Colorado. It consists of 57 unpatented claims, the Whirlwind and part of the Far West Wind groups, covering approximately 1,085 acres. The property is held under a mining lease with Little Maverick Mining Company for a 20-year term, which can be extended. The area was claimed at earlier times by Umetco Minerals (Union Carbide), Atlas Minerals, Climax Uranium, and Pioneer Uravan, as well as smaller companies including Beaver Mesa Uranium, Inc., and Rajah Ventures, Ltd. EFR has leased two other claim groups contiguous with the Little Maverick property, which results in a total property package consisting of 216 claims covering approximately 4,385 acres. The larger part of the Far West, et al group, leased from S&S Mining, lies to the west and north of the Whirlwind group. To the east is the Crosswind group, leased from High Country Mining. The terms of the leases on these claims are similar to the Little Maverick lease. EFR completed its present property position with the acquisition of the 320 acre Utah State mineral lease, Section 16 (ML-49312), from Energy Metals Corporation in May, 2008. The indicated and inferred mineral resources of these adjoining properties are discussed in this report.

This district has seen production of radium, vanadium, and uranium ores since early in the 20<sup>th</sup> century. Numerous underground mines on the Whirlwind property, and surrounding within one mile of the claim group perimeter, have produced in excess of 7,000,000 pounds  $U_3O_8$  and nearly 24,000,000 pounds  $V_2O_5$ . Production derived from fluvial sandstones, mostly in the upper part of the Salt Wash Member of the Morrison Formation of Jurassic age. The last production was in 1990, which ceased due to inadequate uranium prices.

In addition to the older mines on the property, the Whirlwind Mine was started in 1979 by Pioneer Uravan (known then as the Urantah Mine). Pioneer stopped the project in 1981, shortly after completion of the access decline, with only minor production. As reported in the previous 43-101 Amended Technical Report dated October 24, 2008-by Douglas C. Peters of Peters Geosciences (the "October 2008 Technical Report"), drilling by Pioneer Uravan and others indicated remaining resources at the Whirlwind Mine of nearly 657,000 lbs  $U_3O_8$  and 2.17 million lbs  $V_2O_5$ . That estimated resource was contained in some 164,000 tons of mineralized material at a grade, diluted to mining thickness, of 0.20%  $U_3O_8$  and 0.66%  $V_2O_5$ . Continuing evaluation of historic data and

drilling by EFR in 2007 and 2008 has increased this to 779,550 lbs U<sub>3</sub>O<sub>8</sub> and 2.63 million lbs V<sub>2</sub>O<sub>5</sub> (in 194,465 tons at 0.20% U<sub>3</sub>O<sub>8</sub> and 0.68% V<sub>2</sub>O<sub>5</sub>, diluted) on the Whirlwind Claims. There are significant, but unquantified resources remaining in the drift ribs and pillars of several old mines within the three claim groups. Because of sparse data on the Far West group, it contains no indicated mineral resources. However, historic drilling on the Crosswind group yielded an indicated mineral resource of 92,086 lbs U<sub>3</sub>O<sub>8</sub> (in 18,722 tons) at an average grade of 0.25% and 305,076 lbs V<sub>2</sub>O<sub>5</sub> (average grade of 0.81%). Reliable historic data and drilling by EFR in 2008 on the Utah ML-49312 lease show that parcel contains Indicated Mineral Resources of 223,770 lbs U<sub>3</sub>O<sub>8</sub> and 666,100 lbs V<sub>2</sub>O<sub>5</sub> (in 35,700 tons at 0.33% U<sub>3</sub>O<sub>8</sub> and 0.99% V<sub>2</sub>O<sub>5</sub>, diluted). Investigations of outcrops, new drill data, and historic maps have led to the inclusion of Inferred Mineral Resources of 2,000,000 lbs U<sub>3</sub>O<sub>8</sub> on the combined properties; this is unchanged from the October 2008 Technical Report. Potential to further increase this resource is quite reasonable. A cutoff grade of 0.06% U<sub>3</sub>O<sub>8</sub> was used to estimate the quantities of uranium and vanadium in the Whirlwind and adjacent claims areas.

Table 1.1- Summary of Indicated and Inferred Mineral Resources for the Whirlwind Mine and related properties.

Subarea of Whirlwind Property	Indicated Mineral Resources (grade and tons)	Indicated Mineral Resources (lbs)	Inferred Mineral Resources (grade and tons)	Inferred Mineral Resources (lbs)
Whirlwind Mine Area	0.27% U <sub>3</sub> O <sub>8</sub> 0.88% V <sub>2</sub> O <sub>5</sub> 147,798 tons	779,550 U <sub>3</sub> O <sub>8</sub> 2,627,240 V <sub>2</sub> O <sub>5</sub>	0.22% U <sub>3</sub> O <sub>8</sub> 0.70% V <sub>2</sub> O <sub>5</sub> 255,700 tons	1,200,000 U <sub>3</sub> O <sub>8</sub> 3,900,000 V <sub>2</sub> O <sub>5</sub>
Crosswind Area	0.25% U <sub>3</sub> O <sub>8</sub> 0.81% V <sub>2</sub> O <sub>5</sub> 18,720 tons	92,100 U <sub>3</sub> O <sub>8</sub> 305,100 V <sub>2</sub> O <sub>5</sub>	0.25% U <sub>3</sub> O <sub>8</sub> 0.81% V <sub>2</sub> O <sub>5</sub> 120,700 tons	500,000 U <sub>3</sub> O <sub>8</sub> 1,600,000 V <sub>2</sub> O <sub>5</sub>
Far West Area	-----	-----	0.20% U <sub>3</sub> O <sub>8</sub> 0.65% V <sub>2</sub> O <sub>5</sub> 25,000 tons	100,000 U <sub>3</sub> O <sub>8</sub> 324,000 V <sub>2</sub> O <sub>5</sub>
Utah Section 16	0.52% U <sub>3</sub> O <sub>8</sub> 1.56% V <sub>2</sub> O <sub>5</sub> 21,331 tons	223,772 U <sub>3</sub> O <sub>8</sub> 666,098 V <sub>2</sub> O <sub>5</sub>	0.28% U <sub>3</sub> O <sub>8</sub> 0.65% V <sub>2</sub> O <sub>5</sub> 35,700 tons	200,000 U <sub>3</sub> O <sub>8</sub> 648,000 V <sub>2</sub> O <sub>5</sub>
<b>TOTALS</b>	0.30% U <sub>3</sub> O <sub>8</sub> 0.97% V <sub>2</sub> O <sub>5</sub> 169,129 tons	1,003,322 U <sub>3</sub> O <sub>8</sub> 3,293,338 V <sub>2</sub> O <sub>5</sub>	0.23% U <sub>3</sub> O <sub>8</sub> 0.72% V <sub>2</sub> O <sub>5</sub> 437,100 tons	2,000,000 U <sub>3</sub> O <sub>8</sub> 6,472,000 V <sub>2</sub> O <sub>5</sub>

- Notes: 1) Grades and tonnage shown as undiluted amounts.  
2) Vanadium grades are based on assays where taken, and otherwise estimated at the average V<sub>2</sub>O<sub>5</sub>:U<sub>3</sub>O<sub>8</sub> ratio of 3.24:1.

The 3,000-foot long decline of the Whirlwind Mine has been completely rehabilitated to the mine faces in 2008. This will be the main haulage for future production. The work consisted of timber replacement and bolting, new utility lines (vent, air, and water), construction of a large sump, and reconstruction of the roadway. Additional surface facilities have been constructed, a water treatment plant is in operation, and all phases of the mining permits from Mesa County, the State of Colorado, and the Bureau of Land Management have been completed. The Mine Permit approval for full production was received in September, 2008.

EFR is in the process of preparing a Preliminary Economic Assessment (PEA) for the Whirlwind Mine and surroundings. Mine planning for ventilation and a secondary escape is complete. Mine dewatering was completed; however, the mine was placed on standby and the pumps were turned off in December 2009. The lower portion of the underground workings are again under water. Development drifting can begin in short order once the mine is again dewatered. Additional exploration drilling is planned for the Summer of 2011.

## **2.0 Introduction and Terms of Reference**

Peters Geosciences was retained by EFR to prepare an updated, independent Technical Report, in conjunction with updating of background information in the report by EFR staff, compliant with National Instrument 43-101 (NI 43-101) on the Whirlwind uranium/vanadium project. This report has been prepared to meet the requirements of NI 43-101 and Form 43-101F1.

Peters Geosciences understands that this report will be used in support of future public offerings by EFR's parent company, Energy Fuels Inc.

Douglas C. Peters, CPG (AIPG #8274) and PG (Utah license #2250), and principal in Peters Geosciences, visited the Whirlwind Mine and property on November 27, 2007. In addition to viewing the surface conditions and visiting various drill hole locations, Mr. Peters was taken underground by Mr. Richard White, CPG (AIPG #8792), of EFR to assess the status of the decline that had been dewatered as of that date. Existing development entries at the bottom of the decline could not be accessed at that time due to remaining water being too deep to allow entry. No mineralized samples were collected as a result.

Relevant reports, maps, drill and probe logs for holes drilled in 2007 and 2008, and other data were reviewed and discussed with Mr. White, who is serving as Vice President of Exploration for the company's Colorado and Utah operations, and with other EFR staff. The References section of this report lists those documents cited in this report.

Measurements are in English units (i.e., short tons, feet, or acres), and grades are expressed as percent of  $U_3O_8$  or  $V_2O_5$ .

### **3.0 Reliance on Other Experts**

The information, conclusions, opinions, and estimates contained in this technical report are based upon information available to Peters Geosciences at the time of report updating and preparation. This includes certain data, maps, and other documents in the possession of EFR, and reviewed with Mr. Richard White, CPG, and other EFR staff at the Whirlwind Mine site and in their offices in Lakewood and Naturita, Colorado, from exploration and mining efforts conducted by previous companies in the immediate district.

Mr. White led a field review on November 27, 2007 by Peters Geosciences of the properties covered by this report and was instrumental in assisting with the review, discussion, and understanding of both the general and site-specific geology of the Beaver Mesa mining district.

Peters Geosciences did not revisit legal title of claims and leases covering the Whirlwind and related properties given that most such claims already had been reviewed by FGM for the previous 43-101 report. A Title Opinion has been prepared for EFR by Holland and Hart, attorneys at law, which indicates no title issues of substance exist regarding the combined properties. Likewise, Peters Geosciences did not review the permitting and reclamation status of the Whirlwind property beyond basic discussions with Mr. White.

### **4.0 Property and Description and Location**

The Whirlwind Property, which is the subject of this technical report, is comprised of (i) the Whirlwind claim group, (ii) the Far West Claim Group, (iii) the Crosswind claim group, and (iv) Utah State Metalliferous Minerals Lease ML 49312.

The Whirlwind claim group consists of 57 unpatented lode claims located in the Beaver Mesa mining district, some four miles southwest of Gateway, Colorado and straddling the Colorado-Utah border (Figure 4-1). The claims (Figure 4-2) lie in sections 35 and 36, T51N, R20W, NMPM and sections 1, 2, 11, and 12, T50N, R20W, NMPM, Mesa County, Colorado and in sections 8, 9, 17, 20, and 21, T25S, R26E, SLPM, Grand County, Utah. The area encompassed by the claims is approximately 1,085 acres and is covered by the U.S. Geological Survey (USGS) Dolores Point North 7½ minute topographic quadrangle map.

The Far West claim group contains 114 claims covering approximately 2,355 acres. This group lies to the west and north of the Whirlwind group (which contains a few claims named Far West, also). These claims cover all or part of sections 4, 5, 7, 8, 9, 17, 18, 19, 20, and 21, T25S, R26E, SLPM, Grand County, Utah and parts of sections 25 and 26, T51N, R20W, NMPM, Mesa County, Colorado. They lie on the USGS Dolores Point North and Dolores Point South topographic quadrangles.

The Crosswind claim group is contiguous with the east side of the Whirlwind group. These 45 claims are located in section 6, T50N, R19W, sections 1 and 2, T50N, R20W,

section 31, T51N, R19W, and section 36, T51N, R20W, NMPM, Mesa County, Colorado. These claims also fall on both the Dolores Point North and Dolores Point South quadrangles. All three claim groups are shown on Figure 4-2.

The land covered by the claims is administered by the U.S. Bureau of Land Management (BLM). The claim groups surround a half section (about 320 acres) of Utah State Land (section 16, T25S, R26E). EFR signed an agreement with Energy Metals and its successor, Uranium One, in May 2008 to acquire this parcel, and that acquisition has been completed. The north central portion of the Whirlwind group borders a 60 acre parcel of private land on three sides (west, south, and east). The northeastern part of the Far West group borders the north side of the private parcel. The Whirlwind claims were staked over a period of time ranging from January, 2005 through September, 2006. Amendments were made to a few claims to correct defects in descriptions. The Whirlwind Mine portal is located at latitude  $38^{\circ} 38' 32''$  N, longitude  $108^{\circ} 2' 54''$  W, at an elevation of 7,050 feet.

The Far West property was staked between December 5 and December 29, 2006. Two claims were added to the group on April 19, 2007 to close a gap immediately north of the Whirlwind Mine portal for mine permit purposes. The Crosswind claims were mostly staked from March 19, 2005 through April 18, 2005, with the last four staked September 4, 2006.

The claims were properly staked on the ground and filed with the two counties and the BLM. The BLM maintenance fees have been paid up through the 2011 payment year. EFR entered into an option to lease the Whirlwind group (Whirlwind Tunnel, Whirlwind #2-22, 25-45, Far West 1-13) with Little Maverick Mining Company on September 1, 2006 for 120 days. The lease was signed on December 11, 2006 for a term of twenty years, which is extendable if mineral production is on a continuing basis. Payments consist of advance royalty paid at the time the lease was executed of \$300,000 in Energy Fuels Inc. stock (EFR is a wholly-owned subsidiary of Energy Fuels Inc.) and \$300,000 cash (less the \$20,000 paid for the option period). The first two annual advanced royalty payments as \$600,000 cash each year were made in December 2007 and 2008. The December 2009 anniversary payment was made as \$400,000 cash and EFI common shares valued at \$200,000. One-half of the December 2010 payment was made in cash (\$300,000) and the other half deferred until 2011. This deferred amount can be requested in stock increments of \$100,000 at any time by Little Maverick during 2011. In late January 2011, Little Maverick requested shares valued at \$200,000 in late January 2011. Upon issuance of those shares, the remaining advanced royalty due Little Maverick will be \$100,000. The total advanced royalty paid to Little Maverick over five years will be \$3,000,000. Production royalty will be paid on a sliding scale for both uranium and vanadium from 5% to 8.5% of spot price market value, depending upon market prices. Little Maverick also will be paid a haulage and usage royalty of 1% or 2%, depending on the price of  $U_3O_8$  and  $V_2O_5$ , for any ore mined on the Utah State lease (section 16, T25S, R26E) that is hauled through workings on the Whirlwind claims.

The term of the S&S Mining Company lease for the Far West, et al. group (Far West #15-34, 37-112, Christmas 1-10, and Whirlwind 140-147) is also 20 years (which is extendable if mineral production is on a continuing basis). It was signed on March 21, 2007. The payment to the Lessor at the time of signing was \$400 per claim for the 112 claims in the group (\$44,800). The lease contains a production royalty nearly identical to the Whirlwind property, the exception being the top rate is 8% of market value. EFR has an exploration and development work commitment of \$25,000 per year beginning after the first anniversary date for each of the next three years. There are no annual advanced royalties due for this property.

The lease between EFR and High Country Mining Company covering the Crosswind claim group (Crosswind #40-84) was signed March 21, 2007. Its term is also 20 years, which is extendable if mineral production is on a continuing basis. Payment at signing consisted of \$333,334 cash plus \$125,000 worth of stock. EFR paid \$333,334 on the first anniversary date. The payment due on the second anniversary date was negotiated to be one-quarter in cash (\$45,833.50) and one-half in EFI shares (\$91,667). The other one-quarter was deferred six months and paid in cash (\$45,833.50) in September 2010. The total advanced royalty due of \$1,125,000 has now been paid. The production royalty rate is the same as in the S&S Mining lease. There is no work commitment contained in this agreement, however, the Lessor has the first right for drilling and ore hauling contracts.

The State of Utah reserves a production royalty on lease ML-49312 of 8% on uranium and 4% on vanadium. Uranium One retained an overriding royalty varying from 2 to 4% on uranium as the spot price varies from \$50 to greater than \$95 per pound  $U_3O_8$  and 2 to 4% on vanadium as that price varies from less than \$8 per pound to greater than \$22 per pound  $V_2O_5$ . There is an annual work commitment of \$30,000 as part of this lease assignment from Uranium One.

EFR is responsible for payment of the Utah annual advanced royalty (\$500) and the annual claim rental fees to the BLM (\$140/claim), permitting and bonding fees to the applicable state and county agencies, and reclamation costs for all of the leases.

The Whirlwind Mine is operating under a 112d Mine Permit (M-2007-044) approved by the Colorado Division of Reclamation, Mining, and Safety (DRMS), a Plan of Operations approved September 10, 2008 by the Grand Junction office of BLM, and necessary approvals from Mesa County. The Packrat Mine portal area is permitted under the same 112d permit. EFR received a permit from the Colorado Department of Public Health and Environment (CDPHE) Water Quality Division (WQD) to discharge mine water in July, 2007 (Permit No. CO-0047562). The Utah Division of Oil, Gas, and Mining (DOG M) issued a Small Mine Permit in July 2007 which allows for future ventilation holes as the mine expands to the west. Necessary storm water discharge, air pollution control, water rights, and ground water monitor well permits have been received from both CDPHE and DOGM. Prospecting permits are approved by DOGM for two proposed exploration drill projects.

The Whirlwind Mine is located approximately 130 miles from the Denison Mines (USA), Corporation White Mesa Mill at Blanding, Utah. It is about 65 miles to the Pinon Ridge uranium-vanadium mill planned (not yet constructed) by EFR near Naturita, Colorado. The Radiation Division of CDPHE approved the Radioactive Material License for the Pinon Ridge mill on March 7, 2011.

### **5.0 Accessibility, Climate, Local Resources, Infrastructure, and Physiography**

The Whirlwind Mine portal is centrally located for the combined properties, being in the north central part of the Whirlwind claim group. It is accessed by driving 0.8 mile on Colorado Highway 141 south of the Gateway Post Office to Mesa County Road 4<sup>4</sup>/<sub>10</sub>, the road that goes south into John Brown Canyon, then by following Road 4<sup>4</sup>/<sub>10</sub> for 7.4 miles to the intersection with Mesa County Road 5<sup>5</sup>/<sub>10</sub>, and then proceeding north and west on Road 5<sup>5</sup>/<sub>10</sub> for 3.2 miles to the mine site. These county roads are mostly graded dirt with short graveled sections. They are not presently maintained by the county for their entire lengths during winter months. However, snowfall is usually small enough to be manageable for year-round access by a private concern. EFR made improvements to Road 5<sup>5</sup>/<sub>10</sub> during 2007 and 2008 and will be responsible for winter maintenance under an approved permit with Mesa County.

No permanent structures exist at the site. A fabric/metal frame shop building was erected in 2007. A two-piece mobile mine dry/office building was installed in 2008. Phone service by both land line and cellular access exists at the site. Power lines are within a few hundred feet of the portal area; however the power lines are not energized. EFR will be using generators until the transmission line to the area is upgraded. A portable water treatment plant is installed and was successfully operated for over a year. It consists of a large raw water tank, semi-trailer containing treatment apparatus, a settling tank, and a polishing tank. This plant is permitted for discharge rates of treated water at 20 gallons per minute. Water needed for underground mining is anticipated to be encountered as ground water during the development and extraction phases. Presently, inflow is approximately the needed amount for mining purposes, being about 2-3 gallons per minute. Additional water, if needed, easily can be hauled to the site.

Gateway, Colorado is a very small town currently undergoing a transition from agriculture to a tourist-based economy. Recently completed construction includes a grocery store, recreational store and tour center, motel, restaurant, car museum, small convention center, and employee housing for part of the facility staff. Additional resort-type facilities are being built, and more are planned by Gateway Canyons Development.

The region is characterized by mesas cut by deep canyons. There are narrow benches on the mesa shoulders in some areas and near-vertical, 500-foot cliffs elsewhere. Elevations within the claim group range from 7,900 feet in the southwestern part to 6,800 feet near the canyon rim in the northeast part. The elevation at Gateway, Colorado, where Highway 141 crosses the Dolores River, is approximately 4,560 feet.

The area is semiarid. All elevations support moderate growths of juniper and pinón in rocky soils along with sage and other brush, forbs, and grasses. Where soils are rich at the higher elevations and on northern slopes, there are stands of ponderosa pine and oak brush.

## **6.0 History**

Ores in this and other parts of the Uravan Mineral Belt were mined intensively in the early 20<sup>th</sup> century for radium (about 1914-1923). The Gateway/Beaver Mesa District of the Uravan Mineral Belt was mostly idle from the 1920s until about 1937 when several mills, including a small one at Gateway (Gateway Alloys, Inc.), were built to process the ore for its vanadium content. Uranium became the emphasis of the district when the U.S. Army's Manhattan Project came to the area in 1943. The U.S. Atomic Energy Commission (AEC) purchased concentrates from the several area mills from 1947 through 1970 (Chenoweth, 1981). Mining diminished until the mid-1970s when the private market price of uranium began rising to record levels. The area boomed until 1985 when the uranium price decline brought on by the Three Mile Island nuclear plant incident made most mining here unprofitable. Since the 1940s, the vanadium price was never sufficiently high to make mining practical for the vanadium content alone, even though it is about 3-4 times the uranium content in the Gateway area ores. However, the value of the vanadium as a by-product has always been important to uranium mining within the Uravan Mineral Belt.

Production of several mines on, and surrounding, the Whirlwind Property is shown in Table 6-1, mostly for the period up to 1971, when the AEC stopped purchasing uranium (Nelson-Moore et al., 1978). When the price of vanadium experienced a brief spike in 1989-1990, several mines in the Uravan Mineral Belt were reactivated, including some on the Whirlwind Property. The last underground mining within the property boundary was in 1990 when the Umetco contractor mined 4,200 tons at 0.44% U<sub>3</sub>O<sub>8</sub> and 1.06% V<sub>2</sub>O<sub>5</sub> from the west end of the La Sal No.6 area, accessed through the Packrat portal.

Besides demand and price forces, the mining history of the Whirlwind Property is also tied to technology advances, particularly in exploration drilling and rubber-tired underground mining equipment. Deposits were discovered in exposures of carnotite ores in the canyon rims early on. Many small adits were driven for prospecting, the successful ones becoming the numerous mines listed in Table 6-1. The preferred method, at least into the 1960s, was to use tracked haulage equipment at or slightly below the ore elevation. Where the dip of the ore-bearing sandstones became steeper than track equipment could negotiate, the ore above was accessed by raises and mined with slushers, draw points, and chutes to fill the rail cars below. Ore that was found below track level was sometimes accessed by steep track declines wherein a hoist was used to pull cars back up to the haulage level. Advancements in rubber-tired haulage equipment and loaders in the 1960s allowed the ore to be followed to changing elevations with ease and was much less labor intensive. It also allowed for easier removal of the waste generated in the split-shooting method needed to selectively mine the thin ore lenses.

This method of split-shooting involves assessing each face as the stopes advance by either the mine geologist, engineer, mine foreman, or experienced lead-miner. Since the grades and thickness of the typical Salt Wash uranium-vanadium deposits are highly variable, they are usually unpredictable from one round to the next. A round is a complete mining cycle of drill-blast-muck-ground support, if needed-ready to drill again. A normal round advances a working face about 6 feet.

Typically, the thickness of the mineralized material is less than the height needed to advance the stope. As the stope face is being drilled, the blast holes are probed with a Geiger Counter probe in order to estimate the  $U_3O_8$  grade. The uranium-vanadium mineralization is usually dark gray to black. The mineralization sometimes rolls, pinches or swells, or follows cross-beds within the sandstone; therefore the miner will also use drill cutting color as criteria to help guide blast hole direction and spacing. This irregular habit of the deposit can result in holes collared in mineralized material ending in waste, or, conversely, holes collared in waste will penetrate mineralized material much of their length.

Based on the results of the assessment of the blast holes drilled in the face, the round will be loaded and shot in two or more stages. Depending on the location and thickness of the mineralized material in the face (there may be multiple mineralized layers), the miner will attempt to blast either only mineralized material or only waste rock. They will muck it out as clean as possible, then shoot the remaining rock and muck it cleanly. In resource estimates, one foot of waste is added to the mineralized material for dilution because of this method. The amount of waste rock shot before or after the mineralized material results in typical stope heights of eight-to-nine feet. The minimum height needed to advance the stope is about seven feet, so any drill intercept greater than seven feet does not receive dilution in resource estimate calculations.

Shallow exploration drilling was conducted on the topographic benches, along with some long-hole drilling underground (up to 50 feet). Mining followed ore into areas of deeper cover as drill rigs improved. The mesa top was drilled on wide-spacing by the USGS/AEC and claim holders in the 1950s and 1960s. In the 1970s, the area covered by the Whirlwind claims was held by several entities. The resources of the Whirlwind Mine were developed by Pioneer Uravan, which did not control any of the nearby mines that had portals in the canyon rim. Therefore, Pioneer Uravan drove a decline, starting in September 1979, on the claims then known as the Urantah group, for about 3,000 feet at a minus 6% grade to access the deposit. Pioneer Uravan mined only a small amount of ore because it was concentrating on driving development headings. The company stopped the project due to declining prices in September, 1981 and put the property up for sale. The reported production was 2,743 tons at 0.15%  $U_3O_8$  (8,229 lbs) and 0.75%  $V_2O_5$  (41,145 lbs). The lower one-third of the decline ultimately filled with water. Umetco, who controlled the Packrat and several other mines to the north, acquired the property from Pioneer Uravan in about 1984. Umetco did not pay the BLM claim maintenance fee in 1994, letting the Urantah claims lapse. Cotter Corporation staked the same area later in 1994 as the Liberty group. Neither Umetco nor Cotter did any underground work in the mine. Cotter conducted a small drilling project which resulted in a minor increase to

resources. Umetco reclaimed most of the old mines around the canyon rims and some associated vent holes, and Cotter reclaimed its Liberty Mine (Whirlwind) portal in the next few years. Some of the portals, including Whirlwind, were closed with grates to allow access by the bats inhabiting the region.

As the uranium and vanadium prices began increasing in 2004, Lee Sutherland of Little Maverick Mining Company staked new claims beginning in January 2005, covering the old mines and an area of indicated mineral resources. The claims of the Whirlwind group include the Packrat, part of the Hubbard, and some of the Lumsden group of mines, as well as the La Sal and southern end of the Bonanza mine areas. Other old mines to the east of the Whirlwind (Rajah 49, Cherokee Shaft, the rest of the Lumsden mines, Thornton, Newheisel, and others) were staked by Jim Sutherland during the same time interval and are known as the Crosswind group. EFR now leases the Whirlwind group from Little Maverick Mining Company (Lee Sutherland), the Crosswind group from High Country Mining Company (Jim Sutherland), and the larger Far West, et al. group to the west from S&S Mining Company (a 50:50 partnership between Lee and Jim Sutherland). The transfer of the Utah State Section 16 lease from Uranium One to EFR was finalized in May, 2008.

When initial development was stopped in September 1981, there were two main headings in the Whirlwind Mine. The Whirlwind Mine has been rehabilitated to both faces and the main haulage drifts enlarged to accommodate larger haul trucks. Development work for near-term production can begin within three months of the decision to restart. Due to the declining uranium price, the mine was placed on standby following the rehabilitation work in late 2008. In order to conserve cash, a decision to stop pumping and treating water was made in December 2009. Mining will be conducted by conventional rubber-tired underground drill-blast-muck methods in a random room-and-pillar configuration (reflecting the geometry of the deposit as found during mining).

## **7.0 Geologic Setting**

### **7.1 Regional Geology**

The Colorado Plateau covers nearly 130,000 square miles in the Four Corners region (Figure 7-1) of the southwestern United States of America. The Whirlwind and other properties currently held by EFR lie in the Canyon Lands Section in the central and east-central part of the Plateau in Utah and Colorado. The Plateau's basement rocks are mostly Proterozoic metamorphics and igneous intrusions. The area was relatively stable throughout the Paleozoic and Mesozoic Eras with minor uplifts, subsidences, and tiltings resulting in fairly flat-lying sedimentary rocks ranging from evaporites, limestones, and marine clastic sediments, to eolian sandstones and detritus of fluvial systems. The Uncompahgre Uplift, seven miles northeast of the Whirlwind claims, became active during the late Paleozoic so that Pennsylvanian through early Jurassic sedimentary rocks wedge out against the Precambrian crystalline rocks. This thick stratigraphic sequence to the southwest is interrupted locally by salt-cored anticlines in the Paradox Basin area, basement fault-related monoclines, and Tertiary/late Cretaceous laccolith intrusions. The

salt anticlines are elongated in a northwest-southeast direction, as is the Uncompahgre Uplift. Flow of the salt was erratically active from Permian through late Jurassic, thereby affecting deposition of the Triassic and early Jurassic sediments, including the flow of the streams that deposited the Morrison formation. The Uncompahgre Plateau was again faulted upward in Tertiary time and deep canyon cutting occurred, continuing through the Pleistocene. Some twelve miles to the southwest of the Whirlwind Mine area are the La Sal Mountains. These consist of Tertiary laccoliths intruded into several different horizons of Mesozoic sedimentary rocks. Figure 7-2 is a stratigraphic column of the rock units exposed in the Gateway, Colorado area.

Major uranium deposits of the east-central Colorado Plateau occur principally in two of the fluvial sequences. The older one is located at or near the base of the upper Triassic Chinle Formation. Areas of uranium deposits occur where the basal Chinle consists of channels filled with sandstone and conglomerate that scoured into the underlying sediments. This channel system is known as the Shinarump Member in southern Utah. Farther north in eastern Utah, the basal member of the Chinle is a younger channel system known as the Moss Back. The Chinle deposition followed a period of tilting and erosion; therefore, the basal contact is usually an angular unconformity. Where the Chinle channels are in contact with sandstones of the Permian Cutler Formation, good uranium deposits locally occur in the Cutler, as well. The basal Chinle beds at the Whirlwind property are greater than 2,300 feet deep. Channel sandstones are absent from the base of the Chinle in exposures in the nearby canyons. Therefore, no Chinle uranium resources are known for the Whirlwind property.

The other significant Colorado Plateau uranium deposits occur in the late Jurassic Morrison Formation. The Morrison comprises two members in the Gateway, Colorado area. The lower member, the Salt Wash, is the main uranium host. The upper part of the Morrison is the Brushy Basin Member. The Salt Wash consists of about equal amounts of fluvial sandstones and mudstones deposited by meandering river systems. The Brushy Basin was deposited mostly as a large mud flat probably with many lakes and streams. Much of the sediments deposited to form the Brushy Basin originated from volcanic activity to the west. The majority of the uranium production has come from the upper sandstones of the Salt Wash Member known as the Top Rim.

Uranium occurrences have been found throughout most of the Colorado Plateau. However, there are numerous belts and districts where the deposits are larger and more closely spaced, such as the Uravan Mineral Belt (Figure 7-3, modified from Fischer and Hilpert, 1952). In addition to the uranium, many of the deposits contain considerable amounts of vanadium. In fact, in some districts the vanadium content is ten times or more the uranium content. In general, the Cutler and Shinarump ores contain very little vanadium, whereas the Salt Wash deposits usually contain large amounts of vanadium. The  $V_2O_5:U_3O_8$  ratio averages about 5:1 and can range up to 15:1 in the Uravan Mineral Belt. The economics of the Salt Wash deposits obviously are enhanced by the vanadium content, even when vanadium prices are lower than at present. The Beaver Mesa District of the Uravan Mineral Belt, where the Whirlwind is located, generally has a  $V_2O_5:U_3O_8$  of 3:1. Publicly reported past production (see Table 6-1 and Figure 7-4) within 1.5 miles

of the Whirlwind Mine shows a 3.24:1 ratio (Nelson-Moore et al., 1978), which is the value used for resource projections in this document when direct vanadium assays are absent.

## **7.2 Local Geologic Detail**

Geologic units exposed on the Whirlwind property range from the Jurassic Morrison Formation through the Cretaceous Burro Canyon and lower sandstones of the Dakota Sandstone (Figures 7-4 and 7-5). The trace of the cross section (C-C') shown in Figure 7-5 is indicated on the geologic map in Figure 7-4. A good description of the Morrison Formation, as summarized below, can be found in Cadigan (1967).

The Salt Wash Member of the Morrison Formation consists of interbedded fluvial sandstones (about 60%) and floodplain-type mudstone units (40%). The sandstone units crop out as cliffs or rims, whereas the mudstones form slopes. In the upper part of the Salt Wash, the numerous channel sandstones have coalesced into a relatively thick unit referred to as the Top Rim. Similarly, there is a thick sequence of channel sandstones at the base of the member called the Bottom Rim. Usually there are several thinner sequences or individual channel sandstones in the central part of the member which are termed Middle Rim sands. The largest deposits in the Uravan Mineral Belt, including the deposits in the Whirlwind claims, are in the Top Rim. The Salt Wash exceeds 300 feet in thickness at the Whirlwind claims. It overlies red sandy shales previously mapped as the Jurassic Summerville Formation. The Summerville is exposed on a few of the Far West claims where they extend westward into Beaver Creek canyon. (The interval historically referred to as the Summerville is now being assigned to the Wanakah Formation in the lower part and the Tidwell Member of the Morrison in the upper part (O'Sullivan, 1984)).

The streams that deposited the sandstones flowed mostly in large meander belts across an aggrading, partly eroded plain with varying subsidence rates. The source area for most of the Morrison Formation was a magmatic arc highland about 450 miles to the southwest. The rocks eroding in the source area included volcanic, intrusive igneous, metamorphic, and minor sedimentary strata. Salt Wash streams flowed generally northeastward; however, some of the channels systems were obviously locally diverted by contemporaneous uplifting of the salt-cored anticlines. The Uncompahgre Uplift probably also contained remnant high areas that diverted stream flow, resulting in the east-southeasterly trend of the Uravan Mineral Belt at the Gateway District (north end). The Salt Wash sandstones are usually very fine to fine grained. They are varieties of orthoquartzite, arkose, and tuffs. Major detrital components are quartz, feldspars, and rock fragments. Minor components include clays, micas, zircon, tourmaline, garnet, and titanium and iron minerals. The cement is authigenic silicates, calcite, gypsum, iron oxides, and clays.

Much of the Brushy Basin Member of the Morrison Formation (90%) is mudstone, claystone, and siltstone composed of clays derived from detrital glassy rhyolitic to dacitic volcanic debris from volcanic activity to the southwest. This material settled on the same large floodplain where the Salt Wash streams had flowed and deposited fine-grained

clastic material interbedded with a few channel sandstones and conglomerates, the latter indicating more rapid subsidence than during Salt Wash time. The Brushy Basin also contains a few thin fresh-water limestone beds, some of which have been silicified. Devitrification of the volcanic ash may have been a major source of the uranium that leached downward into the Top Rim sandstones. The Brushy Basin is about 350 feet thick on the claims. It is overlain by the Lower Cretaceous conglomerates, sandstones, and shales of the Burro Canyon Formation which is approximately 200 feet thick. Remnants of the overlying Dakota Sandstone locally cap portions of Dolores Point.

The Salt Wash sandstones exhibit several facies and sedimentary features. These features can be seen in some outcrops, sometimes in drill core, and in underground mines. However, these features are usually thin enough that they cannot be identified in borehole logs, such as neutron or resistivity logs. Large cross-bedding is common indicating stream thalwegs. Flat, thin bedding of low energy areas can be seen along with apparent levies and crevasse splays. Channel scouring is also common as is the associated point bar deposits of the meandering streams. The point bars are characterized by mudstone galls, which are rip-up clasts from the scouring on the outside of the previous meander. The sand grains become finer upward. There are often abundant logs, twigs, and other plant material (i.e., carbonaceous material) in the point bars, which make them a prime location for uranium deposits.

Fossils in the Morrison include petrified wood and carbonized plant material, dinosaur bone, tracks, and embryos, and sparse microfossils in the thin fresh-water limestone beds.

The Whirlwind area lies in the northwest-trending Sagers Wash Syncline formed between the Uncompahgre Uplift and the northern La Sal Mountains, which intruded along the axis of the salt-cored Paradox Valley anticline. The claims are near, but slightly southwest of, the axis of the syncline; therefore, the beds dip gently to the northeast, about one to three degrees. This area was little affected by the Uncompahgre- or La Sal-related faulting. One fault of small displacement (up to 100 feet) does occur on the property. It is a normal fault aligned with the head of Lumsden Canyon, striking N75<sup>0</sup>E, dipping about 65<sup>0</sup> to the southeast. Most of the workings of the northern part of the Far West group are north of the fault. The Whirlwind Mine and any of the workings in the mines planned for connection in the near term are all south of the fault.

## **8.0 Deposit Types**

The Whirlwind and other Beaver Mesa District uranium-vanadium deposits are typical of the Uravan Mineral Belt type. The Uravan Mineral Belt was defined as a curved, elongated area in southwestern Colorado where the uranium-vanadium deposits in the Salt Wash Member of the Morrison Formation generally have closer spacing, larger size, and higher grade than those in adjacent areas and in the region as a whole (Fischer and Hilpert, 1952). The location and shape of mineralized deposits is largely controlled by the permeability and primary structures of the host sandstones (Cater, 1955). Most mineralization is in trends where Top Rim sandstones are thick, usually 40 feet or greater.

Most of the Mineral Belt area consists of oxidized sediments of the Morrison Formation, exhibiting red, hematite-rich rocks. Individual deposits are localized in areas of reduced, gray sandstone and gray or green mudstone. The Morrison sediments accumulated as oxidized detritus in the fluvial environment. However, there were isolated environments where reduced conditions existed, such as oxbow lakes and carbon-rich point bars. During early burial and diagenesis, the through-flowing ground water within the large, saturated pile of Salt Wash and Brushy Basin material remained oxidized, thereby transporting uranium in solution. When the uranium-rich waters encountered the zones of trapped reduced waters, the uranium precipitated at or near this interface. Vanadium may have been leached from the detrital iron-titanium mineral grains and subsequently deposited along with or prior to the uranium, similarly by reduction.

The exposed, remnant areas of mineralization in the old mines that have been examined show habits typical of the Uravan Mineral Belt deposits. Where the sandstone has thin, flat beds, the mineralization is usually tabular. In the more massive sandstone sections, it rolls across the bedding, reflecting the mixing of two waters and redox reactions at their boundary. This accounts for the fact that there are several horizons within the Top Rim that are mineralized. Very thin clay layers on cross beds appear to have retarded ground water flow which enhanced uranium precipitation. The beds immediately above ore horizons sometimes contain abundant carbonized plant material and green or gray clay galls. The mudstone beds adjacent to mineralized sandstone are reduced, but can grade to oxidized within a few feet. The deposits exposed in the limited workings of the Whirlwind Mine show these same characteristics. There are no significant differences between mineral depositional habits in the Top Rim and those in the Middle Rim sands. Figure 8-1 is a map showing the polygons used for the Whirlwind Mine resource estimation based on the historic and 2007 and 2008 EFR drill information. Also shown on that map are portions of the Packrat Mine workings. Figure 8-2 shows the known extents of the previous mines on and near Dolores Point, including the Far West and Crosswind claim areas.

The thickness, the gray color, pyrite, and carbon content of sandstones along with gray or green mudstone were recognized by early workers and still serve as exploration guides (Thamm et al., 1981).

## **9.0 Mineralization**

The uranium and vanadium bearing minerals occur as fine grained coatings on the detrital grains, they fill pore spaces between the sand grains, and they replace carbonaceous material and some detrital grains.

The primary uranium mineral is uraninite (pitchblende) ( $UO_2$ ) with minor amounts of coffinite ( $USiO_4OH$ ). Montroseite ( $VOOH$ ) is the primary vanadium mineral, along with vanadium clays and hydromica. Traces of metallic sulfides occur. In outcrops and shallow oxidized areas of the older mines, the weathered minerals now exposed are the calcium and potassium uranyl vanadates, tyuyamunite and carnotite.

The remnant deposits in the ribs and pillars of the old mines show a variety of oxidized minerals common in the Mineral Belt. These brightly-colored minerals result from the moist-air oxidation of the primary minerals. Minerals from several oxidation stages are seen in the Packrat Mine, including corvusite, rauvite, and pascoite. Undoubtedly, the excess vanadium forms other vanadium oxides depending on the availability of other cations and the pH of the oxidizing environment (Weeks et al., 1959). Exposures in the Whirlwind rarely show the colorful oxides because it was standing full of water until recently.

Some stopes in old mines are over 1,000 feet long and several hundred feet wide. More often they are 400-600 feet long and 100-200 feet wide (see Figure 8-2). The Indicated Mineral Resources of the Whirlwind Mine are of similar size. Individual mineralized beds vary in thickness from several inches up to 4-5 feet. Locally, two or more mineralized horizons separated by thin waste layers will make a thick mineable zone of 15-18 feet.

## **10.0 Exploration**

Outcrops were explored by prospectors in the early 20<sup>th</sup> century. The Whirlwind, Far West, and Crosswind claim groups and ML-49312 are composed of properties previously held separately by Pioneer Uranium (known as the Urantah claims), Umetco Minerals, Climax Uranium, and smaller companies, including Rajah Ventures. The area around the older mines was extensively drilled. Most of the past drilling was complete by the early 1980s. Cotter Corporation drilled a few exploration holes here in the 1996-1998 time period. During the period of July 24 through September 22, 2007, EFR drilled 28 holes on the Whirlwind claims. The total footage drilled was 18,580 ft. A second campaign of drilling by EFR was conducted in October and November 2008 on three portions of the project area consisting of 26 holes totaling 13,060 ft. Lithology logs of cuttings were made for all holes, and all were electrically and radiometrically logged by Colorado Plateau Logging LLC.

Portions of the underground mines were explored by longhole drilling as mining was in progress. Some of the mineralized material found by this method near the end of the last mining episode remains in place.

Throughout the long history of production from this property, there have been no reports of in-place disequilibrium problems. One exception was a short-term episode from production near the southwest end of the workings in the La Sal No.6 area of the Packrat. The probe values of this material exceeded assay values for a few hundred tons. Furthermore, the probe values of the stockpile obtained a few days after the ore was mined dropped from those values recorded underground (personal communication by Mr. White with R. M. Swerdfeger, 2006, operator for Rajah Ventures).

EFR has not conducted any underground exploration other than cursory examinations and limited rib-scanning in the Packrat and Whirlwind Mines. Some outcrops of Salt Wash Top Rim sandstones also have been examined.

## **11.0 Drilling**

As mentioned above, much of the drilling on the Whirlwind property was performed by previous operators. Although not actually counted, it is believed that over 1,000 holes have been drilled on the Whirlwind property, and the Crosswind property has a similar number. The Far West group has seen somewhat less exploration drilling. The area contains holes drilled by the USGS in the late 1940s and early 1950s which were associated with the AEC work. Union Carbide (Umetco) often drilled core holes which allowed the company to do assays for both uranium and vanadium. Holes drilled by Pioneer Uranium in the 1970s were rotary holes, which were logged by natural gamma probe only, unless water in the holes made resistivity logging possible. EFR has come into possession of many maps, but at this date, has acquired only a few old drill logs. The Pioneer drill maps are deemed to be accurate. However, without logs it is not possible to verify calculations of mineral intercepts. Alternate interpretations would be possible, especially in the thickly mineralized holes, if logs could be examined.

*It must be emphasized that much of the information in the EFR database is considered historical in nature, and has not been corroborated by twin-hole drilling, down-hole probes, or check assays of earlier cored material.*

EFR conducted its first drilling project in the summer of 2007 to verify some of the older drilling, explore for additional resources, and to obtain stratigraphic information for mine planning, particularly for a proposed drift to connect the Whirlwind Mine to the Packrat Mine. This project consisted of 14 holes in Colorado on the Whirlwind 2, 3, 4, and 13 claims and 14 holes in Utah on the Whirlwind 7, 7 Extension, 8, and 14 claims. The holes totaled 18,580 feet. Twenty-five of the holes penetrated the Burro Canyon, Brushy Basin, and Top and Middle rims of the Salt Wash. The other three holes, numbers WW-07-12, WW-07-13, and WW-07-14, stopped after penetrating the Top Rim sandstones of the Salt Wash, which is the host horizon of the bulk of the known resources. Cuttings were logged with particular attention to sandstone color, carbon content, and interbedded mudstone characteristics. The holes were probed using a natural gamma tool along with resistivity and spontaneous potential logs when the holes contained water. An induction tool was used in holes that were dry. All holes were also logged with a deviation tool. Even though the digitally recorded data displays estimated  $U_3O_8$  content, the gamma logs were interpreted and mineralization calculated using the proven AEC method (area under the curve times the k factor equals the grade times thickness (Scott et al., 1960)). It is believed that previous operators also used this method, or a close variant of it. The Colorado Plateau logging tools were calibrated at the U.S. DOE test pits in Grand Junction, Colorado in May, 2007. A follow-up calibration run at the Grand Junction pits in October, 2007 showed no statistical difference between calibrations.

The second campaign of exploration drilling by EFR was in September-to-November, 2008. Three portions of the project area were targeted: 1) the Whirlwind Mine portal area (Far West lease), 2) the southeast Packrat area, and 3) Utah lease ML-49312.

Drilling began in early October 2008 on the Christmas Claims portion of the Far West lease. These holes are located within the Whirlwind Mine permit boundary and served to meet the first year's work commitment of the Far West lease, explore for resources in the Lumsden Mine area, and give stratigraphic information in the vicinity of the then planned monitor well. Eleven holes, totaling 3,060 feet were completed in this area. Most of these are offset holes for suspected locations of Top Rim mineralized holes near the Lumsden Mine (collar locations of most historic drilling cannot be found here), but which were not previously mined. There were three barren holes, four with mineralization from trace to 0.01%, and three mineralized between 0.02 and 0.06%. The eleventh hole found 2.5'-0.12% U<sub>3</sub>O<sub>8</sub>, but this intercept was in a Brushy Basin sandstone, some 120-130 feet above the Top Rim. Access to this area will become difficult once mining begins because this is where the waste rock dump will be built.

There were ten holes, totaling 6,600 ft, drilled in 2008 on the Colorado portion of the Whirlwind lease. Three holes were exploring east of the Packrat Mine. These were barren with thin Top and Middle Rim sandstones. This is within Inferred Area E. The other seven holes were offsets in the area of a good hole drilled in 2007 (WW-07-10 with an intercept of 1.5'-0.53%). This is an eastern extension of the resource area referred to as the Packrat area and partly in the west end of Inferred Area E. Of these, three encountered ore-grade intercepts, the best being 1.5'-0.67% in the Top Rim, correlating with the intercept in WW-07-10. Two holes found low-grade mineralization and the other two had a trace. Three of these holes also found the Middle Rim to be very favorable, including mineralization up to 0.03%. This Middle Rim potential needs more investigation in the future.

Five holes were drilled in 2008 on Utah State Section 16 lease ML-49312. Two holes were drilled on wide spacing along the north edge of the lease, offsetting near known mineralized historic holes. One hole found 3.5'-0.13% (including 2.0'-0.21%) in the Top Rim, while the other intercepted only trace mineralization. A third hole was drilled in the northeast corner of ML-49312 near Indicated Mineral Resource blocks of the Whirlwind claims. That hole encountered 1.0'-0.11% U<sub>3</sub>O<sub>8</sub> in the main Top Rim horizon along with 2.0'-0.02% a few feet higher. Holes four and five were drilled just west of the "B" Area Indicated Mineral Resources part of the Whirlwind Mine. Hole #4 had 1.5'-0.13% U<sub>3</sub>O<sub>8</sub> and 1.5'-0.04% U<sub>3</sub>O<sub>8</sub> in the Top Rim. The last hole was barren.

Combined, the 2008 drill project consisted of 26 holes totaling 13,060 feet. Again, the Colorado Plateau logging tools were calibrated at the U.S. DOE test pits in Grand Junction, Colorado in June, 2008.

## **12.0 Sampling Method and Approach**

EFR has not conducted widespread and definitive sampling on the Whirlwind Property. Once development begins and continues to the production stage, EFR will employ a combination of conventional channel sampling, radiometric scanning, and long-hole drilling. Previous underground activity, which resulted in driving the Whirlwind decline

and short development headings, did encounter strong mineralization in one area. EFR has conducted scanning in this area and taken a few grab samples from the ribs. The samples were permit-related, intended to represent average mineralized material for simulated atmospheric precipitation leach-potential analyses. Assays of these samples compared well with the scanner results. Exploration drilling from the surface will continue to be mostly rotary with downhole electric and radiometric logging, with an occasional core hole likely. A composite sample of numerous mineralized locations in the pillars and ribs of the northwestern end of the Packrat Mine were collected for early-stage amenability testing related to the proposed Pinon Ridge Mill process planning.

### **13.0 Sample Preparation, Analyses, and Security**

EFR has not performed significant in-house sampling to date. The results of historical preparation techniques and analyses have been relied upon as being reasonably accurate. These tasks were performed by companies experienced in uranium exploration, sampling, and analytical methods, and the presentation of the summary data appears to be in conformity with technological standards at the time.

### **14.0 Data Verification**

No core is available at the present time from the earlier exploration or production work, and EFR does not currently possess very many geologic or downhole logs from any of the previous operators. It is believed that the logging information does repose in the files of one or more of the former claim holders, and EFR may yet be able to locate and obtain these data.

Of the 28 holes drilled in 2007, two are considered verification holes. Hole WW-07-1 was drilled near three holes (77-1, 77-3, 77-10) in mining Area B where historic data indicated that 16- to 18-foot thick mineralization occurs. The hole encountered two horizons of uranium mineralization (1.5'-0.87% at 6892' elevation and 1.0'-0.06% at 6912') in a 21-foot thick interval that correlates to the base and top of the thick historic mineralization. Hole WW-07-3 was an offset near hole 79-9 to verify the low-grade mineralization near the north rib of the Whirlwind mining Area A. The new hole found similar, but thicker, uranium mineralization (WW-07-3 had 7.5'-0.11% at 6876' vs. 79-9 having 1.3'-0.10% at 6882').

The five 2008 holes drilled on ML-49312 were offsets to known mineralized holes. They are considered exploration drilling more so than verification drilling because they are greater than 30 feet from the historic holes. The elevations of the historic mineralized horizons were verified by the mineral intercepts of the 2008 holes. The mineralized thickness and grades at these distances were not expected to be reproducible.

During the field visit on November 27, 2007, Douglas Peters of Peters Geosciences visited some of the pre-EFR and EFR drill hole sites and verified their ID numbers and approximate spacings where multiple holes occurred in proximity to one another. No attempt was made to resurvey the locations, although they appeared to be consistent

between locations versus topography as shown on detailed maps of the Whirlwind area in the possession of Mr. White during that visit.

### **15.0 Adjacent Properties**

Because EFR leases the Whirlwind, Far West, Crosswind, and Utah State properties comprising the Whirlwind Property, EFR now controls nearly the entire width of the Dolores Point mesa for some three miles in the north-south direction. The leased property covers most of the area underlain by the Salt Wash member of the Morrison that is east of Beaver Creek, south of Lumsden Canyon, and west of the part of John Brown Canyon that is south of UTM line 4280300mN (NAD 27, Zone 12) and north of 4275300mN. To the north of the Far West group in section 4, T25S, R26E, SLPM, Grand County, Utah are the claims Sunset #1-#13 staked in September, 2007 by S&S Mining that are not leased by EFR. Farther north in sections 32 and 33, T24S, R26E, are six claims (CP#1-6) staked by North Exploration LLC in April, 2007 and three more Sunset claims (#14-16) of S&S Mining.

Continuing contiguously to the north into sections 28 and 21, T24S, R26E, are seven more Sunset claims (#16-21), also staked in September, 2007 by S&S Mining. S&S Mining also has staked 131 Sunrise claims, beginning at the north boundary of the Far West group, continuing northward for five miles on the Colorado part of Dolores Point. Almost all of these were dropped by not paying BLM fees in 2009.

A December 4, 2007 press release by Utah Uranium Corporation of Moab, Utah announced they had acquired 12 claims in this same area covering the abandoned Rae Marie and Marcos Mines. These claims are still active for the 2011 assessment year. However, Utah Uranium may no longer be involved with the owners.

### **16.0 Mineral Processing and Metallurgical Testing**

The Beaver Mesa/Gateway District of the Uravan Mineral Belt has a long history of uranium and vanadium production. Deposits from this district were successfully milled at several historic mills in the region including Union Carbide's (Umetco) mill at Uravan, Colorado, the Climax Uranium mill in Grand Junction, Colorado, the Atlas mill at Moab, Utah, and Denison's mill in Blanding, Utah. Samples of mineralized material were collected from the pillars and ribs of the Packrat Mine before the Whirlwind was dewatered. These were used along with samples from other mines in the region for preliminary testing of amenability to the proposed Pinon Ridge Mill leaching conditions. The samples were analyzed by J. E. Litz & Associates in October 2008 for grinding properties and process chemical consumption. Samples were ground to minus 28-mesh and leached for 24 hours at 85°C under strong sulfuric acid and oxidizing conditions. Leach tests of the Packrat samples showed U<sub>3</sub>O<sub>8</sub> to be soluble up to 99.3% and V<sub>2</sub>O<sub>5</sub> to be soluble up to 94.5% on a sample with head grades of 0.527% U<sub>3</sub>O<sub>8</sub> and 2.11% V<sub>2</sub>O<sub>5</sub>. Settling tests were performed on leach slurries. A simulated raffinate was prepared and neutralized to 4.5 and 7.5 pH to determine the deportment of the soluble ions. These results and the historic milling of district ores suggest at this point that the Whirlwind

deposit will present no unforeseen problems with either metallurgical testing or processing.

### **17.0 Mineral Resource Estimates**

Mineral resources have been calculated by the polygonal method by EFR. Polygons are drawn as perpendicular bisectors between drill holes or as 100-ft by 100-ft square areas of influence for isolated holes or areas of equidistant holes on 100-ft centers (see Figure 8-1). The drilling is often on 100 foot centers, and therefore, many polygons enclose approximately 10,000 square feet of area. Of course the polygons are smaller where drill spacing is closer, and some may be slightly larger in clusters of holes with irregular spacing. The polygons are terminated at the boundaries of other property owners for the generation of the resource estimate included in this report.

Revised mineral resources for Whirlwind exclusive of Utah State Section Lease ML-49312 are in Table 17-1. Contrary to the previous Whirlwind Technical Reports, the polygons now cross the property line with the Utah State section. However, due to economic considerations, the property line must be recognized because the royalties are different on either side of the line. Therefore, ML-49312 mineral resources are listed in a separate table, Table 17-3.

For the *in situ* resource estimate, the thickness and grade assigned to each polygon equals that of the intercepts recorded in the center hole of the polygon. A tonnage factor of 14 cubic feet per ton is used for Salt Wash deposits. Mining dilution is 1 foot of waste for mineralized thicknesses less than 6.0 feet or an appropriate fraction of a foot (if the intercept is greater than 6 feet) up to 7.0 feet. A resuing or split-shot mining approach will be followed to minimize dilution when extracting thin zones. In the split-shot method, the mineralization is usually thin (a few feet in thickness). The eventual stope height will be seven feet or greater, but at the time of mining the waste above or below the mineralized horizon is blasted. This waste layer may be one or more feet thick. After the waste is blasted and removed, the mineral zone is blasted and removed, thus reducing the amount of dilution to the mineralized rock. At times, the mineralized zone is blasted before the waste. For the Whirlwind Mine, 7.0 feet is the assumed minimum stope height. Mineralized intercepts greater than 7.0 feet are not diluted for resource calculations. It is conservative to use waste at 0% uranium grade for the dilution because there is often lower-grade material adjacent to the target mineralized zones. Vanadium assays are available for only a few of the drill holes. Where no data exist on vanadium, the intercept is assigned a value based on the historical district average  $V_2O_5:U_3O_8$  ratio of 3.24:1. *This ratio cannot be guaranteed and must be used as a historical estimator for vanadium mineralization potential.*

As with the split-shooting method of mining, resuing mining involves very selective separation of the waste rock from the ore. Ore grade material is determined by probing drill holes in the face of the stope. In resuing, waste is blasted or otherwise removed from one side of the ore zone. The ore in that zone is then extracted, thereby leaving any waste on the other side of the ore zone in place. If additional stope space is needed or a

second ore zone occurs behind the remaining waste, that waste is removed without dilution to the ore zones. The lower limit of waste volume that can be extracted without disturbing ore is a function of the precision with which waste areas of the drill pattern can be selectively blasted without unduly increasing mining costs.

A cutoff of 0.06%  $U_3O_8$  has been used in all resource estimates for the Whirlwind and related properties that are based on historic or EFR drilling results. This cutoff is somewhat subjective and was chosen based on experience of EFR staff and on the basis of the lowest grade intercepts that are likely to be mined based on a tentative mine plan and location of such intercepts in or adjacent to development entries that will be mined regardless of the grade of involved mineralized sandstone. Assumptions involved in use of this cutoff are as follows:

- 1) Development entries will be made to access indicated and measured resources of sufficient size to warrant mining to their locations and room-and-pillar mining of the resources. Such entries will follow the historic random pattern of mining areas that is driven by the localized nature of areas of mineralization. Many good examples can be seen on Figures 8-1, 8-2, and 17-1.
- 2) Entries can and will intercept some lower grade material that would not necessarily be economically mineable as standalone resources.
- 3) Measured vanadium grades, in combination with uranium grade, can be high enough to warrant mining a resource area even if the uranium contents in all holes in that area would not be sufficient to make the mineralization mineable through uranium content alone.
- 4) The thickness of the drill intercept in mineralized material makes some areas attractive because of available volume of mineralization even when relatively low grade for uranium. Full-face mining costs less per ton of mineralized material than split-shooting does.
- 5) Any mineralized material below the cutoff grade that is mined during development or room-and-pillar extraction will be considered waste regardless of contained uranium and vanadium values.
- 6) Indicated or Measured Resources may still prove to be uneconomic to mine upon performance of a full feasibility analysis or due to economic or mining conditions at the time mining proceeds towards such resource areas. The inverse could be true. A substantial increase in the price of uranium or vanadium could result in a lower cutoff.
- 7) Minimum mining thickness is 2-3 feet using the split-shot or resuing mining methods.

Most hole locations have been scaled off existing maps prepared by previous operators. New surveying has been done and will continue by EFR for new holes and for re-locatable old holes. It is difficult to locate many of the old holes because some were reclaimed more than twenty years ago. However, several verifiable hole locations have been identified and are being included in the new survey. EFR has surveyed the Whirlwind decline and workings to all faces. A new traverse will be done in the Packrat Mine for mine planning when it is made safe. All of the verification holes mentioned

above and the other 2007 and 2008 drill results have been incorporated into the new resource estimate along with other historic drilling results evaluated since the previous Technical Reports were filed. Where appropriate, due to the location of new holes, some polygons reported in the previous technical reports by Peters Geosciences on the Whirlwind Mine have been decreased in size. This report also includes several historic surface holes and long-hole data recorded on Packrat Mine maps.

The mineral resource estimates that follow are based on general historical and geological knowledge of the area as well as historic drill records and maps of the companies mentioned above. EFR geologists are acquainted with many of the project geologists and mining engineers that worked these properties during these times and with the reputations of those companies doing the work. Therefore, the following resource estimates are believed to be reasonable for the Whirlwind, Crosswind, Far West, and Utah Section 16 portions of the Whirlwind area.

### **17.1-Whirlwind Property Mineral Resource Estimates**

**17.1a Indicated:** Indicated Mineral Resources for the Whirlwind claim group (Little Maverick lease), including the southern part of the Packrat Mine, are based partly on Pioneer's drilling, partly on Umetco's contractor's maps of the Packrat and underground reconnaissance there, and partly on the 2007 and 2008 drilling by EFR. The Indicated Mineral Resources are estimated to be approximately: 147,798 tons in place at average thickness of 2.6 ft containing 779,550 pounds  $U_3O_8$  (0.27%) and 2,627,240 pounds  $V_2O_5$  (0.88%) in the upper and middle sandstones of the Salt Wash Member of the Morrison Formation (mostly upper sandstones). Diluted to a minimum mining thickness per the above discussion, this would equate to 194,465 tons at 0.20%  $U_3O_8$  and 0.68%  $V_2O_5$  (see Table 17-1). The above estimate includes the Whirlwind Mine and material identified from seven drill holes near the southernmost workings of the Packrat Mine and longholes in six stope areas of the Packrat, as this area will be easily accessible when the two mine workings are joined.

**17.1b Inferred:** Mineral trends often follow the directions of the sandstone channels in these type of uranium deposits. Previous workers in this area (mainly Umetco) have constructed structure contour maps at the base of the ore-bearing sandstone that illustrate the correlation of stopes to the scouring and thickening of the Top Rim. As mentioned in Section 8 of this report, besides the sandstone thickness, the gray color, pyrite and carbon content of sandstones, along with gray or green interbedded mudstone, indicate areas of sandstones favorable for containing uranium mineralization. Favorability maps also were constructed by the previous workers who had access to the historic drilling data. Some of these maps were created in the 1960s prior to mining in some portions of the property. As production continued into the 1970s, the favorability criteria were validated for this property.

Figure 17-1 is a composite map of past mine workings, known and projected channel scouring, favorability, and thickening of Top Rim sandstone observed in outcrops. There are areas of scattered surface holes that encountered mineralization in the past that are

open in the direction of certain channel trends. Furthermore, much of the surface drilling only penetrated the Top Rim sandstone, so there may be presently unknown lenticular Middle Rim sandstones which could be mineralized, similar to stopes in the La Sal Mine and in the Whirlwind Indicated Mineral Resource Area C. Additionally, some areas within the claim block remain unexplored at this time (refer to the maps, Figure 8-1 and Figure 17-2).

The potential, incompletely verified resource on this claim group is believed to be significant. Documented production within this district was in excess of 7 million lbs  $U_3O_8$  and almost 24 million lbs  $V_2O_5$ . Based on the foregoing, EFR believes there is ample evidence to define some of this potential, by geologic projection and inference, as Inferred Mineral Resources. Umetco estimated (Hollingsworth, 1991) a “mineable” resource of 16,000 tons at 0.30%  $U_3O_8$  (96,000 lbs) and 0.84%  $V_2O_5$  (268,800 lbs) was still available in the La Sal No.6 area. Although underground workings that far to the west are not yet accessible for verification by EFR geologists, the evaluation of the drill hole maps, outcrops of thick Top Rim channel sandstones, and favorable trends within the previously mined and drilled areas, as shown in Figure 17-1, leads EFR to conclude that the “mineable” amount estimated by Umetco is a reasonable basis for inferring resources.

Carrying this favorable area farther west to a well mineralized drill hole (BV-73 on Figure 8-1), EFR has incorporated this into an Inferred Mineral Resource of 200,000 lbs  $U_3O_8$  as Inferred Area C on Figure 17-1. The size of the Inferred Mineral Resource for this and other inferred areas is based upon 1) known sizes of mineralized sandstone bodies in the old mines 2) conformance of the sandstone channel model with mined and known channels in outcrop and old mines, and 3) the assumption that any unknown mineralized bodies are likely to be of similar size and grade, particularly where such inferred bodies are partially confirmed by mineralized holes (such as hole BV-73). In addition to hole BV-73 (0.4’-1.20%  $U_3O_8$  and 4.54%  $V_2O_5$ ), there are other mineralized holes in Area C (W76-43 1.7’-0.08%  $U_3O_8$ , and D-385 and D-387 each with at least one foot of 0.02-0.05%  $U_3O_8$ ) and another hole, D-382, between the La Sal No.6 part of the mine and Area C which encountered 1.0’-0.34%  $U_3O_8$  and 0.21%  $V_2O_5$ . At grades similar to past production and Indicated Mineral Resources of the Whirlwind Mine, this Inferred Mineral Resource of 200,000 lbs  $U_3O_8$  would be contained in 50,000 tons at a grade of 0.20%  $U_3O_8$ . The vanadium grade is estimated to be the district average at 3.24 times the uranium grade.

Several more mineralized holes are located about 1,000 feet to the north of Inferred Area C. Mineralized intercepts of these holes include: BV-78 1.0’-1.00%  $U_3O_8$ , 4.66%  $V_2O_5$ ; BV-103 0.4’-0.22%  $U_3O_8$ ; W74-8 3.5’-0.16%  $U_3O_8$ ; W74-12 1.0’-0.77%  $U_3O_8$ . There are several holes west of the La Sal portion of the Lost Dutchman mine that are not yet mined which have intercepts in the 0.05-0.14%  $U_3O_8$  range. These holes are located in the projected Top Rim channel trend between the outcrop on the west side of Dolores Point and the Lost Dutchman Mine. This area, Inferred Area B, also holds an Inferred Mineral Resource of 50,000 tons at 0.20%  $U_3O_8$  containing 200,000 lbs  $U_3O_8$ .

The Packrat Mine and the measured resources of the Whirlwind Mine appear to be located at the intersection on two major Top Rim channels or meander belts. The historic maps show very favorable conditions exist in the area between the Packrat and the mined portion of the La Sal No. 6 area. Based on the past mining and deposit model in this area, EFR estimates an Inferred Mineral Resource of another 200,000 lbs U<sub>3</sub>O<sub>8</sub> exists in this Inferred Area D, again contained in about 50,000 tons at a grade of 0.20% U<sub>3</sub>O<sub>8</sub>. Unmined historic drill holes in this area include: BV-71 1.0'-0.28% U<sub>3</sub>O<sub>8</sub>; W74-1 1.3'-0.11% U<sub>3</sub>O<sub>8</sub>; Z-175 3.7'-0.11% U<sub>3</sub>O<sub>8</sub>, 0.69% V<sub>2</sub>O<sub>5</sub>; and several holes with 0.02-0.05% U<sub>3</sub>O<sub>8</sub>.

To the east of the south end of the Packrat Mine lays another favorable area, Inferred Area E. The 2007 surface drilling found a well mineralized hole at the southwest end of this Inferred area (hole WW-07-10 intercepted 1.5' of 0.53% U<sub>3</sub>O<sub>8</sub>). Additional drilling was performed here in 2008. Two of the offset holes in 2008 had intercepts that extend this Packrat area Indicated Mineral Resource to the south (WW-08-35 with 1.5'-0.67% U<sub>3</sub>O<sub>8</sub> and WW-08-36 with 1.0'-0.18%). These resources are included in the Indicated Mineral Resources discussed above in Section 17.1a. The other five offset holes in this area encountered mineralization varying from a trace to 0.04% U<sub>3</sub>O<sub>8</sub> in the Top Rim. Drilling here also discovered that the Middle Rim contains a favorable sandstone lens. Mineralization up to 0.03% U<sub>3</sub>O<sub>8</sub> was encountered. Three more 2008 holes were drilled in the central part of Inferred Area E. These were barren and found both the Top Rim and Middle Rim sandstones to be thin and only semi-favorable. Despite this weak showing in the Top Rim, the estimate of Inferred Mineral Resources in Area E of 200,000 lbs U<sub>3</sub>O<sub>8</sub>, which would be contained in 50,000 tons at 0.20% U<sub>3</sub>O<sub>8</sub>, is being maintained because of the indication that a favorable Middle Rim sandstone with known mineralization exists in the south part of the area.

A sparsely drilled area lies to the southwest of the Indicated Mineral Resource areas C and D of the Whirlwind Mine. This area would be upstream in the very favorable channel system. Utah State Section 16 covers a portion of this. Data acquired since the previous Technical Reports shows some very well mineralized historic holes were drilled in this part of the State lease, verifying the inference. That data has been incorporated in the increased Indicated Mineral Resources discussed later in Section 17.3a of this report. The Whirlwind claim portion is still estimated to hold the potential of 200,000 inferred lbs U<sub>3</sub>O<sub>8</sub> in Inferred Area K in 40,000 tons at 0.25% U<sub>3</sub>O<sub>8</sub>.

Inferred Area F is the downstream continuation of the same channel system east of the Whirlwind Indicated Mineral Resource Area B and west of the old Rajah 49/Cherokee Shaft Mine workings. As supported by these proximities to known mineralization, the portion of Inferred Area F lying on the Whirlwind claims is estimated at 100,000 lbs U<sub>3</sub>O<sub>8</sub> contained in some 35,700 tons at 0.28% U<sub>3</sub>O<sub>8</sub>.

The southeastern portion of the Whirlwind lease lies just south of the west end of the Rajah 30 Mine and of a likely channel complex. Several mineralized intercepts also were found to the south of this area within the channel projected by the deposit model for the area. Holes here include Z-306 2.0'-0.09% U<sub>3</sub>O<sub>8</sub>, 0.52% V<sub>2</sub>O<sub>5</sub>; Z-363 2.6'-1.43% U<sub>3</sub>O<sub>8</sub>,

2.02% V<sub>2</sub>O<sub>5</sub>; F-1 2.0'-0.30% U<sub>3</sub>O<sub>8</sub>, 0.48% V<sub>2</sub>O<sub>5</sub>. The historical maps also show this to be a very favorable area, so ERF includes another 100,000 lbs U<sub>3</sub>O<sub>8</sub> here in Inferred Area N in 20,000 tons at 0.25% U<sub>3</sub>O<sub>8</sub>.

The total of the Inferred Mineral Resources on the Whirlwind lease is 1,200,000 lbs U<sub>3</sub>O<sub>8</sub> in 295,700 tons at an average grade of 0.20% U<sub>3</sub>O<sub>8</sub>. The combined inferred areas on the map total 190 acres, which is larger than the combined acreage of the stopes of the mines that produced more than 7 million pounds U<sub>3</sub>O<sub>8</sub>. At the historic V<sub>2</sub>O<sub>5</sub>:U<sub>3</sub>O<sub>8</sub> ratio of 3.24:1, the Whirlwind lease could contain an inferred vanadium resource of nearly 3.9 million lbs V<sub>2</sub>O<sub>5</sub> in the same 295,700 tons at a V<sub>2</sub>O<sub>5</sub> grade of 0.66%.

Other portions of the Packrat Mine, besides that mentioned in section 17.1a above, have considerable, but unquantified, resources remaining in the mine. Mining ceased in the Packrat (the last area mined was the west end of the mine in the La Sal No.6 area) and adjoining mines because of low uranium prices, not because resources in the properties were exhausted. Several areas need to be examined underground (when ventilation is established) where maps show long-hole drilling that encountered mineralization. None of this potential resource is included in Inferred Mineral Resource totals.

*All estimates of Inferred Mineral Resources must be considered speculative and require confirmation by drilling or mining. There is no guarantee that Inferred Mineral Resources will ever be realized as or advanced to indicated or measured resources or reserves.*

## **17.2-Crosswind Property-Mineral Resource Estimates**

There has been no drilling on the Crosswind lease since the October 2008 Technical Report. Therefore, no changes have been made to the previously reported resources on these claims.

**17.2a Indicated:** Based on EFR's evaluation of the historic drilling recorded on maps created by Pioneer Uranium and the several other companies that controlled the area covered by the Crosswind group of claims, there are Indicated Mineral Resources of 18,722 tons containing 92,086 lbs U<sub>3</sub>O<sub>8</sub> at an average grade of 0.25% and 305,076 lbs V<sub>2</sub>O<sub>5</sub> (0.81%). This occurs in several small areas and isolated drill holes. To date, EFR has not conducted any verification drilling. The locations of the holes included are shown on the map in Figure 17-2, with a CW prefix denoting the appropriate Crosswind claim. Table 17-2 is a list of these holes and the intercept data.

**17.2b Inferred:** As with portions of the Whirlwind property, Umetco (Hollingsworth, 1991) estimated "mineable" resources still in place when they ceased mining in this area. Umetco estimated that 15,600 "mineable" tons at 0.22% U<sub>3</sub>O<sub>8</sub> (68,640 lbs) and 0.59% V<sub>2</sub>O<sub>5</sub> (184,080 lbs) exist in the Rajah 2 area (north of the Rajah 30 Mine workings), now covered by the Crosswind #40, 42, and 46 claims. It has been reported by miners who worked there that at the time of abandonment they had several faces of very good, thick

mineralization. EFR has not had access to any of the mines in the Crosswind group to verify any of the historically reported resources. This area, Inferred Area G on Figure 17-1, occurs in a very favorable channel area based on the nearby old workings and available drill holes. Therefore, as with the La Sal No.6 area mentioned above, EFR believes the reported “mineable” historic resource can be incorporated in a larger Inferred Mineral Resource of 200,000 lbs  $U_3O_8$  contained in approximately 40,000 tons at 0.25%  $U_3O_8$ .

Using the same criteria as discussed above in section 17.1b, ERFC has made geologic inferences as to the potential of the rest of the Crosswind lease. Inferred Area F is in the favorable channel trend between the Whirlwind Mine Area B and the Cherokee Shaft portion of the Rajah 49 Mine. Half of Inferred Area F has been included in the Whirlwind resource whereas the other half, 100,000 lbs  $U_3O_8$ , is assigned to the Crosswind lease in 35,700 tons at 0.28%  $U_3O_8$ .

Many mineralized surface holes (such as Z-199 0.5’-0.13%  $U_3O_8$ , 0.20%  $V_2O_5$ ) showing favorable sandstone characteristics lie south of the eastern part of the Rajah 49 Mine. This area is also reported to contain numerous mineralized long holes drilled underground. EFR estimates this Inferred Area H holds 100,000 lbs  $U_3O_8$  in 25,000 ton at 0.20%  $U_3O_8$ .

The area southwest of the heart of the Rajah 30 Mine also contains favorable to very favorable characteristics. Favorability is supported by two drill holes that have good mineralization intercepts (Y-17 2.1’-0.23%  $U_3O_8$ , 6.87%  $V_2O_5$  and F-174 0.9’-0.54%  $U_3O_8$ , 2.46%  $V_2O_5$ ). The portion of Inferred Area I that lies on the Crosswind lease is estimated to contain Inferred Mineral Resources of 100,000 lbs  $U_3O_8$  in 20,000 tons at 0.25%  $U_3O_8$ .

The sum of the Inferred Mineral Resources on the Crosswind lease is 500,000 lbs  $U_3O_8$  and 1.6 million lbs  $V_2O_5$ .

*All estimates of Inferred Mineral Resources must be considered speculative and require confirmation by drilling or mining. There is no guarantee that Inferred Mineral Resources will ever be realized as or advanced to indicated or measured resources or reserves.*

### **17.3-Utah State Lease ML-49312, Section 16-Mineral Resource Estimates**

**17.3a Indicated:** EFR acquired from Uranium One, successor to Energy Metals Corporation, the 320 acre lease ML-49312 on Utah State Section 16, T25S, R26E. This property was part of the land controlled by Pioneer Uranium in the 1970s. Pioneer conducted exploration drilling here and found the Urantah uranium deposit to continue past the claim boundary into the State land. EFR also acquired some historic data on those drill holes. In 2008, EFR drilled five holes on this lease, some as close offsets to historic holes, but not as twin holes (see Section 12 of this report). Therefore, Indicated Mineral Resources now can be assigned to part of this parcel. Four of the Whirlwind (Little Maverick lease) sub-areas of Indicated Mineral Resources are now known to

extend into the State lease. The polygon method for estimating Indicated Mineral Resources for these drill holes on ML-49312 is the same as used in the previous reports, as described above in Section 17.0. The historic and 2008 drill hole locations and polygons are shown on Figure 8-1. The intercept information for these holes is in Table 17-3. The Indicated Mineral Resources on ML-49312 are estimated to be 21,331 tons in place at average thickness of 1.7 ft containing 223,772 pounds  $U_3O_8$  (0.52%) and 666,098 pounds  $V_2O_5$  (1.56%) in the upper and middle sandstones of the Salt Wash Member of the Morrison Formation (mostly upper sandstones). Diluted to a minimum mining thickness per the above discussion, this would equate to 33,768 tons at 0.331%  $U_3O_8$  and 0.99%  $V_2O_5$  (see Table 17-3).

**17.3b Inferred:** Inferred Area J has an identical geologic setting to Inferred Area K, mentioned above in section 17.1b on the Whirlwind Lease Inferred Mineral Resources. Review of the historic data from drill holes widely-spaced throughout the lease tract and the Indicated Mineral Resource blocks leads EFR to conclude that previously reported Inferred Mineral Resources in Area J are still valid. This area is considered to contain an Inferred Mineral Resource of 200,000 lbs  $U_3O_8$  and 648,000 lbs  $V_2O_5$  in some 35,700 tons at a grade of 0.28%  $U_3O_8$ .

*All estimates of Inferred Mineral Resources must be considered speculative and require confirmation by drilling or mining. There is no guarantee that Inferred Mineral Resources will ever be realized as or advanced to indicated or measured resources or reserves.*

#### **17.4-Far West Claim Group-Mineral Resource Estimates**

There has been no drilling on the Far West lease since the October 2008 Technical Report. Therefore, no changes have been made to the previously reported resources on these claims. EFR has a Notice of Intent prospecting permit approved by DOGM and BLM for drilling of seven holes in the southern part of the Far West claims. The drilling should be done in late 2011.

**17.4a Indicated:** EFR has only sparse information for the land covered by most of the Far West, et al. claims. Therefore, no Indicated Mineral Resources can be reported for this lease.

**17.4b Inferred:** Historic mines of relatively small production occur scattered along the west side of the Far West property. Exposures of Salt Wash sandstones, particularly the Top Rim, along the east wall of Beaver Creek canyon show three major channels or meander belts exist that flowed toward the areas of the large, past-producing mines in John Brown and Lumsden Canyons. These channels are projected into favorable areas of Inferred Mineral Resources and exploration targets in the Whirlwind lease area along the east side of the Far West lease. This is under the high part of the Dolores Point mesa, where the Top Rim is over 550 feet deep, and it appears drilling is sparse. However, the potential meander belts suggested by the channels could contain considerable favorable zones and uranium deposits.

EFR conservatively estimates that each channel could contain 100,000 lbs  $U_3O_8$  (300,000 lbs total, in 75,000 tons at 0.20%  $U_3O_8$  ) Inferred Mineral Resources. Inferred Area A on Figure 17-1 is supported by the proximity to both outcrop, in terms of deposit model, and old mines on the east rim of Beaver Creek canyon that indicate there was mineralization discovered near the west end of Area A. Area A has several historic drill holes with well-mineralized intercepts, including: PS-29 1.0'-0.36%  $U_3O_8$  , 1.23%  $V_2O_5$  ; PS-7 0.5'-0.02%  $U_3O_8$  , 0.26%  $V_2O_5$  ; PS-3 1.0'-0.13%  $U_3O_8$  , 0.62%  $V_2O_5$  PS-22 1.0'-0.08 and 2.0'-0.06%  $U_3O_8$  ; MC78-6 1.2'-0.08%  $U_3O_8$ . EFR conservatively estimates that the channel in Inferred Area A could contain 100,000 lbs  $U_3O_8$  (in 25,000 tons at 0.20%  $U_3O_8$  ). Inferred Area A could contain 324,000 lbs  $V_2O_5$ .

Exploration Targets L and M on Figure 17-1 are supported by being down dip of mineralized outcrop and the Corvusite Mine, respectively, in the direction of the favorable trends. Historic drilling is sparse here due to depth, because these areas underlie the higher part of Beaver Mesa. These two exploration target areas could have potential for resources similar to Inferred Areas I and J which are on the same channel trends.

The potential for additional resources is quite good, given the area covered by the Far West lease. Little is known by EFR at this time of the workings in the Lost Dutchman and Bonanza Mines covered by the northern part of the Far West lease. These mines were operated by various owners. EFR has some of the mine maps. Undoubtedly there is potential for resources remaining in pillars. One of the long term projects for EFR will be to evaluate by drilling the area west of these two mines. A portion of the Far West lease (the Christmas claims) covers most of the Lumsden group of mines immediately north of the Whirlwind portal. Some mineralized holes appear on the maps to be in areas that were not mined. The Umetco favorability maps show some very favorable trends in this area, but EFR does not carry any Inferred Mineral Resources there at this time.

*All estimates of Inferred Mineral Resources must be considered speculative and require confirmation by drilling or mining. There is no guarantee that Inferred Mineral Resources will ever be realized as or advanced to indicated or measured resources or reserves.*

## **18.0 Other Relevant Data and Information**

EFR has completed the first of two phases of work planned when the previous technical report by FGM (January 3, 2007) was issued. As discussed in that report, Phase I consisted of rehabilitation work on the Whirlwind Mine access decline which entailed timber replacement as needed, scaling and bolting of ribs and back, and necessary replacement of services (pipe, vent bag, etc.). The height of the main haulage drift was also increased during this rehabilitation work. A large sump was also constructed. A few surface drill holes were planned to accomplish three objectives: 1) verification of mineralization, 2) stratigraphic information for mine planning, and 3) exploration. The 28

holes that were drilled in 2007 are discussed above. Required mine permits also have been issued.

Phase II will entail further production development of the mine. This will consist of driving drifts to known mineralized areas to the south and west of the present workings. A vent hole will be up-reamed before production begins. It may have a hoist installed to serve as a secondary escape for underground miners. The drift to connect the Packrat Mine will be a priority. Several working faces will be established within the deposit to achieve a sustained production rate now planned at 200 tons per day and to allow for blending material from various parts of the deposit to achieve a targeted out-the-portal grade. The mineralized material encountered during either phase will be separated and stockpiled. Full production should be reached after about three months of Phase II development.

This phase of work was expected to begin in 2008, but was delayed to conserve cash while the price of uranium was low. The mine was placed on standby and pumping stopped in December 2009, allowing part of the mine to flood. Dewatering and any further rehabilitation of the decline will take about three months after the mine restarts operations.

EFR is in the process of preparing an in-house preliminary economic assessment study (PEA) for mining the identified resources at the Whirlwind lease. This study when completed, will estimate the capital, direct mining costs, G&A, royalties, haulage to the mill, and mill tolling costs to produce  $U_3O_8$ -bearing material at the Whirlwind. The author of this technical report has not reviewed the current draft of the PEA. The author of this technical report recommends that, upon completion of the PEA, a formal independent feasibility analysis be carried out as a follow up to the PEA and to establish mineral reserves for the Whirlwind Mine.

## **19.0 Interpretations and Conclusions**

Douglas C. Peters has reviewed the EFR mineral resource estimates and supporting documentation and is of the opinion that classification of the mineralized material as Indicated Mineral Resources meets the definitions stated by NI 43-101, and also meets the definitions and guidelines of the CIM Standards on Mineral Resources and Reserves (adopted by the CIM Council on December 30, 2005).

The in-place, Indicated Mineral Resources are calculated by EFR to be 185,300 tons at a grade of 0.21%  $U_3O_8$  and 0.706%  $V_2O_5$  on a diluted basis. A grade cutoff of 0.06%  $U_3O_8$  was employed in this estimate, with the exception of one hole (F-190) where  $V_2O_5$  was high grade. Dilution has assumed waste material to have a grade of zero, no dilution for intercepts greater than 7.0 feet, and dilution of 1 foot of waste for all intercepts less than 6.0 feet (with appropriate decreasing fraction of 1 ft for intercepts between 6.0 and 7.0 feet).

A basic resource calculation was performed in early 2008 on behalf of Peters Geosciences by Mr. Manuel Montoya of Parker, Colorado, using a conservative circular area of influence for each drill hole (with a 50-foot radius) and the same grade cutoff as used by EFR. This resulted in lower, yet reasonably similar, Mineral Resource values as those calculated by EFR for resources identified for the previous Technical Report. Due to that confirmation of the EFR calculation methods and reasonableness of the resulting calculated resources, a similar check calculation was not performed for the additional resources resulting from 2008 drilling and the above discussion.

There is potential to expand the inferred and indicated mineral resources with additional surface drilling and underground development. The recent drilling by EFR has indeed aided in improving both categories of resources. EFR is planning on utilizing both techniques in the coming months to better define and extract uranium-bearing material suited for extraction.

*No documented economic analysis has been performed to date which supports classification of the mineralized tonnage as a “reserve” within the definitions and guidelines of the CIM Standards on Mineral Resources and Reserves.*

## **20.0 Recommendations**

The Author recommends that EFR proceeds with the following as the Whirlwind property begins development and plans production. Note that, although additional work was done by EFR on the property in 2008, some recommendations in the October 2008 Technical Report have not been addressed yet. Therefore, those recommendations have been repeated in this updated version of the Technical Report.

Phase 1. Continue surface exploration drilling in several areas at a total cost of approximately \$300,000:

- a) Drill additional holes between the Whirlwind and Packrat mine workings especially in Inferred Area E, to determine if development towards the northeast between the two mines is indeed warranted, and in the western part of Whirlwind Area A and adjacent area of the Utah State Section 16 to serve as a guide to further drilling and ultimately mining now that the Utah State Lease acquisition has been accomplished. (Estimated minimum cost for Inferred Area E = \$125,000 for 11,300 ft of additional drilling in 20 holes.).
- b) Drill at least 7 evenly distributed rotary test holes in inferred channel deposits in Inferred Area D and the western half of Inferred Area F to better identify their potential resources in proximity to the Whirlwind Mine and guide further drilling for resources and mine planning. (Estimated minimum cost = \$53,000 for 4,500 ft of drilling in 7 holes).
- c) Drill at least 5 holes each in Exploration Targets L and M to determine if they can be included as Inferred Mineral Resources or not in future estimates and to confirm geologic continuity between well known areas on the east side and west rim of the Dolores Point mesa and the interior in

these areas. (Estimated minimum cost = \$47,000 for 4,500 ft of drilling in 10 holes.)

- d) Continue drilling in Utah State Section 16 to further define resources in this area. (Estimated minimum cost = \$75,000 for 7,000 ft of drilling in 11 holes.)

Phase 2. Mine development should proceed as quickly as practicable. The total estimated cost for work described as Phase II in Section 18.0 of this report will be approximately \$3,700,000. Recommendations for mine development include:

- a) Complete any necessary surface facilities, dewater the mine, and perform any needed rehabilitation. (Approximate cost \$500,000)
- b) Drive a connection between the Whirlwind and Packrat mines in order to reach remaining easily accessible indicated mineral resources in the Packrat Mine workings; rehabilitate the Packrat, as needed. (Approximate cost \$700,000)
- c) Drive southward from current face to access Indicated Mineral Resource Area B. This will likely necessitate installation of a ventilation raise. (Approximate cost \$1,000,000)
- d) To establish a sustainable production rate, additional working areas will need to be established by driving development drifts and associated ventilation raises to the Indicated Mineral Resources in Areas C and D. (Approximate cost \$1,500,000)

3. Continue to pursue location and acquisition of historic geologic and radiometric logs of the holes previously drilled on the property, where such holes can be reliably located. (Estimated cost = \$50,000)

As a follow-on to the preliminary economic assessment (PEA) being performed internally by EFR, prepare or have prepared a full feasibility (economic and mining) analysis to convert indicated mineral resources into probable and/or proven mineral reserves. (Estimated cost for PEA = \$50,000).

## **21.0 References**

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Weeks, A. D., Coleman, R.G., and Thompson, M. E., 1959, in Geochemistry and Mineralogy of the Colorado Plateau Uranium Ores, U.S.G.S. Professional Paper 320.

## **22.0 Certificate of Qualification**

I, Douglas C. Peters, do hereby certify:

1. That I graduated from the University of Pittsburgh with a Bachelor of Science degree in Earth & Planetary Sciences in 1977.
2. That I graduated from the Colorado School of Mines with a Master of Science degree in Geology in 1981 and with a Master of Science degree in Mining Engineering in 1983.
3. That 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. I am recognized by the Society for Mining, Metallurgy, and Exploration, Inc. as a Registered Member (#2516800). I hold the following certifications and licenses applicable to these requirements:

A. Certified Professional Geologist #8274 (American Institute of Professional Geologists)

B. Licensed Professional Geologist:

Pennsylvania #2365

Texas #5972

Utah #2250

Washington #396

Wyoming #367

4. That I have practiced my profession for over 30 years, the last 14 of which have been as an independent consulting geologist.
5. That I am responsible for this technical report titled: “Whirlwind Property (Including Far West and Crosswind Claim Groups and Utah State Metalliferous Minerals Lease ML-49312)”, dated March 15, 2011, and that property was visited by me on November 27, 2007.
6. That I have had prior experience with the Whirlwind Property that is the subject of this Technical Report and have had previous experience with other uranium properties in Colorado, New Mexico, Utah, and Wyoming.
7. That this report dated March 15, 2011, is based on a prior Technical Report prepared by FGM Consulting Group, Inc. (dated January 3, 2007), a prior Amended Technical Report prepared by Peters Geosciences (dated October 24, 2008), other published and unpublished maps and reports, and on discussions with representatives of Energy Fuels Resources Corporation.
8. That I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission of which would make the Technical Report misleading or would affect the stated conclusions.
9. That I am independent of Energy Fuels Resources Corporation and its parent, Energy Fuels Inc., applying all of the tests in section 1.4 of NI 43-101.
10. That I am the owner of Peters Geosciences, whose business address is 825 Raptor Point Road, Golden, Colorado 80403.

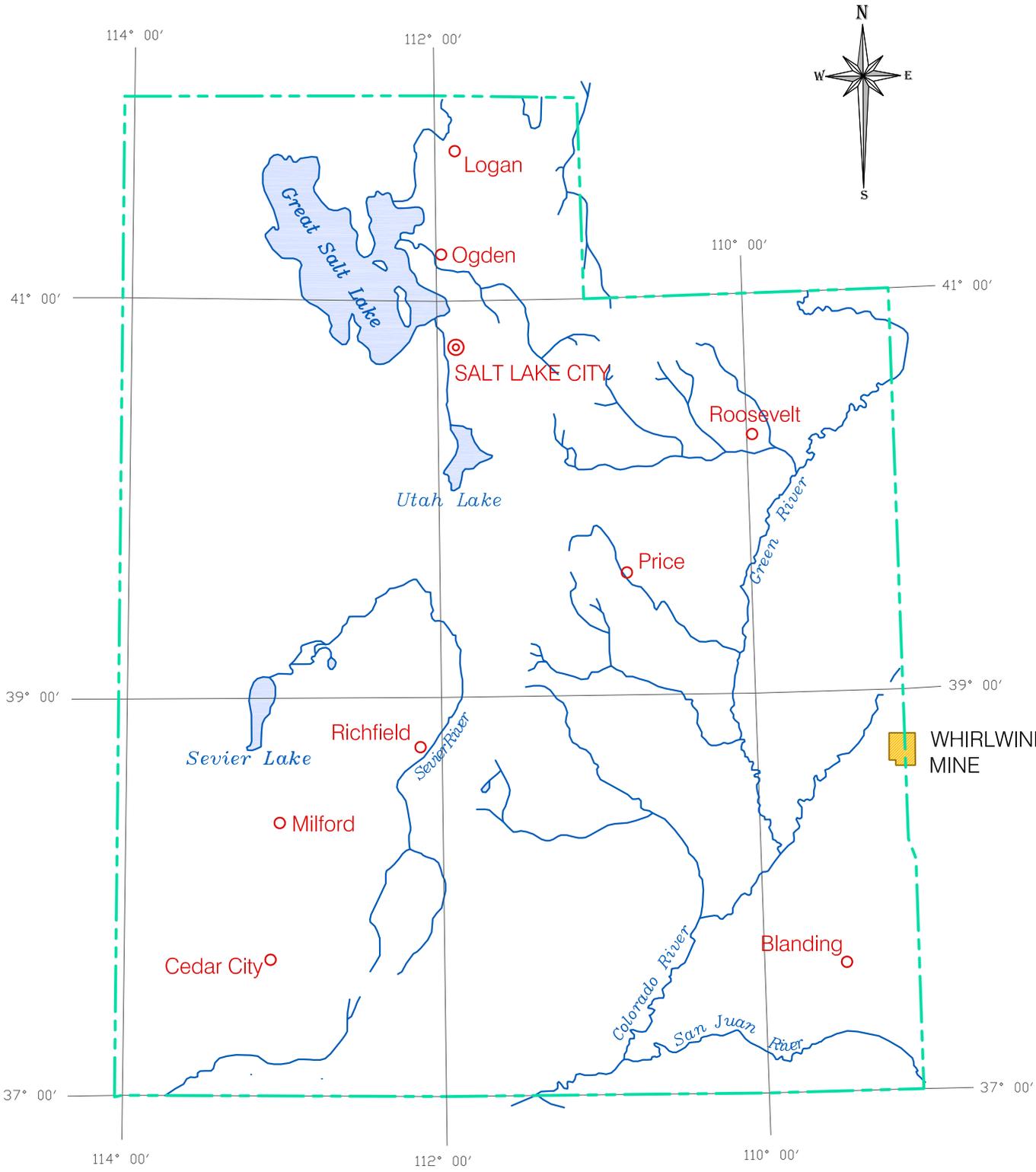
11. That I have read NI 43-101 and NI 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
12. That I consent to the filing of this Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or on its website accessible by the public.

Signed and dated this 15th day of March, 2011

  
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Douglas C. Peters, CPG



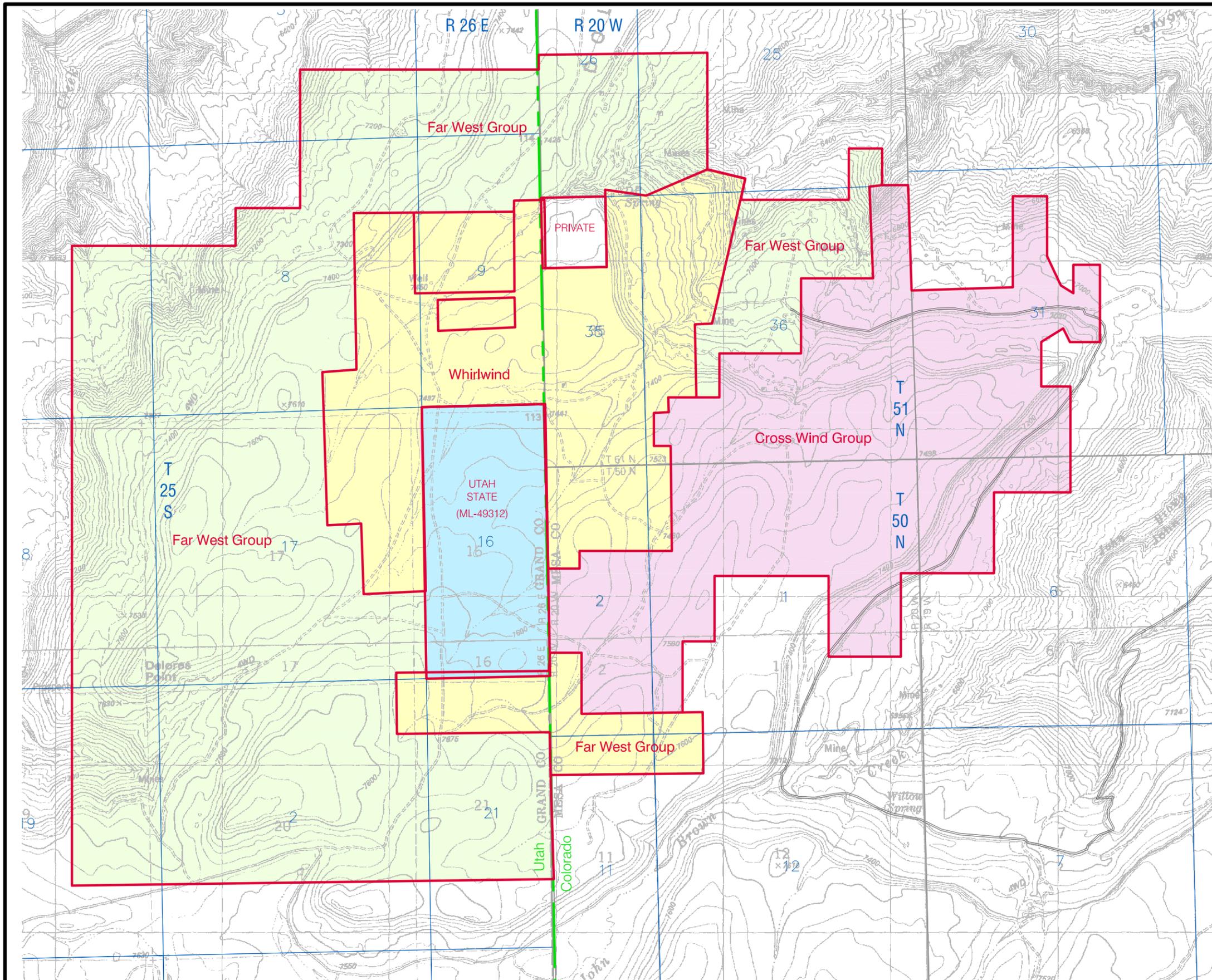
## **APPENDIX**



**Energy Fuels Resources**

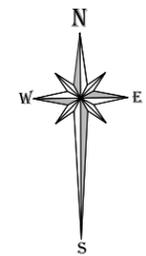
Figure: 4-1  
**INDEX MAP OF UTAH SHOWING  
 AREA OF THIS REPORT**

Scale	1"=100 miles	Created	March 10, 2011	Drawn by	SleddCAD
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**CLAIM GROUP LEASES**

- Whirlwind
- Far West Group
- Crosswind Group
- Utah State Lease (ML-49312)



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SCALE: FEET

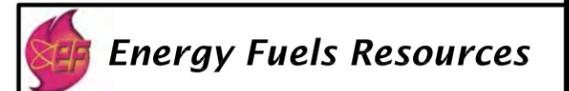


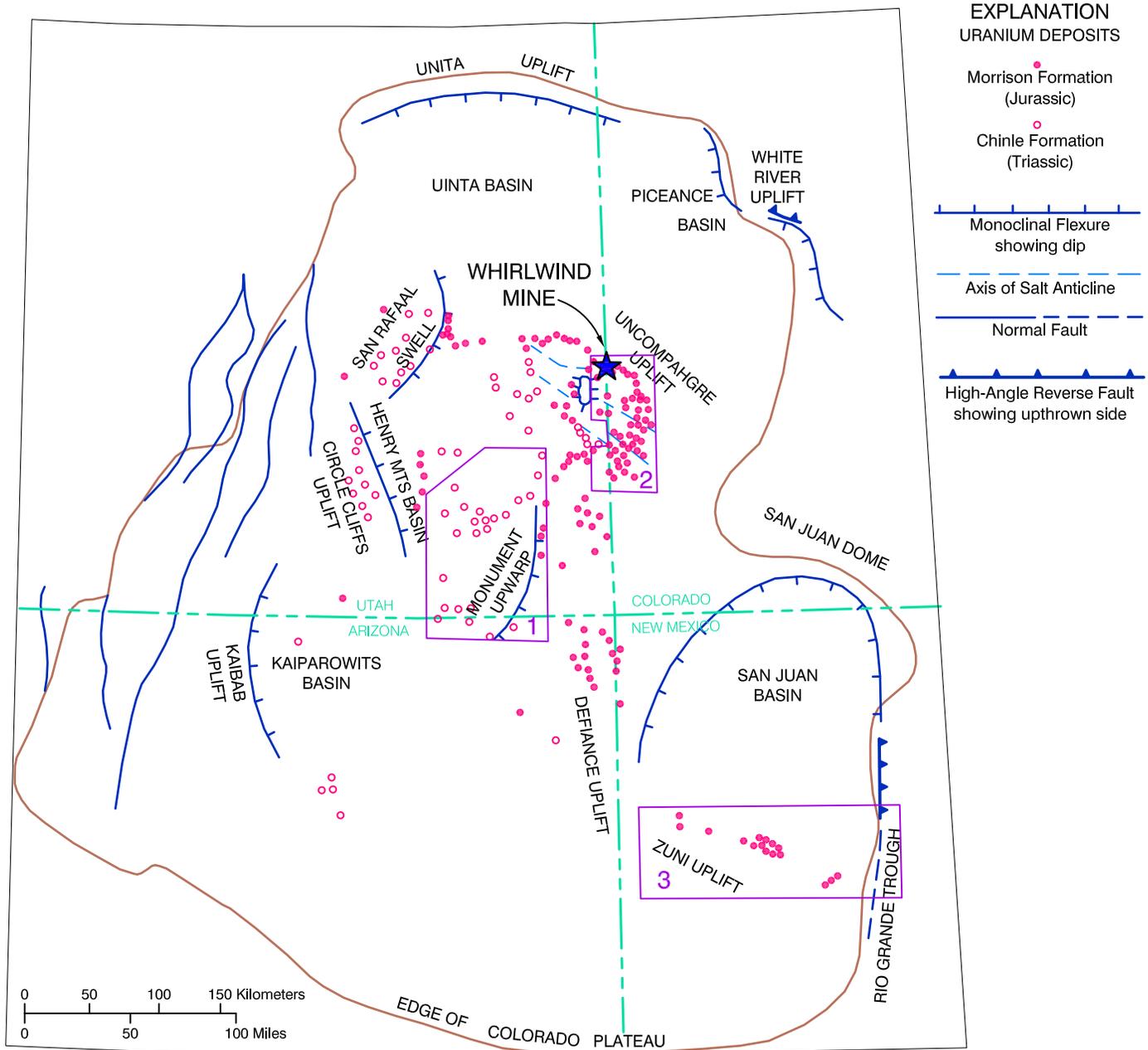
Figure: 4-2  
CLAIM MAP

Table 6-1

**Past Production Around Whirlwind Mine**

(Mostly from AEC records through 1971)

Mine Name	Tons	Grade	Pounds	Grade	Pounds	$V_2O_5:U_3O_8$
		% $U_3O_8$	$U_3O_8$	% $V_2O_5$	$V_2O_5$	Ratio
Bonanza 2	159,183	0.308	981,486	0.46	1,469,879	1.50
Bonanza 3	41,310	0.289	238,404	0.06	48,588	0.20
Bonanza 5	17,236	0.309	106,434	1.41	487,192	4.58
Bonanza 6	5,038	0.255	25,664	1.19	120,322	4.69
Hubbard	84,121	0.316	532,183	1.35	2,269,086	4.26
Gilmore	445	0.328	2,920	1.35	12,042	4.12
Cherokee Shaft	15,896	0.375	119,183	1.37	434,107	3.64
John Brown 14-15 Duffy	12,206	0.228	55,627	0.73	178,282	3.20
Johnnie Mae 3	4,745	0.505	47,966	2.04	193,349	4.03
La Sal	17,263	0.326	112,646	1.20	415,796	3.69
La Sal Group	57,543	0.333	383,735	1.14	1,309,922	3.41
La Sal 1, 2	1,706	0.394	13,458	1.31	44,629	3.32
La Sal 4	16,821	0.306	102,873	1.16	390,535	3.80
La Sal 5,7	11,615	0.334	77,511	1.23	286,667	3.70
Lost Dutchman 17	61,738	0.261	322,250	1.05	1,293,825	4.01
Lumsden 2,6	47,282	0.355	336,008	1.40	1,325,897	3.95
Lumsden 1	5,330	0.317	33,764	1.66	177,103	5.25
Mark 2	97,019	0.277	537,893	0.85	1,653,150	3.07
Newheisel	18,723	0.259	97,152	0.57	214,231	2.21
Pack Rat 1,2	46,993	0.320	300,994	1.46	1,373,280	4.56
Rajah 1	880	0.191	3,364	0.59	10,367	3.08
Rajah 11,63	34,233	0.278	190,243	1.06	728,209	3.83
Rajah 30	292,647	0.254	1,484,991	0.78	4,538,721	3.06
Rajah 67,68,61,62,63	112,673	0.265	598,010	1.13	2,555,105	4.27
Rajah 72	114	0.312	711	1.80	4,104	5.77
Sunspot, Cloud, et al	10,044	0.287	57,627	1.13	227,496	3.95
The Duke	270	0.285	1,539	1.20	6,465	4.20
Urantah	2,743	0.150	8,229	0.75	41,145	5.00
Thornton Tunnel (Zee)	13,777	0.272	74,848	0.85	233,769	3.12
Zee Lease-Rajah 49	101,285	0.252	510,449	0.87	1,765,306	3.46
<b>TOTALS/AVERAGE</b>	<b>1,290,879</b>	<b>0.285</b>	<b>7,358,162</b>	<b>0.92</b>	<b>23,808,569</b>	<b>3.24</b>



Principal Uranium Deposits and Major Structural Features in the Colorado Plateau Province.

Blocks outline the approximate area of the following districts:

(1) Monument Valley - White Canyon, (2) Uruan, (3) Grants.

(modified from Thamm, et al, 1981).

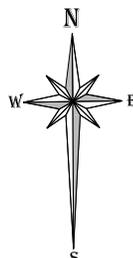


Figure: 7-1  
**PRINCIPAL URANIUM DEPOSITS & MAJOR STRUCTURES OF THE COLORADO PLATEAU**

Scale	1"=75 miles	Created	March 11, 2011	Drawn by	SleddCAD
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## STRATIGRAPHIC SECTION GATEWAY-URAVAN AREA MESA AND MONTROSE COUNTIES, COLORADO

AGE	GROUP	FORMATION	MEMBER	LITHOLOGY	THICKNESS Feet	CHARACTER
Upper Cretaceous		Dakota Sandstone			100 +	Yellow, red, and brown lenticular sandstone and conglomerate with interbedded carbonaceous shale and impure coal. Top not exposed.
Lower Cretaceous		Burro Canyon Formation			100-210	White, Gray, and red sandstone and conglomerate with interbedded green and purplish shale.
Upper Jurassic		Morrison Formation	Brushy Basin		300-500	Variegated bentonitic shale and mudstone, rusty-red and red sandstone and conglomerate; local thin limestone beds.
			Salt Wash		240-360	White, gray, buff, and rusty-red and red sandstone, red, reddish brown, green and gray mudstone; scattered thin limestone beds.
Middle Jurassic		Summerville Formation			75-130	red, gray, green, and brown, thin-bedded, sandy shale and mudstone.
		Entrada Sandstone	Slick Rock		80-200	Orange, buff, and white, fine-grained, massive and crossbedded sandstone.
			Dewey Bridge		5-90	Red, buff, and orange mudstone, siltstone, and sandstone.
Lower Jurassic		Navajo Sandstone			0-120	Buff and gray crossbedded, fine-grained sandstone. contains 6-foot of limestone on Sewemup Mesa. Thickens to west
		Kayenta Formation			90-300	Red, buff, gray, and lavender, irregularly bedded, fine- to coarse-grained sandstone, siltstone, and shale. Few lenses of conglomerate and limestones. thins to northeast.
		Wingate Sandstone			275-400	Reddish-brown, fine-grained, thick-bedded, massive, and crossbedded, cliff-forming sandstone.
Upper Triassic		Chinle Formation			120-450	Red to orange-red siltstone, with interbedded lenses of red sandstone, shale, and limestone-pebble and clay-pebble conglomerate. Lenses of quartz-pebble conglomerate and grit at base. Thins to northeast
Middle Triassic (?)		Moenkopi Formation	Upper Member		0-180	Chocolate-brown, thin- and ripple-bedded shale with interbedded sandstone. Thins to east.
Lower Triassic			Middle Member		0-200	Chocolate-brown ledge-forming beds of shale, sandstone, and arkosic conglomerate. Thins to east.
Triassic (?)			Lower Member		0-200	Reddish to yellowish-brown indistinctly bedded, poorly sorted, sandy mudstone. Local gypsum beds near base. Thins to east.
Lower Permian		Cutter Formation			0-7,800	Maroon, red, mottled light-red, and purple conglomerate, arkose, and sandstone. Thin beds of sandy mudstone. Thins to northeast.
		Precambrian Complex			Base not exposed	Gray, medium-grained granite containing xenoliths of hornblende and biotite schists and gneisses. Intruded by pink granite, pegmatite and aplite dikes, and hornblende rich dikes.

NOTE: The Summerville Formation is now considered to be the Wanakah Formation and the Tidwell Member of the Morrison Formation.

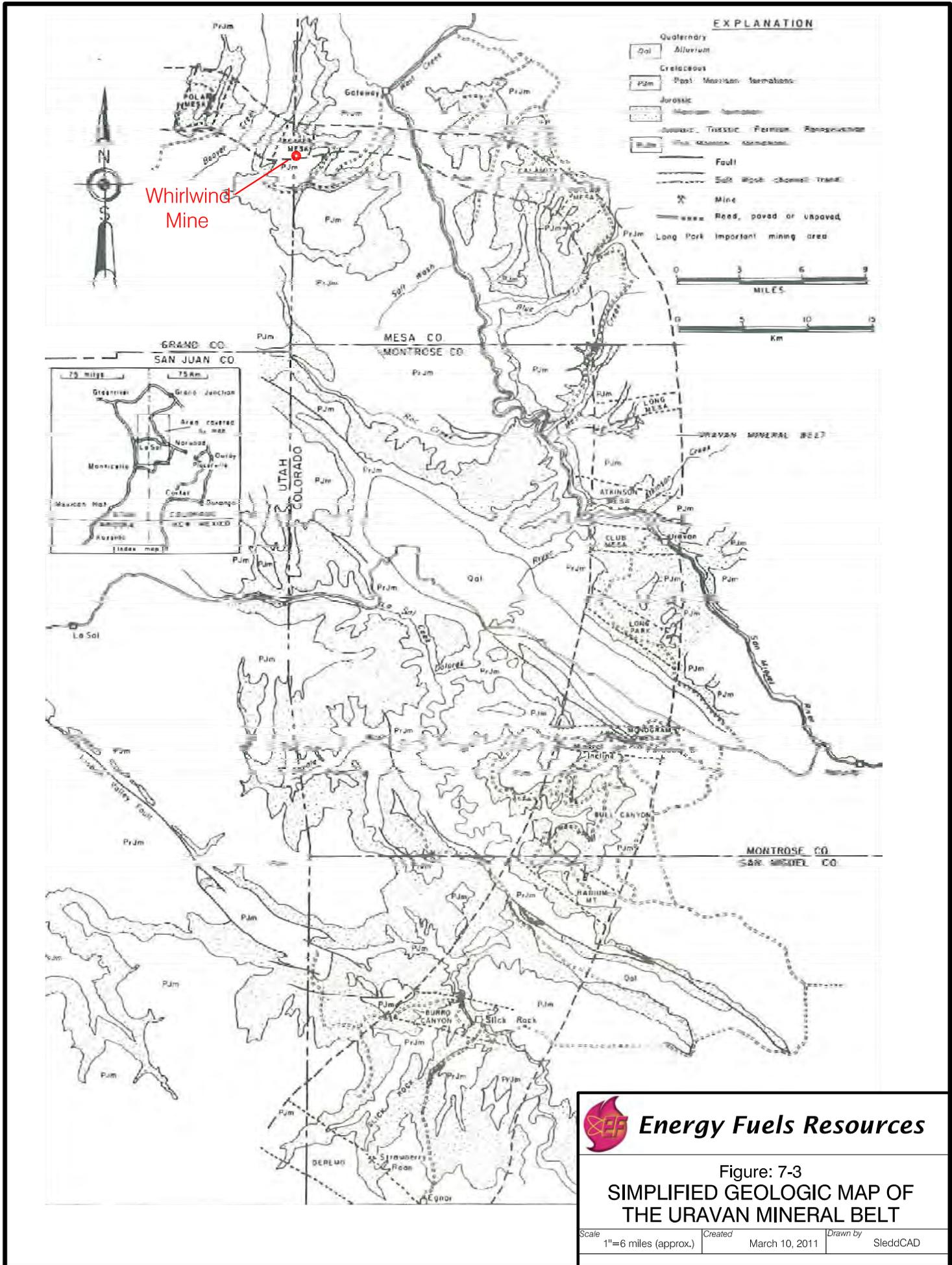
(modified from GoodKnight, et al, 2005)



**Energy Fuels Resources**

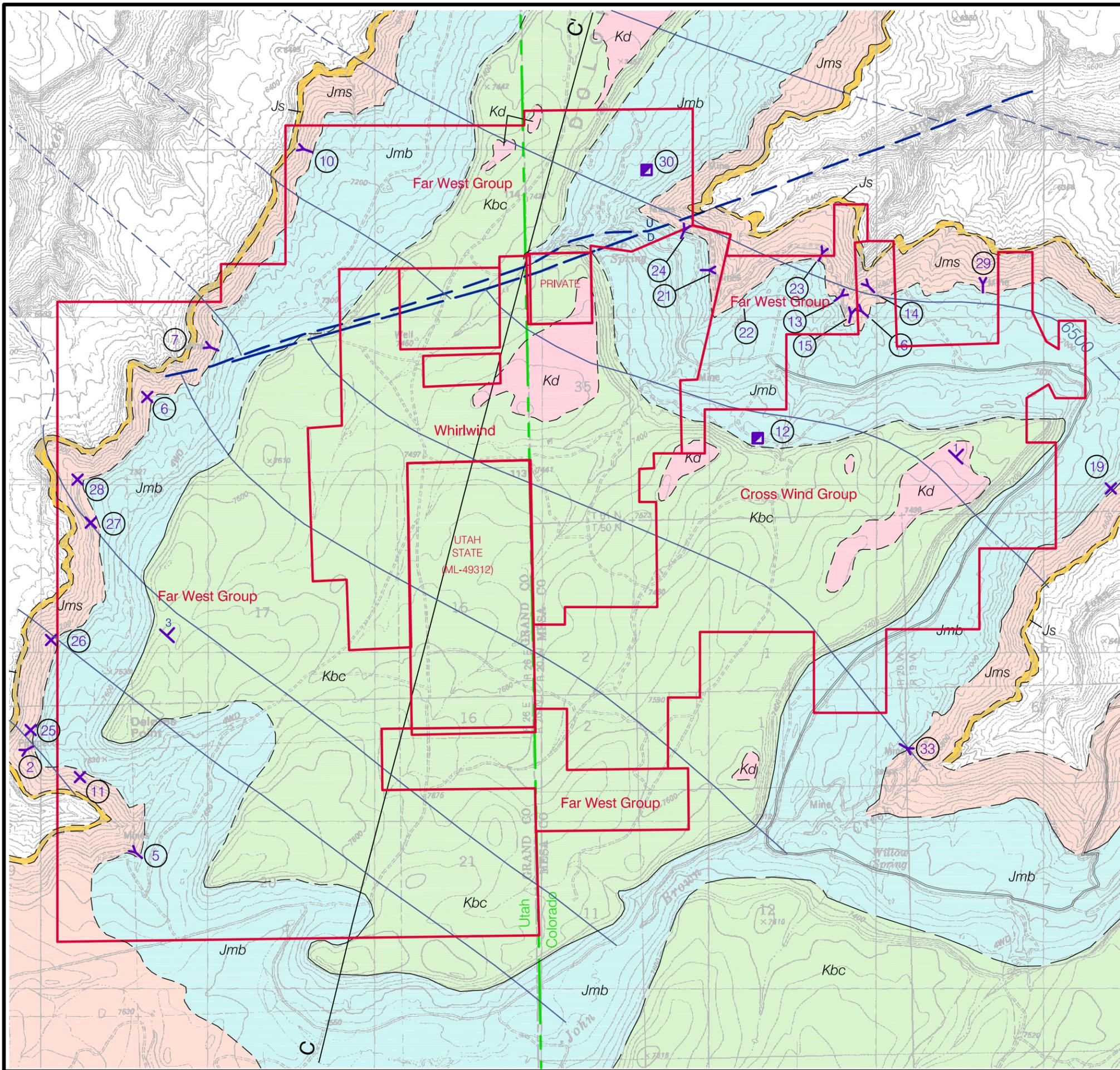
Figure: 7-2  
STRATIGRAPHIC COLUMN

Scale	NTS	Created	March 11, 2011	Drawn by	SleddCAD
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 **Energy Fuels Resources**

Figure: 7-3  
SIMPLIFIED GEOLOGIC MAP OF  
THE URAPAN MINERAL BELT



**EXPLANATION**

<p>Vertical Shaft</p> <p>Adit</p> <p>Prospect</p> <p>Strike &amp; dip of beds</p> <p>Mine index number</p>	<p>Upper Cretaceous</p> <p>Lower Cretaceous</p> <p>Upper Jurassic</p>	<p><b>Kd</b></p> <p>Dakota Sandstone Light-red ad brown conglomeritic sandstone with interbedded carbonaceous gray scale.</p> <p>UNCONFORMITY</p> <p><b>Kbc</b></p> <p>Burro Canyon formation White, gray and red sandstone and conglomerate with interbedded red and green mudstone and minor amounts of dense gray cherty limestone.</p> <p><b>Jmb</b></p> <p><b>Jms</b></p> <p>Morrison formation Variegated mudstone and shale; grayish-yellow, very pale orange, and white sandstone; local thin limestone beds. Brushly Basin member, Jmb, consisting of bentonitic mudstone and shale, but including some sandstone and conglomerate lenses. Salt Wash member, Jms, consisting of interbedded sandstone and red and green mudstone.</p> <p><b>Js</b></p> <p>Summerville formation Thin-bedded red, green, and brown sandy and silty shale and mudstone.</p>	<p>CRETACEOUS</p> <p>JURASSIC</p>
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	Contact Dashed where approximately located.
	Fault - Dashed where approximately located. U, upthrown side; D, downthrown side.
	Structure contours - Drawn at the base of the Summerville formation at the base of the Burro Canyon formation and projected to the base of the Summerville formation; average vertical separation 650 feet. Short dashes indicate projection above surface. Contour interval 100 feet. Datum is mean sea level.

**MINE INDEX**

- 2 Alta
- 5 Bonanza Nos. 1 & 2
- 6 Canyon No. 1
- 7 Canyon No. 4
- 10 Doctor Jr.
- 11 Grabdco No. 2
- 12 J.W.L. Fraction No. 1 and Cherokee Shaft
- 13 La salle
- 14 La Sal No. 1
- 15 La Sal No. 2 (Ukele)
- 16 La Sal No. 2 (Gilmore)
- 19 Lost Indian
- 21 Lumsden No. 1
- 22 Lumsden No. 2
- 23 Lumsden No. 3
- 24 Pack Rat No. 1
- 25 Prospect No. 2
- 26 Prospect No. 4
- 27 Prospect No. 7
- 28 Prospect No. 9
- 29 Rajah 49
- 30 Lost Dutchman
- 33 Rajah 30

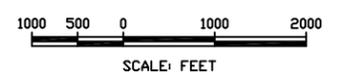
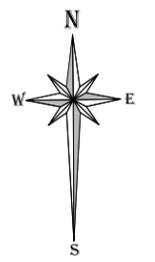
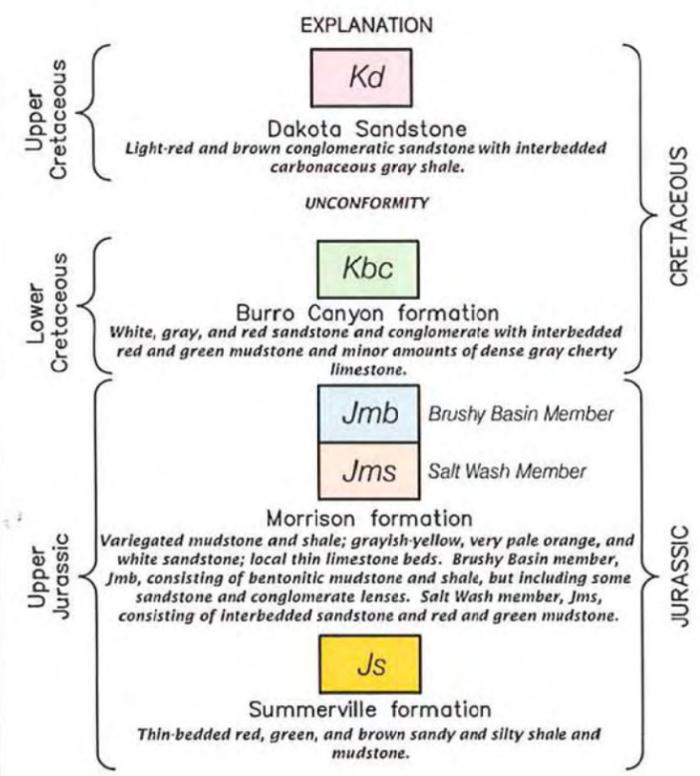
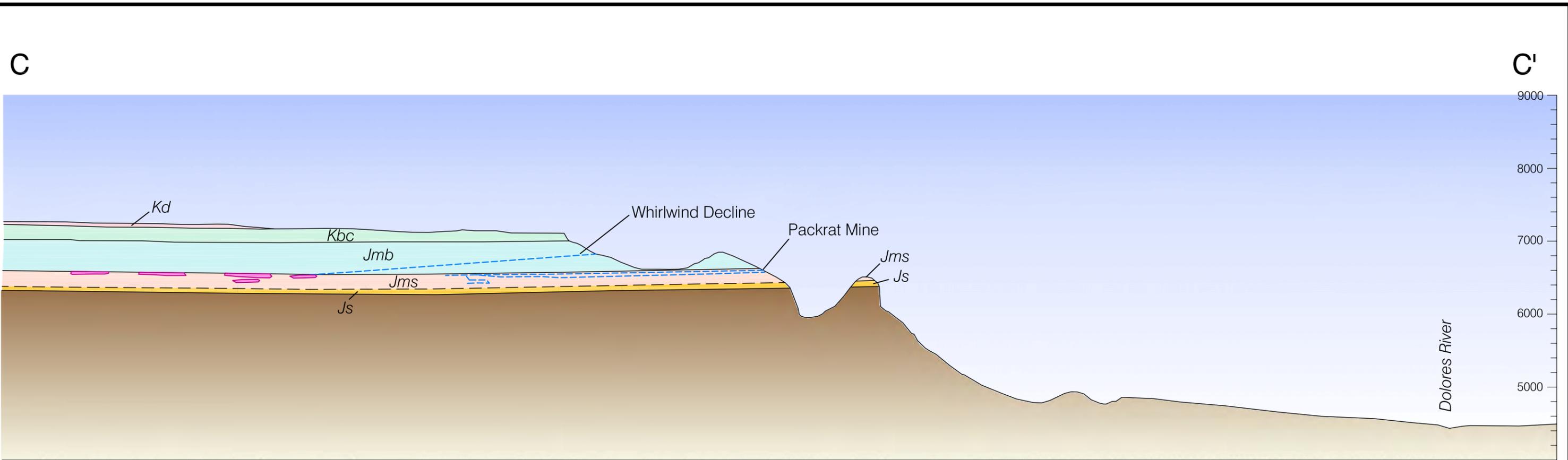


Figure: 7-4  
**GEOLOGIC MAP OF WHIRLWIND AREA**  
(from USGS Map MF-122)

Scale	Created	Drawn by
NTS	March 10, 2011	SleddCAD

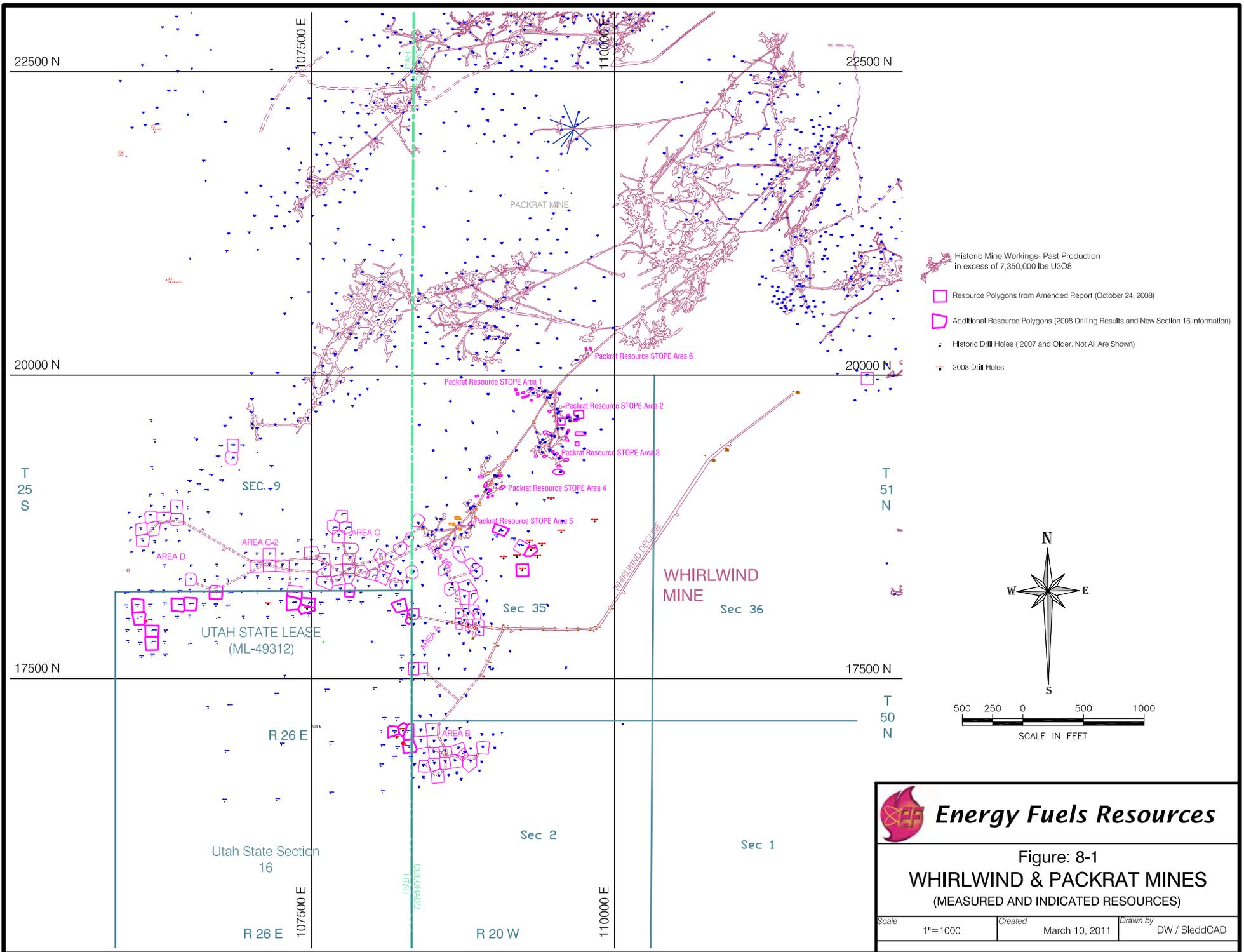


Uranium Deposits  
 Mine Workings

**Energy Fuels Resources**

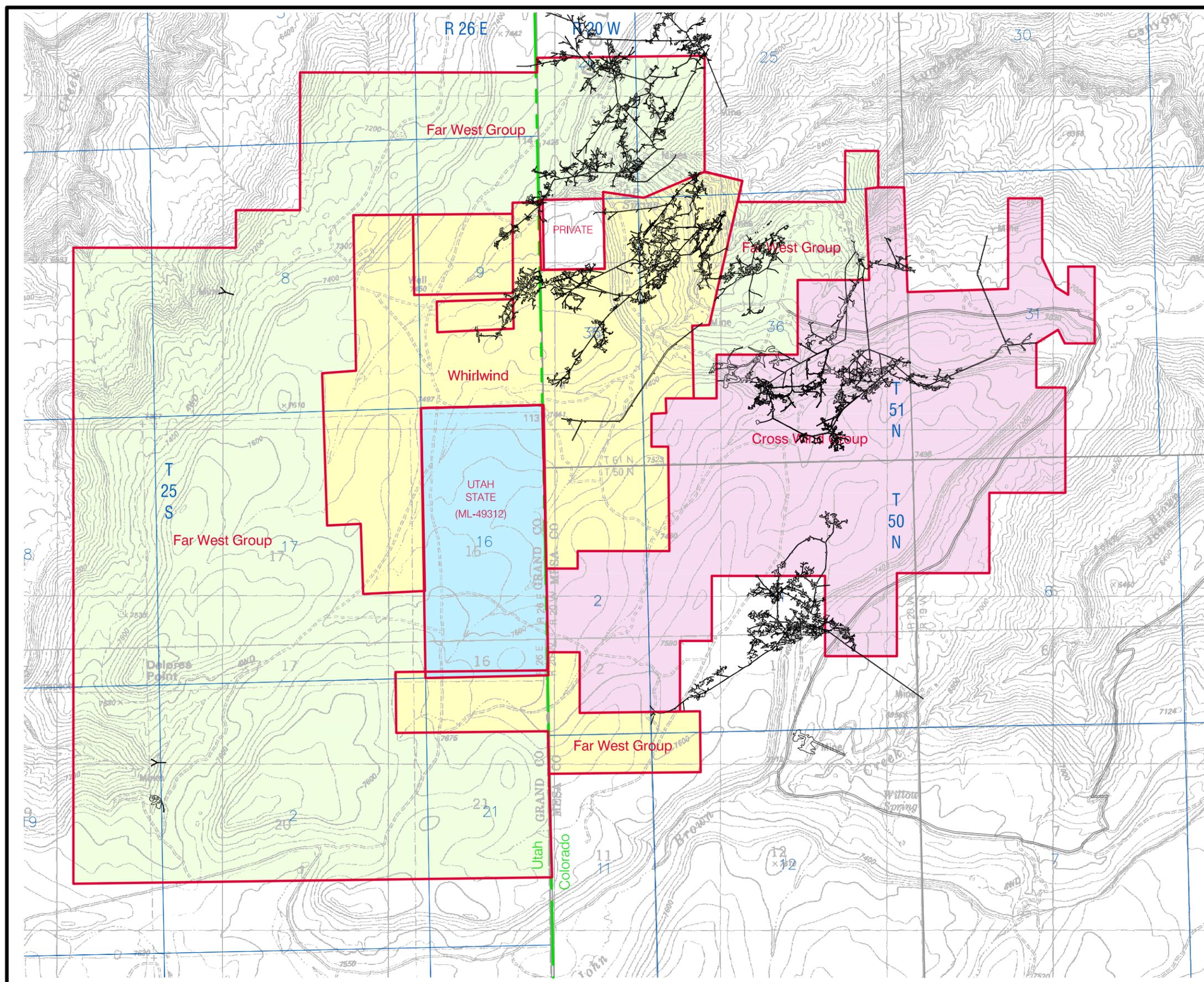
Figure: 7-5  
GENERALIZED CROSS SECTION

Scale	NTS	Created	March 10, 2011	Drawn by	SleddCAD
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**Figure: 8-1**  
**WHIRLWIND & PACKRAT MINES**  
 (MEASURED AND INDICATED RESOURCES)

Scale	1"=1000'	Created	March 10, 2011	Drawn by	DW / SledCAD
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- CLAIM GROUP LEASES**
- Whirlwind
  - Far West Group
  - Crosswind Group
  - Utah State Lease (ML-49312)

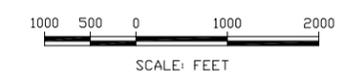
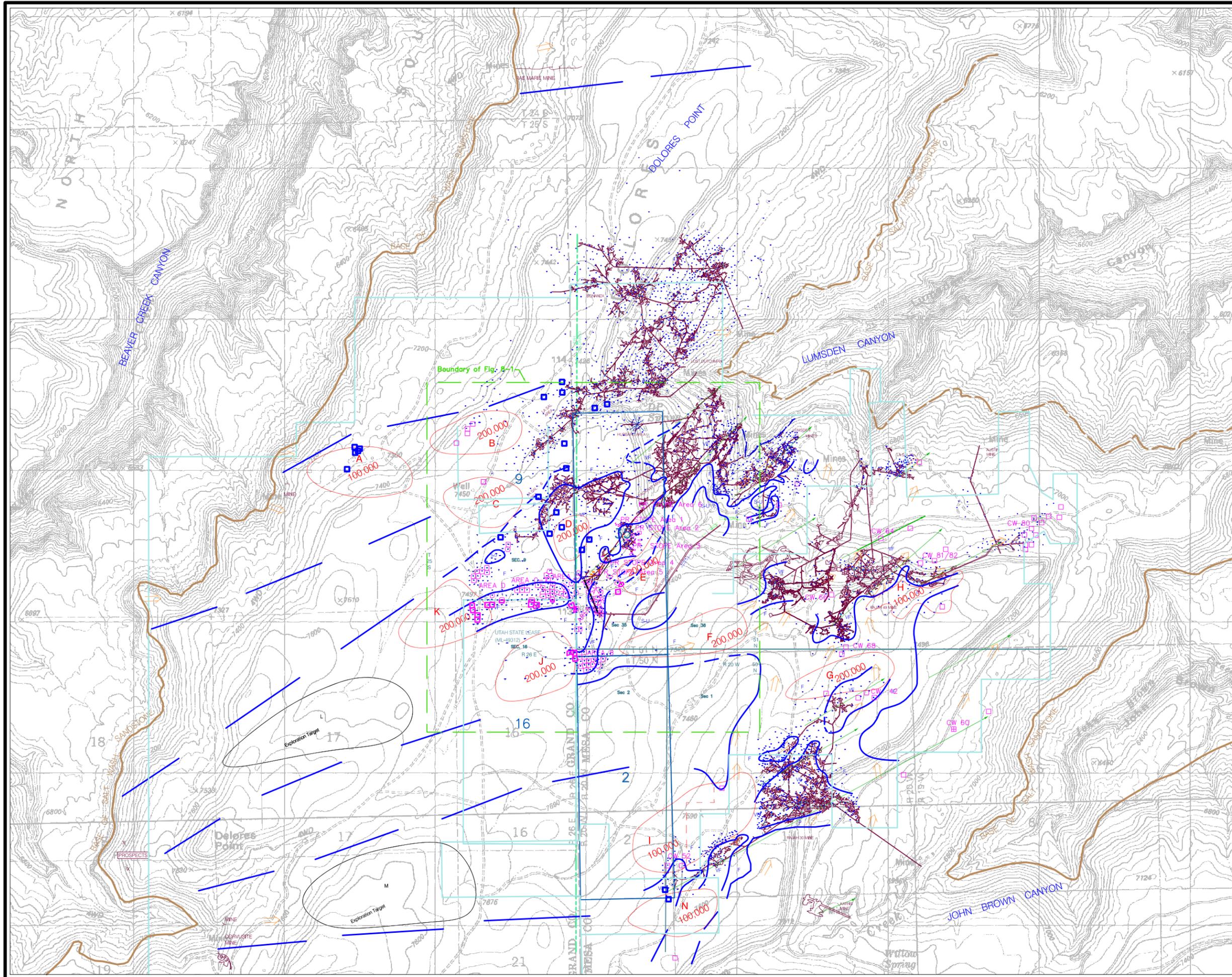
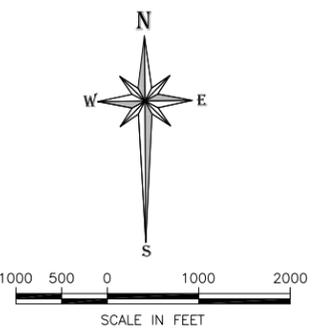


Figure: 8-2  
**DOLORES POINT  
 HISTORIC MINE WORKINGS**

Scale	1"=2000'	Date	March 10, 2011	Drawn by	SleddCAD
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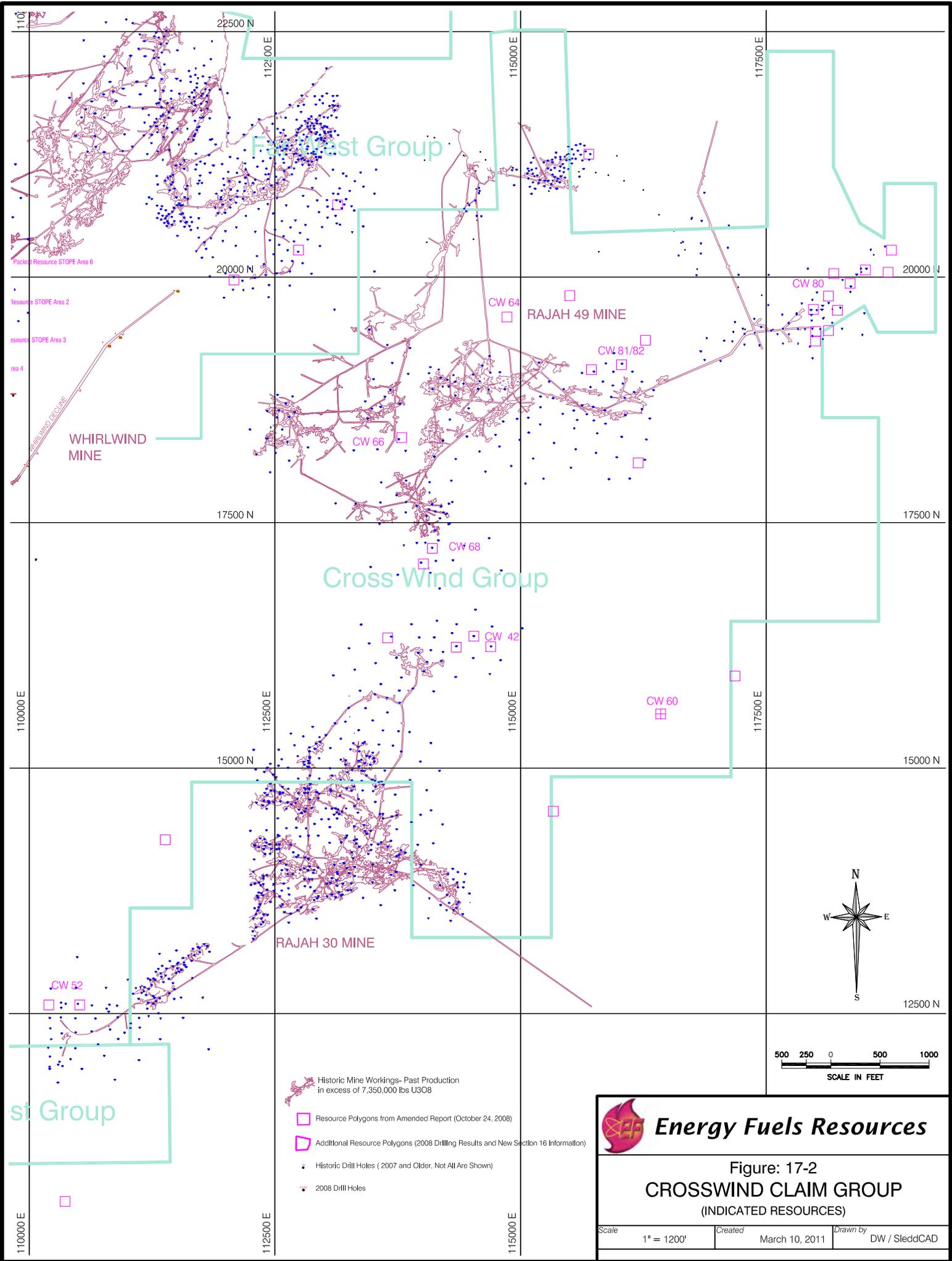
-  Salt Wash Top Rim sandstones  
Channel scours and trends from  
Umetco structure contour map and outcrops
-  Favorable Top Rim trends defined  
on Umetco maps before and during  
mining in the 1960's
-  Very Favorable : Based on Umetco  
maps before and  
during mining and  
various drilling and outcrops
-  Favorable
-  Seml-Unfavorable
-  Inferred Mineral Resources  
pounds U3O8
-  Historic Mine Workings- Past Production  
In excess of 7,350,000 lbs U3O8
-  Mineralized Holes of various grades 0.03-1.00±%
-  Exploration Target Areas
-  Resource Polygons from Amended Report (October 24, 2008)
-  Additional Resource Polygons (2008 drilling Results and New Section 16 Information)
-  Historic Drill Holes ( 2007 and Older, Not All Are Shown)
-  2008 Drill Holes



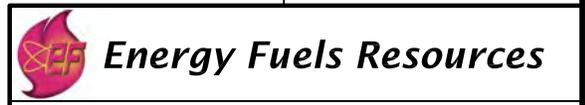
**Energy Fuels Resources**

Figure: 17-1  
DOLORES POINT  
FAVORABLE TRENDS

Scale	1"=1000'	Created	March 10, 2011	Drawn by	DW / SledCAD
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- Historic Mine Workings- Past Production in excess of 7,350,000 lbs U3O8
- Resource Polygons from Amended Report (October 24, 2008)
- Additional Resource Polygons (2008 Drilling Results and New Section 16 Information)
- Historic Drill Holes ( 2007 and Older, Not All Are Shown)
- 2008 Drill Holes



**Figure: 17-2**  
**CROSSWIND CLAIM GROUP**  
 (INDICATED RESOURCES)

Scale	1" = 1200'	Created	March 10, 2011	Drawn by	DW / SleddCAD
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REVISED WHIRLWIND MINE RESOURCES

(includes the southernmost Packrat Mine,  
to which the Whirlwind will be connected)

Table 17-1

updated: 3/8/2011

Hole ID	Stope ID	Mineralized Holes					Thickness	Mineralization				Tons of Material	In Place		Diluted	
		East	North	Collar	Area	Grade % U <sub>3</sub> O <sub>8</sub>		Grade % V <sub>2</sub> O <sub>5</sub>	Base Elevation	Total Depth	Pounds U <sub>3</sub> O <sub>8</sub>		Pounds V <sub>2</sub> O <sub>5</sub>	Tons of Material	Grade U <sub>3</sub> O <sub>8</sub>	Grade V <sub>2</sub> O <sub>5</sub>
Z-344	A Top	108,339	17,585	7462	6,000	0.7	0.20	1.60	6916	6877	300	1,200	9,600	729	0.082	0.66
79-9	A Top	108,876	18,029	7434	3,553	1.3	0.10		6882	6815	330	660	2,138	584	0.057	0.18
79-8	A Top	108,878	17,953	7435	4,293	4.3	0.11		6891	6716	1,319	2,901	9,399	1,625	0.089	0.29
79-2	A Top	108,793	17,942	7437	3,450	0.9	0.90		6894	6823	222	3,992	12,935	468	0.426	1.38
79-14	A Top	108,713	18,032	7440	3,898	1.6	0.29		6894	6803	445	2,584	8,372	724	0.178	0.58
79-13	A Top	108,720	17,956	7441	4,349	7.2	0.06		6896	6725	2,237	2,684	8,696	2,237	0.060	0.19
(79-13)	A Top	108,720	17,956	7441	4,349	2.4	0.07		6902	6725		0	0		0.049	
(79-13)	A Top	108,720	17,956	7441	4,349	3.8	0.07		6896	6725		0	0		0.055	
79-10	A Top	108,882	17,878	7436	3,953	1.2	0.12		6889	6818	339	813	2,635	621	0.065	0.21
77-92	A Top	108,432	17,585	7461	9,975	0.9	0.18		6917	6775	641	2,309	7,480	1,354	0.085	0.28
76-65	A Top	108,332	18,025	7440	4,861	0.8	0.32		6919	6882	278	1,778	5,760	625	0.142	0.46
77-16	B Brushy	108,404	16,977	7505	10,065	0.9	0.15		7140	6845	647	1,941	6,289	1,366	0.071	0.23
77-16	B High Top	108,404	16,977	7505	10,065	0.9	0.27		6944	6845	647	3,494	11,321	1,366	0.128	0.41
Z-346	B Low Top	108,603	16,807	7461	8,415	1.4	0.26	0.30	6878	6856	842	4,376	5,049	1,443	0.152	0.18
Z-346	B Low Top	108,603	16,807	7461	8,415	1.0	0.48	0.18	6871	6856	601	5,770	2,164	1,202	0.240	0.09
77-7	B Low Top	108,514	16,800	7475	8,500	1.3	0.12		6879	6828	789	1,894	6,137	1,396	0.068	0.22
Z-401	B Top	108,814	16,813	7447	12,169	1.0	1.69	6.18	6893	6872	869	29,379	107,435	1,738	0.845	3.09
Z-369	B Top	108,978	17,350	7453	10,000	1.4	0.01	1.41	6899	6873	1,000	200	28,200	1,714	0.006	0.82
Z-346	B Top	108,603	16,807	7461	8,415	1.2	0.06	1.15	6891	6856	721	866	16,590	1,322	0.033	0.63
77-8	B Top	108,555	16,691	7460	10,602	0.8	0.96		6888	6851	606	11,632	37,687	1,363	0.427	1.38
77-6	B Top	108,510	16,890	7479	8,150	4.9	0.24		6914	6850	2,853	13,692	44,362	3,435	0.199	0.65
77-5	B Top	108,602	16,898	7457	9,052	5.9	0.52		6894	6850	3,815	39,674	128,543	4,461	0.445	1.44
(77-5)	B Top	108,602	16,898	7457	9,052	3.7	0.22		6896	6844		0	0		0.173	
(77-5)	B Top	108,602	16,898	7457	9,052	1.1	2.01		6894	6844		0	0		1.053	
77-3	B Top	108,711	16,920	7456	7,248	16.0	0.10		6889	6822	8,283	16,567	53,677	8,283	0.100	0.32
(77-3)	B Top	108,711	16,920	7456	9,654	1.4	0.93		6889	6822		0	0		0.543	
77-14	B Top	108,423	16,779	7489	8,324	1.1	0.39		6883	6841	654	5,101	16,529	1,249	0.204	0.66
77-10	B Top	108,915	16,931	7440	10,132	17.3	0.08		6881	6810	12,520	20,032	64,905	12,520	0.080	0.26
(77-10)	B Top	108,915	16,931	7440	10,132	0.9	0.19		6894	6810		0	0		0.090	
77-1	B Top	108,683	16,819	7452	9,360	18.3	0.22		6893	6874	12,235	53,833	174,420	12,235	0.220	0.71
(77-1)	B Top	108,683	16,819	7452	10,305	0.9	1.07		6893	6874		0	0		0.507	
(77-1)	B Top	108,683	16,819	7452	10,305	0.8	0.81		6898	6874		0	0		0.360	
(77-1)	B Top	108,683	16,819	7452	10,305	2.1	0.36		6905	6874		0	0		0.244	
(77-1)	B Top	108,683	16,819	7452	10,305	0.9	1.81		6911	6874		0	0		0.857	
77-60	C Middle	107,606	18,477	7449	7,427	0.7	0.66		6822	6756	371	4,902	15,882	902	0.272	0.88
77-50	C Middle	107,709	18,391	7454	9,004	3.0	0.15		6814	6739	1,929	5,943	19,254	2,573	0.116	0.37
(77-50)	C Middle	107,709	18,391	7454	9,004	1.1	0.28		6816	6739		0	0		0.147	
(77-50)	C Middle	107,709	18,391	7454	9,004	0.8	0.15		6814	6739		0	0		0.067	
77-30	C Middle	107,907	18,384	7442	9,011	3.6	0.39		6823	6739	2,317	18,073	58,558	2,961	0.305	0.99
77-48	C Middle	107,815	18,571	7431	9,267	2.1	0.15		6814	6736	1,390	4,170	13,511	2,052	0.102	0.33
77-48	C Middle	107,815	18,571	7431	9,267	1.2	0.10		6807	6736	794	1,589	5,147	1,456	0.055	0.18
77-43	C Middle	107,811	18,398	7447	7,728	3.4	0.18		6811	6775	1,877	6,756	21,891	2,429	0.139	0.45
(77-43)	C Middle	107,811	18,398	7447	7,728	1.4	0.05		6813	6775		0	0		0.029	
(77-43)	C Middle	107,811	18,398	7447	7,728	1.4	0.39		6811	6775		0	0		0.228	
77-42	C Middle	107,816	18,493	7437	9,108	1.4	0.27		6817	6742	911	4,918	15,935	1,561	0.158	0.51
77-101	C Middle	107,503	18,534	7445	11,385	1.2	0.22		6821	6760	976	4,294	13,912	1,789	0.120	0.39
H-325	C Top	108,233	18,584	7425	8,734	5.4	0.23		6901	6873	3,369	15,497	50,209	3,993	0.194	0.63

Hole ID	Stope ID	Mineralized Holes					Thickness	Mineralization			Total Depth	Tons of Material	In Place Pounds		Tons of Material	Diluted Grade	
		East	North	Collar	Area	Grade % U <sub>3</sub> O <sub>8</sub>		Grade % V <sub>2</sub> O <sub>5</sub>	Base Elevation	Pounds U <sub>3</sub> O <sub>8</sub>			Pounds V <sub>2</sub> O <sub>5</sub>	Grade U <sub>3</sub> O <sub>8</sub>		Grade V <sub>2</sub> O <sub>5</sub>	
(H-325)	C Top	108,233	18,584	7425	8,734	3.4	0.26		6903	6873		0	0			0.201	
(H-325)	C Top	108,233	18,584	7425	8,734	0.7	0.47		6901	6873		0	0			0.194	
77-59	C Top	107,611	18,395	7459	8,375	2.6	0.37		6906	6764	1,555	11,510	37,291	2,154	0.267	0.87	
77-58	C Top	107,614	18,289	7466	11,789	0.8	0.28		6899	6759	674	3,772	12,223	1,516	0.124	0.40	
77-57	C Top	107,726	18,675	7432	8,483	0.9	0.44		6903	6735	545	4,799	15,549	1,151	0.208	0.68	
77-51	C Top	107,727	18,308	7461	8,008	3.2	0.10		6900		1,830	3,661	11,861	2,402	0.076	0.25	
77-44	C Top	107,812	18,332	7453	6,592	1.6	0.12		6906	6753	753	1,808	5,858	1,224	0.074	0.24	
77-43	C Top	107,811	18,398	7447	7,728	1.3	0.02		6905	6775	718	287	930	1,270	0.011	0.04	
77-42	C Top	107,816	18,493	7437	9,108	1.0	0.14		6904	6742	651	1,822	5,902	1,301	0.070	0.23	
77-28	C Top	108,260	18,463	7431	8,652	0.8	0.13		6905	6811	494	1,285	4,165	1,112	0.058	0.19	
77-27	C Top	108,302	18,660	7420	6,662	1.2	0.09		6881	6770	571	1,028	3,330	1,047	0.049	0.16	
76-37E	C Top	108,094	18,344	7438	8,739	8.1	0.23		6903	6759	5,056	23,258	75,357	5,056	0.230	0.75	
76-36	C Top	108,332	18,369	7435	9,062	1.3	0.24		6911	6870	841	4,039	13,087	1,489	0.136	0.44	
77-27	C Top	108,302	18,660	7420	6,662	1.1	0.20		6887	6770	523	2,094	6,784	999	0.105	0.34	
77-103	C-2 Middle	107,050	18,427	7455	10,645	0.7	0.12		6832	6759	532	1,277	4,139	1,293	0.049	0.16	
Z-282	C-2 Top	107,362	18,212	7465	5,344	2.1	0.21		6907		802	3,367	10,908	1,183	0.142	0.46	
Z-280	C-2 Top	107,153	18,432	7458	9,900	2.2	0.12	0.16	6909	6896	1,556	3,734	4,978	2,263	0.083	0.11	
(Z-280)	C-2 Top	107,153	18,432	7458	9,900	0.8	0.12	0.23	6910	6896		0	0		0.053		
(Z-280)	C-2 Top	107,153	18,432	7458	9,900	0.9	0.04	0.10	6909	6896		0	0		0.019		
(Z-280)	C-2 Top	107,153	18,432	7458	9,900	0.5	0.27	0.15	6909	6896		0	0		0.090		
77-69	C-2 Top	107,258	18,430	7458	10,547	0.8	0.20		6915	6753	603	2,411	7,811	1,356	0.089	0.29	
77-107	C-2 Top	107,155	18,525	7454	9,835	2.5	0.13		6914		1,756	4,566	14,795	2,459	0.093	0.30	
77-103	C-2 Top	107,050	18,427	7455	10,645	3.1	0.44		6915	6759	2,357	20,743	67,206	3,117	0.333	1.08	
Z-38	D-2 Top?	106,715	18,210	7456	5,155	1.1	0.46	0.91	6917	6893	405	3,726	7,372	773	0.241	0.48	
78-9	D Top	106,392	18,906	7489	10,295	3.4	0.62		6917	6797	2,500	31,003	100,449	3,236	0.479	1.55	
78-7	D Top	106,196	18,731	7494	11,322	2.5	1.41		6928	6804	2,022	57,014	184,727	2,831	1.007	3.26	
78-2	D Top	106,285	18,840	7492	9,868	9.6	0.07		6920	6802	6,767	9,473	30,693	6,767	0.070	0.23	
(78-2)	D Top	106,285	18,840	7492	9,868	3.0	0.13		6920	6802		0	0		0.098		
(78-2)	D Top	106,285	18,840	7492	9,868	0.9	0.18		6930	6802		0	0		0.085		
78-13	D Top	106,110	18,635	7495	9,590	0.7	0.32		6935	6895	480	3,069	9,943	1,165	0.132	0.43	
78-11	D Top	106,093	18,731	7491	9,193	0.9	0.21		6921	6797	591	2,482	8,042	1,248	0.099	0.32	
77-77	D Top	106,505	18,312	7472	8,359	2.9	0.08		6930	6862	1,732	2,770	8,976	2,329	0.059	0.19	
77-122	D Top	106,388	18,808	7492	9,808	7.8	0.31		6916	6797	5,464	33,880	109,770	5,464	0.310	1.00	
(77-122)	D Top	106,388	18,808	7492	9,808	3.4	0.05		6916	6797		0	0		0.039		
(77-122)	D Top	106,388	18,808	7492	9,808	2.7	0.83		6921	6797		0	0		0.606		
77-116	D Top	106,170	18,841	7489	8,944	1.6	0.11		6925	6816	1,022	2,249	7,286	1,661	0.068	0.22	
77-53	C-2 Top?	107,812	18,226	7459	4,693	2.9	1.39				972	27,025	87,561	1,307	1.034	3.35	
77-32	C Top	108,067	18,512	7431	8,800	3.1	0.63		6907	6754	1,949	24,552	79,548	2,577	0.476	1.54	
Cotter '96	A Top				10,750	5.0	0.43	1.65			3,839	33,018	126,696	4,607	0.358		
F-191	PR Top	108,385	18,775	7438	8,229	1.0	0.40	0.41	6877		588	4,702	4,820	1,176	0.200	0.21	
F-191	PR Top	108,385	18,775	7438	8,229	1.1	0.47		6873		647	6,078	19,692	1,234	0.246	0.80	
Z-278	PR Top	108,860	18,376	7422	5,804	3.2	0.10	0.40	6883		1,327	2,653	10,613	1,741	0.076	0.30	
F-190	PR Top	108,599	18,606	7410	7,911	1.0	0.17	1.04	6891		565	1,921	11,753	1,130	0.085	0.52	
F-190	PR Top	108,599	18,606	7410	7,911	1.4	0.10	0.36	6881		791	1,582	5,696	1,356	0.058	0.21	
F-190	PR Top	108,599	18,606	7410	7,911	0.2	0.03	5.02	6876		113	68	11,347	678	0.005	0.84	
WW07-1	B Top	108,748	16,883	7452	5,947	1.5	0.84		6892		637	10,654	34,518	1,062	0.502	1.63	
WW07-3	A Top	108,838	18,061	7435	5,086	7.5	0.11		6876		2,725	5,885	19,068	2,725	0.108	0.35	
WW07-4	A Top	108,824	18,192	7435	7,230	1.5	0.10		6907		775	1,503	4,869	1,291	0.058	0.19	
WW07-4	A Top	108,824	18,192	7435	7,230	2.0	0.43		6886		1,033	8,883	28,780	1,549	0.287	0.93	
WW07-5	A Top	108,636	18,236	7432	10,415	1.5	0.57		6898		1,116	12,766	41,361	1,860	0.343	1.11	
WW07-7	PR Top	108,595	18,400	7416	6,875	4.5	0.24		6889		2,210	10,740	34,797	2,701	0.199	0.64	

Hole ID	Stope ID	Mineralized Holes		Collar	Area	Thickness	Grade % U <sub>3</sub> O <sub>8</sub>	Mineralization Grade Base		Total Depth	Tons of Material	In Place Pounds		Pounds V <sub>2</sub> O <sub>5</sub>	Diluted Grade		Grade V <sub>2</sub> O <sub>5</sub>
		East	North					% V <sub>2</sub> O <sub>5</sub>	Elevation			U <sub>3</sub> O <sub>8</sub>	V <sub>2</sub> O <sub>5</sub>		U <sub>3</sub> O <sub>8</sub>	V <sub>2</sub> O <sub>5</sub>	
WW07-8	PR Top	108,761	18,568	7407	5,804	1.5	0.06		6895		622	771	2,498	1,036	0.037	0.12	
WW07-9	PR Top	108,828	18,435	7412	8,281	1.0	0.23		6902		592	2,697	8,739	1,183	0.114	0.37	
WW07-10	PR Top	109,216	18,596	7399	9,558	1.5	0.53		6877		1,024	10,814	35,038	1,707	0.317	1.03	
WW07-12	PR Top	109,043	18,751	7417	6,400	2.0	0.08		6879		914	1,390	4,503	1,371	0.051	0.16	
Z-343	PR Top	108,762	18,170	7435	8,670	1.3	0.43	1.83	6899		805	6,924	29,466	1,424	0.243	1.03	
H-293	A Top	108,794	18,274	7423	9,620	1.0	0.36	1.60	6899		687	4,947	21,989	1,374	0.180	0.80	
H-293	A Top	108,794	18,274	7423	9,620	1.0	0.33	1.80	6894		687	4,535	24,737	1,374	0.165	0.90	
WW07-15	C Top	108,077	18,340	7446	8,138	1.5	0.09		6912		872	1,569	5,085	1,453	0.054		
WW07-26	D Top	106,860	19,420	7504	9,479	2.0	0.12		6914		1,354	3,250	10,530	2,031	0.080	0.26	
D-584	D Top	106,845	19,310	7510	9,294	2.2	0.26				1,460	7,595	24,606	2,124	0.179	0.58	
WW-08-35	PR Top	109,310	18,559	7403	6,563	1.5	0.67		6883		703	9,423	30,529	1,172	0.402	1.30	
WW-08-36	PR Top	109,240	18,392	7416	10,000	1.0	0.18		6894		714	2,571	8,331	1,429	0.090	0.29	
<b>Drill Hole Subtotal</b>		<b>TOTALS/AVERAGES</b>				<b>2.5</b>	<b>0.27</b>	<b>0.89</b>			<b>139,648</b>	<b>743,156</b>	<b>2,481,220</b>	<b>186,315</b>	<b>0.199</b>	<b>0.67</b>	

\*\*Resources in south part of Packrat Mine based on evaluation of Long Hole and Surface Hole data on maps

PR Stope	1 apprx center	109,350	19,850				0.28		6815-6840		650	3,680	11,923	650	0.28	0.92
PR Stope	2 apprx center	109,600	19,650				0.22		6822-6841		2,450	10,850	53,735	2,450	0.22	0.72
PR Stope	3 apprx center	109,550	19,400				0.19		6834-6848		3,350	12,884	51,267	3,350	0.19	0.62
PR Stope	4 apprx center	109,000	19,100				0.25		6830-6859		1,250	6,230	20,185	1,250	0.25	0.81
PR Stope	5	108,810	18,770				0.30		6890		200	1,200	3,888	200	0.30	0.97
PR Stope	6 apprx center	109,780	20,215				0.31		6820		250	1,550	5,022	250	0.31	1.00
<b>Stope Areas Subtotal</b>							<b>0.22</b>				<b>8,150</b>	<b>36,394</b>	<b>146,021</b>	<b>8,150</b>	<b>0.223</b>	<b>0.90</b>

<b>INDICATED RESERVES:</b>		<b>TOTALS/AVERAGES</b>					<b>0.26</b>	<b>0.89</b>			<b>147,798</b>	<b>779,550</b>	<b>2,627,240</b>	<b>194,465</b>	<b>0.200</b>	<b>0.68</b>
											21,331	223,772	666,098	33,768	0.331338	0.986285
							<b>0.30</b>	<b>0.97</b>			<b>169,129</b>	<b>1,003,322</b>	<b>3,293,338</b>	<b>228,233</b>	<b>0.220</b>	<b>0.72</b>

Notes: Coordinates are scaled from maps  
Hole id's in ( ) are intercepts included in preceeding entries  
Duplicate hole id's not in ( ) are intercepts separated by enough waste to be mined separately  
Vanadium grades are listed where assays were taken, otherwise, estimated at the district average V<sub>2</sub>O<sub>5</sub>:U<sub>3</sub>O<sub>8</sub> ratio 3.24:1  
Tonnage factor is 14 cu ft/ton  
Dilution is 1.0 ft of waste when intercept less than 6.0 ft, then appropriate fraction of a foot up to 7.0 feet of intercept  
No dilution is included for intercepts greater than 7.0 ft  
Cotter '96-ore found in Cotter's 1996 drilling. Location, thickness, and depth not known, but somewhere in Area A  
Cut-off U3O8 grade of 0.06%, three exceptions, F-190 and Z-369, where V2O5 is high grade and Z-215

\*\* see sheet named "Packrat" for break-down of each stope area

PRELIMINARY PACKRAT MINE RESOURCES

(areas of Packrat Mine where longholes exist and rib scans have been made. Also some nearby drillholes.)

Hole ID	Stope ID	Mineralized Holes-surface or long hole					Grade % U <sub>3</sub> O <sub>8</sub>	Mineralization		Total Depth	Tons of Ore	In Place	
		East	North	Collar	Area	Thickness		Grade % V <sub>2</sub> O <sub>5</sub>	Base Elevation			Pounds U <sub>3</sub> O <sub>8</sub>	Pounds V <sub>2</sub> O <sub>5</sub>
	1	109,180	19,880				0.30		6814		50	300	972
	1	109,190	19,835				0.23		6817		50	230	745
	1	109,245	19,855				0.20		6817		50	200	648
	1	109,270	19,825				0.25		6830		150	750	2,430
	1	109,315	19,785				0.40		6830		50	400	1,296
	1	109,320	19,880				0.18		6838		100	360	1,166
	1	109,375	19,830				0.50		6840		100	1,000	3,240
	1	109,540	19,865				0.22		6836		100	440	1,426
subtotal							0.28				650	3,680	11,923
F-79	2	109,690	19,650	7470.41	5833	1.2	0.21	2.00	6821.8		500	2,100	19,999
	2	109,475	19,650				0.25		6832		200	1,000	3,240
	2	109,615	19,665				0.25		6835		50	250	810
	2	109,625	19,655				0.25		6835		50	250	810
	2	109,700	19,635				0.25		6835		50	250	810
	2	109,680	19,625				0.35		6835		100	700	2,268
Z-173	2	109,549	19,622	7476.02	11052	1.9	0.21	0.86	6841		1,500	6,300	25,799
subtotal							0.22				2,450	10,850	53,735
	3	109,440	19,520				0.20		6837		500	2,000	6,480
	3	109,350	19,330				0.30		6839		100	600	1,944
	3	109,425	19,330				0.50		6844		100	1,000	3,240
	3	109,540	19,250				0.25		6846		150	750	2,430
Z-182	3	109,557	19,200	7437.85	10000	0.7	0.18	0.81	6844.9		500	1,800	8,100
	3	109,600	19,305				0.20		6845		150	600	1,944
	3	109,555	19,325				0.30		6841		100	600	1,944
	3	109,490	19,365				0.30		6834		100	600	1,944
	3	109,530	19,345				0.20		6840		100	400	1,296
	3	109,605	19,475				0.25		6848		300	1,500	4,860
	3	109,615	19,530				0.30		6840		150	900	2,916
Z-174	3	109,754	19,518	7455.41	2,545	2.0	0.13	0.30	6843.1		364	931	2,181
Z-174	3	109,754	19,518	7455.41	2,545	3.5	0.06	0.83	6834		636	764	10,562
	3	109,695	19,440				0.22		6842		100	440	1,426
subtotal							0.19				3,350	12,884	51,267

	4	108,930	19,100		0.20	6856		200	800	2,592
	4	109,055	19,170		0.30	6847		300	1,800	5,832
	4	109,075	19,075		0.20	6859		150	600	1,944
	4	108,975	19,050		0.25	6854		150	750	2,430
	4	108,990	19,010		0.20	6857		50	200	648
	4	108,960	19,000		0.25	6856		200	1,000	3,240
	4	108,925	18,965		0.19	6856		100	380	1,231
	4	108,870	19,000		0.50	6830		50	500	1,620
	4	108,895	19,165		0.20	6830		50	200	648
subtotal					0.25			1,250	6,230	20,185
*F-190	5	108,599	18,606	7410	0.17	6881		500	1,700	5,508
*F-191	5	108,385	18,775	7438	0.25	6873		800	4,000	12,960
	5	108,810	18,770		0.30	6890?		200	1,200	3,888
subtotal					0.23			1,500	6,900	22,356
	6	109,765	20,215		0.40	6820		100	800	2,592
	6	109,805	20,215		0.25	6820		150	750	2,430
subtotal					0.31			250	1,550	5,022
TOTALS	areas 1-6				0.223	0.87		9,450	42,094	164,489
					INDICATED RESOURCES: TOTALS/AVERAGES					

Notes: Coordinates are scaled from maps at centers of resource blocks  
Hole id's in ( ) are intercepts included in preceeding entries  
Duplicate hole id's not in ( ) are intercepts separated by enough waste to be mined separately  
Vanadium grades are listed where assays were taken, otherwise, estimated at the district average  $V_2O_5:U_3O_8$  ratio  
Tonnage factor is 14 cu ft/ton  
Dilution is 1.0 ft of waste when intercept less than 6.0 ft, then appropriate fraction of a foot up to 7.0 total feet intercept  
No dilution is included for intercepts greater than 7.0 ft  
\* Holes F-190 and F-191 are in the Whirlwind Drill Holes resources at greater tons and pounds of metals than here.

PRELIMINARY CROSSWIND PROPERTY RESOURCES

Table 17-2

(includes the Rajah 49, Cherokee Shaft, Thornton, Austin, north of Rajah 30, and scattered areas

Hole ID	Stope ID	Mineralized Holes					Grade % U <sub>3</sub> O <sub>8</sub>	Mineralization			Total Depth	Tons of Ore	In Place		Tons of Ore	Diluted	
		East	North	Collar	Area	Thickness		Grade % V <sub>2</sub> O <sub>5</sub>	Base Elevation	Pounds U <sub>3</sub> O <sub>8</sub>			Pounds V <sub>2</sub> O <sub>5</sub>	Grade U <sub>3</sub> O <sub>8</sub>		Grade V <sub>2</sub> O <sub>5</sub>	
Rajah 1	CW 68																
H-285	CW 68	114,104	17,037	7454	10,000	2.0	0.24		6852		1,429	6,857	22,217	2,143	0.160	0.52	
H-283	CW 68	114,195	17,196	7434	9,285	4.0	0.13		6858		2,653	6,897	22,348	3,316	0.104	0.34	
subtotal							0.17				4,081	13,755	44,565	5,459	0.126	0.41	
Austin/JB-21	CW 80																
JB-78-25	CW 80	118,162	19,622	7135	2,500	1.0	0.22		6792		179	786	2,546	357	0.110	0.36	
JB-78-55	CW 80	118,118	19,618	7132	2,500	1.0	0.50		6797		179	1,786	5,786	357	0.250	0.81	
JB-78-12 ?	CW 80	118,170	19,664	7124	2,500	0.9	0.11		6797		161	354	1,146	339	0.052	0.17	
JB-78-19	CW 80	118,050	19,618	7123	2,500	1.1	0.11		6794		196	432	1,400	375	0.058	0.19	
H-54	CW 80	117,955	19,685	7110	2,500	1.0	1.30		6794		179	4,643	15,043	357	0.650	2.11	
JB-78-17	CW 80	118,053	19,566	7129	2,500	1.2	0.10		6795		214	429	1,389	393	0.055	0.18	
X-37	CW 80	117,918	19,278	7155	2,500	2.0	0.28		6788		357	2,000	6,480	536	0.187	0.60	
subtotal							0.36				1,464	10,429	33,789	2,714	0.192	0.62	
JB-18 AREA	CW 60																
77-8	CW 60				2,500	1.2	0.18				214	771	2,499	393	0.098	0.32	
77-1	CW 60				2,500	1.2	1.44				214	6,171	19,995	393	0.785	2.54	
77-5	CW 60				2,500	1.2	0.28				214	1,200	3,888	393	0.153	0.49	
77-22	CW 60				2,500	1.2	0.14				214	600	1,944	393	0.076	0.25	
subtotal							0.51				857	8,743	28,327	1,571	0.278	0.90	
JB-16 AREA																	
77-11					2,500	1.3	0.10				232	464	1,504	411	0.057	0.18	
77-2					2,500	2.1	0.21				375	1,575	5,103	554	0.142	0.46	
77-13					2,500	1.2	0.14				214	600	1,944	393	0.076	0.25	
77-14					2,500	3.4	0.42				607	5,100	16,524	786	0.325	1.05	
77-?					2,500	1.0	0.30				179	1,071	3,471	357	0.150	0.49	
83-3					2,500	0.9	0.24				161	771	2,499	339	0.114	0.37	
subtotal		<i>Not on lease-East of CW 75 i.e. not in total</i>						0.27				1,768	9,582	31,046	2,839	0.169	0.55
Rajah 2/4	CW 42																
Z-403	CW 42	114,640	16,203	7538	10,000	2.4	0.21	0.46	6877		1,714	7,200	15,771	2,429	0.148	0.32	
Z-393	CW 42	114,463	16,097	7545	10,000	0.8	0.13	0.47	6887		571	1,520	5,371	1,286	0.059	0.21	
Z-393	CW 42	114,817	16,097	7502	10,000	0.6	0.36		6873		429	3,060	9,914	1,143	0.134	0.43	
H-300	CW 42 lower				10,000	4.0	0.16		6836		2,857	9,143	29,623	3,571	0.128	0.41	
subtotal							0.19				5,571	20,923	60,680	8,429	0.124	0.36	
Rajah 30 SW	CW 52																
Y-2	CW 52	110,598	13,352	7603	10,000	0.9	0.20	0.54	6889		643	2,571	6,943	1,357	0.095	0.26	
Z-361	CW 52	110,460	13,357	7617	5,155	1.1	1.45	6.43	7011		405	11,746	52,088	773	0.760	3.37	
subtotal							0.68				1,048	14,317	59,030	2,130	0.336	1.39	
Newheisel 56 K **	CW 81/82 CW 81/82	116,120	19,072	7177	10,000	0.4	0.57	22.90	6797		286	3,257	32,857	1,000	0.163	1.64	

Hole ID	Stope ID	Mineralized Holes					Grade % U <sub>3</sub> O <sub>8</sub>	Mineralization			Total Depth	Tons of Ore	In Place		Tons of Ore	Diluted	
		East	North	Collar	Area	Thickness		Grade % V <sub>2</sub> O <sub>5</sub>	Base Elevation	Pounds U <sub>3</sub> O <sub>8</sub>			Pounds V <sub>2</sub> O <sub>5</sub>	Grade U <sub>3</sub> O <sub>8</sub>		Grade V <sub>2</sub> O <sub>5</sub>	
BV-142	CW 81/82				10,000	3.1	0.20	0.11	6805		2,214	8,857	4,871	2,929	0.151	0.08	
57 K	CW 81/82	116,040	19,180	7168	10,000	0.9	0.31		6798		643	3,986	12,914	1,357	0.147	0.48	
subtotal							0.26				3,143	16,100	50,642	5,286	0.152	0.48	
Rajah 49	CW 66																
BV-143	CW 66	113,850	18,300	7382	6,400	2.0	0.23	1.30	6868		914	4,206	23,771	1,371	0.153	0.87	
A-14	CW 64			7064	10,000	2.3	0.11	0.13	6811		1,643	3,614	4,271	2,357	0.077	0.09	
subtotal							0.15				2,557	7,820	28,043	3,729	0.105	0.38	
<b>Past Drilling Subtotals</b>							<b>0.25</b>	<b>0.81</b>			<b>18,722</b>	<b>92,086</b>	<b>305,076</b>	<b>29,318</b>	0.157	0.52	

Notes:

Coordinates are scaled from maps

Hole id's in ( ) are intercepts included in preceeding entries

Duplicate hole id's not in ( ) are intercepts separated by enough waste to be mined separately

\*\*Vanadium grades are listed where assays were taken, otherwise, estimated at the district average V<sub>2</sub>O<sub>5</sub>:U<sub>3</sub>O<sub>8</sub> ratio; high-grade hole 56 K vanadium grade cut to 5.75% for pounds calculation

Tonnage factor is 14 cu ft/ton

Dilution is 1.0 ft of waste when intercept less than 6.0 ft, then appropriate fraction of a foot up to 7.0 total feet intercept

No dilution is included for intercepts greater than 7.0 ft

REVISED WHIRLWIND MINE RESOURCES

Utah state Section 16, ML-49312

Continuation of Whirlwind Mine Resource Blocks

Table 17-3

updated: 3/8/2011

Hole ID	Stope ID	Mineralized Holes			*** Area	Thickness	Grade % U <sub>3</sub> O <sub>8</sub>	Grade % V <sub>2</sub> O <sub>5</sub>	Mineralization Base Elevation	Total Depth	Tons of Material	In Place Pounds		Tons of Material	Diluted Grade	
		East	North	Collar								U <sub>3</sub> O <sub>8</sub>	V <sub>2</sub> O <sub>5</sub>		U <sub>3</sub> O <sub>8</sub>	V <sub>2</sub> O <sub>5</sub>
W76-65	16A Top	108,332	18,025	7440	1,563	0.8	0.32	6919	6882	89	572	1,852	201	0.142	0.46	
77-33	16A Top	108,238	18,098	7441	9,663	1.3	0.09	6910		897	1,615	5,233	1,587	0.051	0.16	
SL-08-03	16A Top	108,318	17,993	7446	2,980	1.0	0.11	6918		213	468	1,517	426	0.055	0.18	
SL-08-04	16B Top	108,254	17,071	7517	5,280	1.5	0.13	6945		566	1,471	4,766	943	0.078	0.25	
USL78-13	16B Top	108,291	17,058	7511	8,702	2.7	1.22	6942	6767	1,678	40,949	132,675	2,300	0.890	2.88	
USL78-14	16B Top	108,305	16,936	7525	10,802	1.5	0.12	6922	6854	1,157	2,778	9,000	1,929	0.072	0.23	
USL78-21	16B Top	108,188	17,054	7512	6,798	0.9	0.99	6942	6832	437	8,653	28,035	923	0.469	1.52	
Z-344	16B Top	108,339	17,585	7462	2,566	0.7	0.20	6916		128	513	4,106	312	0.082	0.66	
77-53	16C top	107,812	18,226	7459	3,339	3.9	1.39	6900	6744	930	25,858	83,780	1,169	1.106	3.58	
SL-08-02	16C2 Top	107,464	18,074	7478	11,370	3.5	0.13	6899		2,843	7,391	23,945	3,655	0.101	0.33	
USL78-7	16C2 Top	107,345	18,127	7470	11,442	1.0	0.16	6900	6770	817	2,615	8,474	1,635	0.080	0.26	
USL78-9	16C2 Top	107,475	18,118	7469	7,492	1.0	0.41	6895	6783	535	4,388	14,218	1,070	0.205	0.66	
Z-282	16C2 Top	107,362	18,212	7465	5,926	3.4	0.25	6907	6888	1,439	7,196	27,056	1,862	0.193	0.73	
Z-38	16D Low	106,715	18,210	7456	6,277	0.3	0.53	6912	6893	135	1,426	108	583	0.122	0.01	
Z-38	16D Top	106,715	18,210	7456	6,277	1.1	0.46	6917	6893	493	4,537	8,976	942	0.241	0.48	
77-80	16D Top	106,402	18,109	7474	10,846	1.9	0.38	6937	6893	1,472	11,187	36,245	2,247	0.249	0.81	
77-81	16D Top	106,497	18,117	7471	10,550	1.9	0.06	6934		1,432	1,718	5,567	2,185	0.039	0.13	
77-81	16D Top	106,497	18,117	7471	10,550	1.3	0.10	6938	6871	980	1,959	6,348	1,733	0.057	0.18	
77-87	16D Top	106,063	18,093	7493	10,410	2.7	0.19	6945	6886	2,008	7,629	24,718	2,751	0.139	0.45	
77-88	16D Top	106,184	17,893	7465	10,162	1.0	1.50	6956	6906	726	21,776	70,553	1,452	0.750	2.43	
USL78-2	16D Top	106,183	17,794	7494	11,370	1.1	0.28	6957	6794	893	5,003	16,209	1,706	0.147	0.48	
Z-340	16D Top	106,069	17,996	7481	9,752	2.1	2.19	6947	6883	1,463	64,071	152,716	2,159	1.484	3.54	
<b>Sec 16</b>	<b>INDICATED RESERVES:</b>	<b>TOTALS/AVERAGES</b>				<b>1.7</b>	<b>0.52</b>	<b>1.56</b>			<b>21,331</b>	<b>223,772</b>	<b>666,098</b>	<b>33,768</b>	<b>0.331</b>	<b>0.99</b>

- Notes:
- Coordinates are scaled from maps
  - Hole id's in ( ) are intercepts included in preceding entries
  - Duplicate hole id's not in ( ) are intercepts separated by enough waste to be mined separately
  - Vanadium grades are listed where assays were taken, otherwise, estimated at the district average V<sub>2</sub>O<sub>5</sub>:U<sub>3</sub>O<sub>8</sub> ratio
  - Tonnage factor is 14 cu ft/ton
  - Dilution is 1.0 ft of waste when intercept less than 6.0 ft, then appropriate fraction of a foot up to 7.0 feet of intercept
  - No dilution is included for intercepts greater than 7.0 ft
  - Holes Z-282 and Z-340 are composited thickness and grades of core assay values
  - Cut-off U3O8 grade of 0.06%
  - \*\*\* Blocks of holes near the property line are proportioned by property.

