Kaibab National Forest

Proposed Action

VANE Uranium Exploratory Drilling

USDA Forest Service,
Kaibab National Forest

July 16, 2009

INTRODUCTION

The Kaibab National Forest (KNF) is preparing an environmental impact statement (EIS) to analyze the impact of exploratory drilling on the Tusayan Ranger District. The applicant, VANE Minerals, Inc. (VANE), has submitted a Plan of Operations (PoO) to KNF to perform exploratory drilling at 24 drill site locations. VANE proposes to perform only exploratory drilling and does not propose any uranium mining at this time.

BACKGROUND

In 2006, VANE submitted a Plan of Operations to the Forest Service to drill exploration holes for uranium at a total of ten (10) sites within the Tusayan Ranger District, Kaibab National Forest. Public scoping was conducted through direct mailings to 30 interested individuals, a legal notice published in the *Arizona Daily Sun*, and a press release submitted to local and regional media outlets.

The Forest Service also conducted government-to-government consultation with the Havasupai Tribe, the Hopi Tribe, the Navajo Nation, the Hualapai Tribe, the Yavapai-Prescott Indian Tribe, and the Pueblo of Zuni, and conducted public scoping of tribal communities represented by the Bodaway-Gap, Cameron, Coalmine, Coppermine, Lechee, Leupp, and To'Nanees'Dizi Chapter Houses of the Western Navajo Agency. This coordination was conducted to solicit concerns that the tribes had regarding the drilling proposal. As a result of tribal concerns and comments, the proponent dropped three of the proposed drill sites and additional mitigation measures were developed for the proposal.

The proposed drilling project was analyzed through review of the following resources in the proposed project area including, but not limited to:

- threatened and endangered species, critical habitat, management indicator species, and Forest Service special-status species;
- invasive weeds, soils, and range;
- floodplains, wetlands, and municipal watersheds;
- archaeology; and
- wilderness, recreational, and roadless areas.

On the basis of review and analysis of the drilling proposal, resource issues, and public comments received, the Tusayan District Ranger determined that the analysis could be categorically excluded from documentation in an environmental assessment or EIS. Forest Service Handbook 1909.15, Chapter 30, Part 31.2 states that routine, proposed actions within any of several categories may be excluded from documentation in an EA or an EIS. Category 8, "Short-term (one year or less) mineral, energy, or geophysical investigations and their incidental support activities that may require cross-country travel by vehicles and equipment, construction of less than one mile of low standard road (Service Level D, FSH 7709.56), or use and minor repair of existing roads" was the category used for the original project. A Categorical Exclusion (CE) Decision Memo under the National Environmental Policy Act (NEPA) was completed in December 2007, and KNF approved VANE's plan to drill on the seven remaining sites. Exploratory drilling operations began in March 2008, and drilling on one site was completed.

A lawsuit was filed against the agency's use of a CE, and a Preliminary Injunction was ordered against any further uranium exploratory drilling. The Forest Service and litigants settled the case. The original agency decision has since been withdrawn, and an EIS will be completed on the remaining six sites from the previous project, plus the three previously dropped sites, and an additional fifteen sites VANE submitted to the Forest Service in 2007 and 2008.

PURPOSE OF AND NEED FOR ACTION

The agency's purpose is to analyze the proposals from VANE and any reasonable alternatives, including any mitigation measures to protect the surface resources in the areas of exploratory drilling in order to approve a plan of operations. The agency's need for action is based on statutes and policy that govern mining on NFS land. Most NFS land is subject to the location of certain minerals under the Mining Law of 1872, as amended (30 U.S.C. 21-54, et seq.), and the directives in Forest Service Manual 2810. Prospecting, locating and developing the mineral resources on NFS land are also subject to other rules and regulations. These include, but are not limited to, the 1897 Organic Administration Act, the 1960 Multiple-Use Sustained-Yield Act, the 1970 Mining and Minerals Policy Act, and Regulations at Title 36, Code of Federal Regulations, Part 228 Subpart A, which sets forth rules and procedures governing the use of NFS lands in conjunction with operations authorized by general mining laws.

The primary purpose of and need for this project is for VANE to locate and assess the quantity and commercial resource potential for uranium ore deposits, if any, on their existing mining claims on the Tusayan Ranger District of the KNF.

PROPOSED ACTION

The Forest Service proposes to authorize VANE to perform exploratory drilling at 24 drill sites (Figure 1). This Proposed Action would constitute exploratory drilling only. No mining extraction or transporting of uranium minerals for processing would be contemplated or permitted by this proposal. The proposed drill sites are located on mining claims owned by VANE and Uranium One; all exploratory drilling would be conducted by VANE. VANE has proposed to use existing roads; however, depending on the site, some road maintenance may be needed, such as spot surfacing, blading and erosion control. Depending on access, some small trees may need to be trimmed or removed.

As illustrated in Table 1, multiple exploratory boreholes would be drilled at each of the 24 drill sites to adequately assess the potential presence and depths of uranium-bearing breccia deposits. The expected duration of drilling activities varies at each location, but initial-phase drilling is expected to take anywhere between 7 and 30 days. Depending on results, some additional exploration drilling may occur at the same claim sites. The overall project is expected to take approximately 3 years from project commencement to reclamation.

Drilling Process Description

The initial drilling process consists of multiple holes drilled to a shallow depth (500 feet or less) to accurately define the breccia pipe target. The number of initial shallow holes varies by drill site and ranges from 0 to 12 (see Table 1). Upon completion of the shallow exploration holes,

multiple deep exploration holes (up to 2,000 feet) may be drilled to test the breccia pipe target for uranium mineralization. The number of deep drill holes varies by drill site and ranges from one to six.

The proposed drill hole diameter is 8 inches for the first 20 feet (for setting surface casing) and 6 inches for the remaining depth. The drilling circulation medium consists of compressed air, water, and foam; no toxic substances would be used. Other downhole additives that may be used include bentonite clay, lost circulation materials (drilling fluids), and cement. Drilling in wet formations may require up to 5,000 gallons of water per day, which would be purchased from a local ranch or nearby community, whichever is most readily available.

Site preparation would be minimal. Removal of some vegetation may be necessary for drill rig access to the claim area. A 20 × 15 × 6–foot deep pit would be excavated for containment of drilling fluids and cuttings. Where a pit is not possible, drill fluids and cuttings would be contained in a portable tank and hauled to a designated site. Excavated material would be used for backfilling; all topsoil would be stockpiled and used for reclamation.

Angle drilling may be used to avoid disturbance of sensitive sites. Work would be suspended and road travel discontinued during poor weather conditions when roads are muddy to avoid rutting and other resource damage.

Solid waste, consisting of trash and containers used in drilling operations, would be collected and transported off-site for disposal at an approved disposal site. Hazardous materials used at the drill sites include diesel fuel, gasoline, lubricants, and other fluids typically used in operating and maintaining heavy equipment. Up to 1,000 gallons of diesel fuel and gasoline would be stored in fuel delivery systems on the drill rig and in support vehicles, along with up to 100 gallons of drilling foam and lubricants.

Drill site equipment consists of the following:

- One truck-mounted (10-wheel) drill rig would remain on-site during operation;
- Two water trucks (10-wheel) would make an average of two trips per day to and from the site;
- One pipe truck (10-wheel);
- One air compressor or booster;
- One or more ¾-ton pickup trucks for access to and from the site as needed;
- Backhoe would be present on-site during initial site work and reclamation;
- Fuel trailer for hauling fuel to the site would remain on-site during operations;
- Flatbed trailer for hauling miscellaneous equipment would remain on-site during operations; and
- Self-contained travel trailer for drill crew and site security (no permanent structures are proposed).

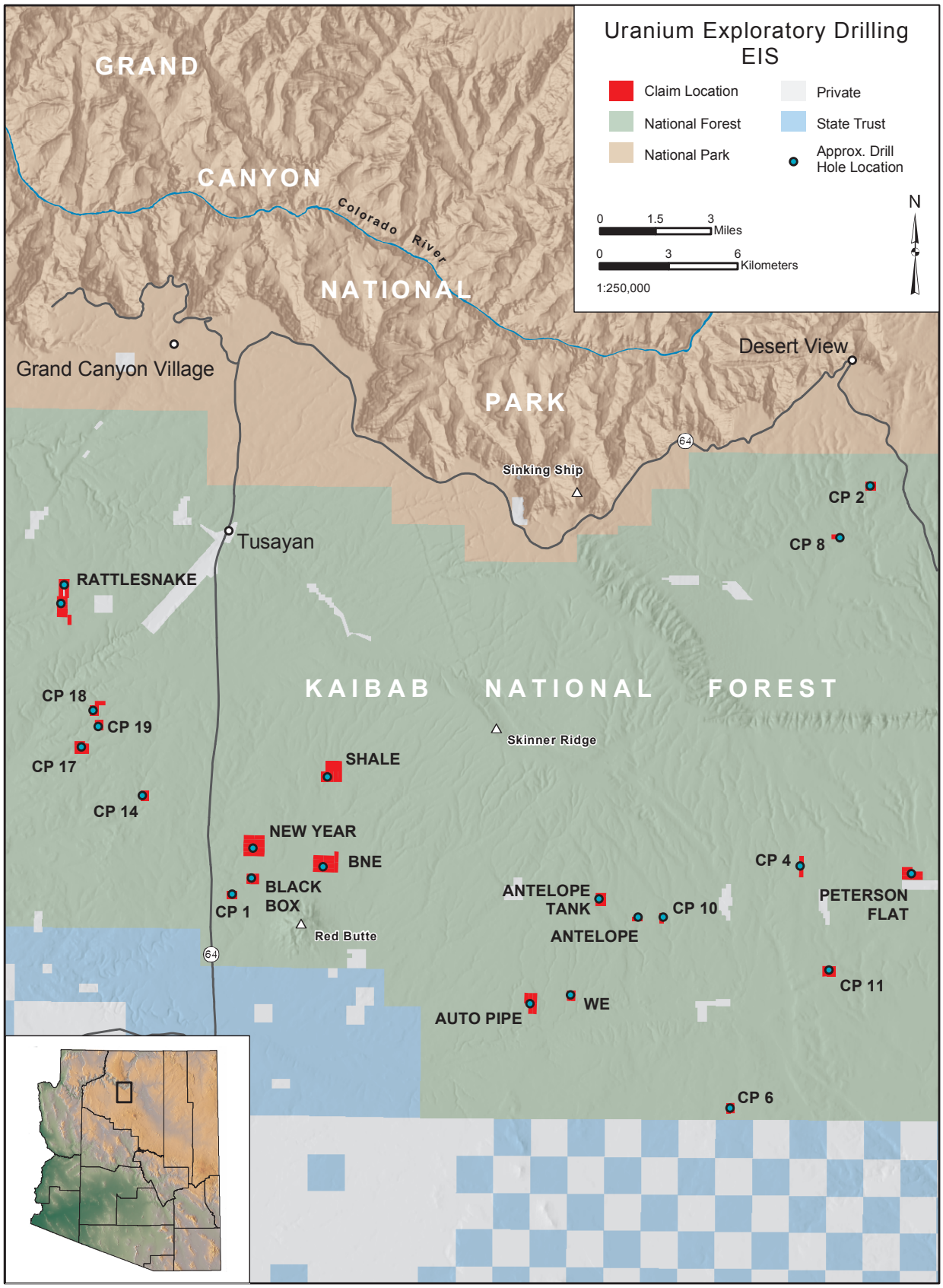

Figure 1. Location of the project area.

Table 1. VANE Plan of Operation Proposed Drill Site Description

Claim Name	Number of Drill Sites	Location (Township, Range, Section)	Number of Claims (20 acres each)	Number of Initial Drill Holes (500 feet deep)	Number of Follow-up Drill Holes (2,000 feet deep)	Site Access
CP 1	1	T28N, R2E, S1 and 12	2	8	2	Existing road: Forest Road (FR) 305
CP 2	1	T30N, R5E, S11–14	2	0	2	Existing road: FR 682
CP 4	1	T29N, R5E, S34 T28N, R5E, S3	3	7	2–3	Existing road: FR 320
CP 6	1	T27N, R5E, S5	2	4	2–3	Existing road: FR 2739
CP 8	1	T30N, R5E, S22 and 23	1	3	2–3	Existing road: FRs 682, 2807, and 627
CP 10	1	T28N, R4E, S12	1	5	2–3	Existing road: FR 320
CP 11	1	T28N, R5E, S14, 15, 22, and 23	3	8	2–3	Existing road: FRs 320, 305, 776, 305b, and 313
CP 14	1	T29N, R2E, S27	2	4	2	Existing road: FRs 347 and 2620
CP 17	2	T29N, R2E, S17 and 20	4	8	2–3	Existing road: FR 306
CP 18	2	T29N, R2E, S8, 9, 16, and 17	3	8	2–3	Existing road: FR 306
CP 19	1	T29N, R2E, S16	2	8	2–3	Existing road: FR 306
Antelope Project	1	T28N, R4E, S11	1	3–5	3–5	Existing road: FR 320
Antelope Tank	1	T28N, R4E, S3 and 10	3	8	2	Existing road: FRs 305 and 320
Auto Pipe Project	1	T28N, R4E, S20, 21, 27, and 28	5	12	6	Existing road: FRs 305 and 776
Black Box	1	T28N, R3E, S6	3	8	4	Existing road: FR 305
BNE Project	1	T28N, R3E, S4	8	12	6	Existing road: FR 305
New Year	1	T29N, R3E, S31	10	6	2	Existing road: FR 305
Peterson Flat Project	1	T28N, R6E, S6	6	12	6	Existing road: FRs 305, 305B, and 313
Rattlesnake Project	2	T30N, R2E, S29 and 32	9	8	2–3	Existing road: FRs 328, 335, and 2612
Shale Project	1	T29N, R3E, S21	9	6	2	Existing road: FRs 305, 305A, and 343
WE 11 Project	1	T28N, R4E, S22	2	12	6	Existing road: FRs 305, 776, and 305B

Drill Site Reclamation

All drill holes would be properly reclaimed in accordance with federal and state water quality standards outlined in 36 CFR Chapter II Part 228.8(b)(a) and the Arizona Department of Water Resources permit. If groundwater is encountered, the drill holes would be plugged in accordance with federal and state regulations. All drill holes would be plugged and capped prior to the drill rig exiting the drill site.

Once drilling operations are complete at any one site, reclamation would begin. First, drill cuttings would be returned to the open borehole as much as possible. Holes would then be plugged at the surface with 20-feet of concrete and marked, and pits used for fluid containment (if present) would be filled with stockpiled soils once the fluids in the pit dries. Drying time is dependent on weather conditions, but is estimated to be 1 to 4 weeks after drilling operations cease. Pits would be covered with at least 3 feet of topsoil or until radiation levels are equal to background levels in the immediate area. All equipment, waste, and trailers would be removed at the end of operations.

All drill sites and roads would be recontoured to approximate the original (pre-drilling) shape of the ground to blend in with the surrounding area. The area would be reseeded with a Forest Service–approved certified weed-free seed mix at the appropriate time of year and at an application rate appropriate for optimum seed sprouting and plant growth. Seeding would be completed using the broadcast method and hand or machine raked to a textured or rough condition. Seeded areas would be monitored for stability and revegetation success for a minimum of 3 years or until attainment of Forest Service revegetation standards have been met.

Reclamation activities would occur during all phases of the drilling process and involves management of drilling operations to contain cuttings and drilling fluids and keeping worksites clean and safe. Concurrent reclamation of roads and drill sites would be conducted to the extent possible during drilling operations. Final reclamation would be completed within 1 year of project completion or abandonment.

Resource Protection Actions

These actions would be taken to minimize potential negative impacts that may occur as a result of implementation of the Proposed Action. All exploration activities would be required to follow the Health and Safety Radiation Protection Guidelines for Forest Service Personnel Involved with the Administration of Uranium Exploration Operations. (The "guidelines" are currently in final review as Proposed Health and Safety Plan Amendment to Forest Service Health and Safety Handbook, FSH 6709.11, Chapter 20, Section 22.8 Minerals and Geology). Further mitigation measures may be developed to address issues raised during the analysis and/or the public involvement process. They are:

1. Project sites are to be kept clean at all times. Operators shall comply with applicable federal and state standards for the disposal and treatment of solid wastes. All garbage, refuse, or waste shall either be removed from NFS lands or disposed of or treated in order to minimize, so far as practicable, its impact to the environment and forest surface resources. All tailings, dumps, deleterious materials, or substances and other waste produced by operations shall be deployed, arranged, disposed of, or treated in order to minimize adverse impacts to the environment and forest surface resources.

2. In the event that fuel or waste fluids are spilled, the Forest Service will be notified and the affected soil will be removed for disposal off-site.
3. Vehicles will stay on designated driving routes to avoid excessive soil and vegetation disturbance.
4. Work will be suspended during poor weather conditions or when soils are wet and saturated.
5. Drilling fluid and cuttings would be confined to fluid pits or portable tanks.
6. Portable tanks will be used in place of fluid pits in areas of shallow soils, and in areas where suitable sites (5% slope or less) cannot be located. In areas with highly erosive soils, certified weed-free straw wattles will be placed around the fluid pit and secured with rebar stakes to prevent water from running into the pit while in use. After filling the pit, certified weed-free mulch (e.g., straw) will be spread across the disturbed soil, and the area will be reseeded with native plants. The straw wattles will be kept around the pit to prevent runoff from eroding the soil or removing the mulch and seed from the reclaimed area.
7. Mud pits will be covered with a minimum of 3 feet of topsoil so that radioactivity levels are returned to background levels.
8. Operators shall take all practicable measures to maintain and protect wildlife and wildlife habitat that may be affected by the operations. Fencing is to be placed around fluid/mud pits to protect wildlife and livestock. Open fluid pits will be not only fenced but netted to prevent access into the pit by birds and bats.
9. Operators shall maintain all roads in order to ensure adequate drainage and minimize or, where practicable, eliminate damage to soil, water, and other resource values.
10. To prevent fire, all equipment, including small gas engines for generators and water pumps, will have spark arresters. All equipment that is on-site or entering or exiting the site will have chemical fire extinguishers which are to be readily accessible during drilling operations. Drill rigs and water pumps will have hoses with nozzles with pressure suitable for use in the event of a fire. Seasonal fire restrictions (if implemented) will be followed by the operator.
11. To prevent the importation and/or spread of noxious and invasive exotic weed species, all heavy equipment will be washed before being taken into project areas. To avoid the spread of weeds, vehicles must be cleaned of all plant material when moving from an area of infestation. (Note: no noxious or invasive exotic weed populations were found during surveys of the drilling sites in 2007.)
12. New locations of noxious or invasive exotic weed populations will be documented. Existing weed populations will be treated at each project site before drilling. Ground disturbance at project sites will be minimized in order to prevent new weed populations.
13. Surveys will be conducted during the appropriate season for detection and identification of noxious or invasive exotic weeds for at least 3 years following project completion. New weed populations will be controlled as necessary.
14. VANE will notify the Forest Service when uranium ore deposits are located so that interested tribal communities can be notified by the Forest Service.

15. Archaeological surveys will be conducted in advance of all project activities to identify heritage properties that may be affected by the project. Site specific mitigation measures for the protection of heritage properties will be developed according to the Section 106 process of the National Historic Preservation Act.
16. Operators will permanently mark individual claim boundary corners with a T-post and 4-inch × 4-foot piece of white plastic pipe. Each corner will be identified with the claim number, name, and description (i.e., CP 3, NE corner).
17. Seasonal restrictions will be imposed at certain drill sites if it is determined that exploratory drilling operations could negatively affect sensitive wildlife species.
18. If condors are sighted at a drill site, the Forest Service will be contacted immediately and any project-related activity likely to harm the condor will halt immediately until the condor flies away or is driven away by permitted personnel (U.S. Fish and Wildlife Service or Peregrine Fund personnel). Project personnel will be instructed to avoid interfering with condors.

Contacts For More Information

For further information on the VANE Minerals Uranium Exploratory Drilling Project, please contact Tom Mutz, Lands and Minerals Staff Officer, in writing at Williams and Tusayan Ranger Districts, 742 South Clover Road, Williams, AZ 86046 or by telephone at (928) 635-5600. Questions regarding the Forest Service NEPA process may be directed to Alvin Brown, Forest NEPA Coordinator, at 800 South 6th Street, Williams, AZ 86046 and by telephone (928) 635-8200.