Erik Best Kennecott Exploration Company 4700 Daybreak Parkway South Jordan, UT 84009 USA T + 1 (801) 363-5870

Fedex Delivery

March 7, 2018

State of New Mexico Energy, Minerals and Natural Resources Department Director, Mining and Minerals Division 1220 South Saint Francis Drive Santa Fe, New Mexico, 87505

Re: Part 3 Minimal Impact Exploration Operation; Kennecott Exploration Company; Hidalgo County

To Whom It May Concern

Please find attached, six copies of Kennecott Exploration Company's Minimal Impact Exploration Operation Permit Application (Part 3) together with a check in the amount of \$500.00 as application fee.

If you have any questions or concerns regarding the application, please do not hesitate to contact me at (801) 363-5870.

Sincerely,

KENNECOTT EXPLORATION COMPANY

Bar Z

Erik Best Land Manager

cc. R. Franklin A. Jergenson D. Fischer Kennecott Exploration Company 4700 South Daybreak Parkway South Jordan, Utah 84095, US

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Bank of America N.A. 100 WEST 33RD STREET NEW YORK, 10036 NC USA

Bank of America



32-1/1110

DATE: 2018-03-05 Y/A M/M D/J

PAY: FIVE HUNDRED DOLLARS AND ZERO CENTS

**\$500.00

U.S. Dollars

TO THE ORDER OF: STATE OF NEW MEXICO 1220 SOUTH SAINT FRANCES DR. SANTA FE NM 87505

"0080001941" #111000012# 442 770 4008"

PART 3 MINIMAL IMPACT EXPLORATION OPERATION

PERMIT APPLICATION

Accompanying instructions for this permit application are available from MMD, and on MMD webpage:

http://www.emnrd.state.nm.us/MMD/MARP/MARPApplicationandReportingForms.htm

Send 6 copies of the completed application to:

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

Director Mining and Minerals Division 1220 South Saint Francis Drive Santa Fe, New Mexico 87505 Telephone: (505) 476-3400

Webpage: www.emnrd.state.nm.us/MMD/index.htm

CHECK OFF LIST TO DETERMINE YOUR PROJECT'S STATUS AS A MINIMAL IMPACT EXPLORATION OPERATION:

Yes	√ No	My project will exceed 1000 cubic yards of excavation, per permi	t.

Yes No Surface disturbances for constructed roads, drill pads and mud pits <u>will</u> <u>exceed 5 acres</u> total for my project.

Yes Vo My project is located in or is expected to have a direct surface impact on wetlands, springs, perennial or intermittent streams, lakes, rivers reservoirs or riparian areas.

Yes No My project is located in designated critical habitat areas as determined in accordance with the federal Endangered Species Act of 1973 or in areas determined by the Department of Game and Fish likely to result in an adverse impact on an endangered species designated in accordance with the Wildlife Conservation Act, Sections 17-2-37 through 17-2-46 NMSA 1978 or by the State Forestry Division for the Endangered Plants Act, section 75-6-1 NMSA 1978.

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Yes 🔽 No My project is located in an area designated as Federal Wilderness Area,
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		Wilderness Study Area, Area of Critical Environmental Concern, or an area within the National Wild and Scenic River System.
Yes	✓ No	My project is located in a known cemetery or other burial ground.
Yes	√ No	My project is located in an area with cultural resources listed on either the National Register of Historic Places or the State Register of Cultural Properties.
Yes	[√] No	My project will or is expected to have a direct impact on ground water that has a total dissolved solids concentration of less than 10,000 mg/L, except exploratory drilling intersecting ground water may be performed as a minimal impact operation.
Yes	✓ No	My project is expected to use or using cyanide, mercury amalgam, heap leaching or dump leaching in its operations.
Yes	✔ No	My project is expected to result in point or non-point source surface or subsurface releases of acid or other toxic substances from the permit area.
🗌 Yes	✓ No	My project requires a variance from any part of the Mining Act Rules as part of the permit application.

If you answer <u>yes</u> to any of the above questions, your project <u>does not</u> qualify as a minimal impact exploration operation.

Confidential Information

Yes V No Is any of the information submitted in this application considered by the applicant to be confidential in nature? If yes, please provide this information separately and marked as "confidential."

Timeline

- Exploration applications must be provided no less than 45 days prior to the anticipated date of operations desired by the applicant.
- Renewal applications shall be filed at least 30 days preceding expiration of the current permit. Permits are valid for one year.
- Approved permit is valid for one year from the date of approval.

SECTION 1 – OPERATOR INFORMATION (§304.D.1)

Project Na	me: Lordsburg West	
Nearest To	wn To Project: Lordsburg, NM	
Applicant N	Name and Contact Information (entity	obligated under the Mining Act):
Name:	Kennecott Exploration Company	v, Attn: Erik Best, Land Manager
Address:	4700 Daybreak Parkway, South	Jordan, UT 84009
Office Pho	ne: : 801-363-5870	Cell Phone:
Fax Numbe	er:	Email: erik.best@riotinto.com
Name of O	n-Site Contact, Representative, or C	onsultant:
Name:	Arron Jergenson	
Address:	3316 W 2100 S Suite B	
	Salt Lake City, UT 84119	
Office Pho	ne: (801)-204-3881	Cell Phone: (608)-279-7367
Fax Numbe	er:	Email: arron.jergenson@riotinto.com

SECTION 2 – RIGHT TO ENTER INFORMATION (§302.D.1)

A. Describe or attach copies of documents that give the applicant the right to enter the property to conduct the exploration and reclamation, include: lease agreements, access agreements, right of way agreements, surface owner agreements, and claim numbers, if applicable.

See attached BLM 3809 Notice; NMSLO Plan of Operations. In addition, Kennecott has an Exploration Agreement with Option for the patented mining claims held by Comstock Allied LLC

Attachment

B. List the names and addresses of surface and mineral ownership within the proposed permit area. If the mineral is federal mineral, indicate as federal mineral, but provide the name of the claim holder or lease holder.

Surface Estate Owner(s):

Name	Address	Phone #
U.S. BLM	301 Dinosaur Trail	505-954-2000
	Santa Fe, NM 87508	
U.S. Forest Service		
State of NM	310 Old Santa Fe Trail	505-827-5750
	Santa Fe, NM 87504	
Private/Corporate	PO Box 1226	505-850-2897
Name: Comstock Allied LLC	Cedar Crest, NM 87008	
Other Patented Mining Cla	ims	
Name:		

Lease Holder(s) of Surface Estate (if applicable):

Name	Address	Phone #
Mineral Estate Owner(s):		
Name	Address	Phone #
Bureau of Land Management	301 Dinosaur Trail	505-954-2000
* See attached 3809 Notice at page 26	Santa Fe, NM 87508	
US Forest Service		
State of NM	310 Old Santa Fe Trail	505-827-5750
** See attached SNMLO Plan of Operations at page 50	Santa Fe, NM 87504	
Claim/Lease Holder		
Name:		
Claim Numbers:		
Claim/Lease Holder		. <u>.</u>
Name:		
Claim Numbers:		
Other Patented Mining Claims	PO Box 1226	505-850-2897
Name: Comstock Allied LLC	Cedar Crest, New Mexico	

**See attached map figure 1e (figures at page 71)

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C. Has a Cultural Resource Survey been performed on the site?

Yes No

If yes, please provide the author, title, date and report number, and include a copy of the survey with this application, if possible:

Archaeologists Paul Rawson (SWCA Environmental Consultants) and Matthew Bradley (State of NM) have completed a Cultural Resource Survey over the proposed drill site locations and access routes. Currently, SWCA is drafting the report, once completed the report will be submitted to complement this application.

Attachment _____

D. Has a wildlife survey or vegetation survey been performed for the permit area?

Yes No If yes, please provide the author, title, date and report number, and include a copy of the survey with this application, if possible:

Attachment _____

SECTION 3 – MAPS AND PROJECT LOCATION (§302.D.2)

A. Project Location:

Township	22S	Range	19W	Section	32,33
Township	23S	Range	19W	Section	4,5,7,8,13
Township	23S	Range	19W	Section	16,17,29,33

List the drill hole/exploration name and the GPS coordinates for each site.

I.D.	Northing /	Easting /	I.D.	Northing /	Easting /
Number	Latitude	Longitude	Number	Latitude	Longitude
PDS18-A PDS18-B PDS18-C PDS18-C PDS18-E PDS18-F PDS18-F PDS18-H PDS18-H PDS18-I PDS18-K PDS18-L	704345.61 705395.00 705753.20 707054.41 705286.60 705390.79 706799.96 706683.56 705189.87 706498.93 705579.05 711671.71	3577394.23 3577967.08 3578375.73 3580212.81 3581114.38 3579905.06 3580639.55 3572081.94 3575910.46 3575852.84 3573076.90 3577128.73			

Coordinate system used to collect GPS data points:

NAD83 Geographic

NAD83 UTM Zone 13 (or 12)
WGS 1984

NAD27 Geographic
 NAD27 UTM Zone 13 (or 12)
 Other: WGS84 UTM Zone 12

Attachment <u>NA</u> (for listing additional boreholes)

B. Maps (see application form instructions for examples of maps to be included):

Are topographic maps included with the application that show the following items:

Yes – The boundary of the proposed exploration project Permit Area

Yes – The proposed exploration locations (i.e., borehole locations)

Yes – Existing roads, new roads and overland travel routes

Yes N/A – Areas of proposed road improvement

Attachments Figs.1a-1d

Are maps or figures included with the application showing the approximate dimensions and locations of drill pads and other disturbances:

Yes – Drill pad dimensions and constructed drill pad locations

Attachments Figs. 1e-1g

C. Provide detailed driving directions to access the site:

Access to Sites PDS18A-PDS18-G (North of Interstate 10): Traveling West from Lordsburg, NM on I-10 take Exit 15 (Gary) then follow the following:

PDS18-A: proceed North (right) on Unnamed road 0.09 miles. Follow first unnamed Western road (left) 0.9 miles, then travel North (right) overland 0.08 miles to site.

PDS18-B: proceed North (right) on Unnamed road 0.09 miles. Follow entrance to unnamed road West and travel overland West 0.09 miles to site.

PDS18-C: proceed North (right) on Unnamed road 0.25 miles. Follow first unnamed road East (right) 0.18 miles East to site.

PDS18-D: proceed North (right) on Unnamed road 0.46 miles to intersection with unnamed road. Follow Northeast road (right) 0.81 miles to unnamed road. Follow unnamed road North (left) 0.42 miles to unnamed road. Follow unnamed road East (right) 0.14 miles to unnamed road. Follow unnamed road North (left) 0.10 miles to site.

PDS18-E: proceed North (right) on Unnamed road 0.46 miles to intersection with unnamed road. Follow Northeast road (right) 0.81 miles to unnamed road. Follow unnamed road North (left) 0.42 miles to unnamed road. Travel on unnamed road North/Northwest 0.91 miles. Travel overland 0.66 miles West (left) to site.

PDS18-F: proceed North (right) on Unnamed road 0.46 miles to intersection with unnamed road. Follow Northeast road (right) 0.81 miles to unnamed road. Follow unnamed road North (left) 0.42 miles to unnamed road. Follow unnamed road West (left) 0.91 miles. Travel overland North (right) 0.14 miles to site.

PDS18-G: proceed North (right) on Unnamed road 0.46 miles to intersection with unnamed road. Follow Northeast road (right) 0.81 miles to unnamed road. Follow unnamed road North (left) 0.42 miles to unnamed road. Keep traveling North on unnamed road 0.44 miles to site.

Access to Sites South of Interstate 10 (Sites-PDS18-I/J): Traveling West from Lordsburg, NM on I-10 take Exit 15 (Gary).

PDS18-I: Proceed South (Left) on unnamed road and follow road South/Southwest for 2.08 miles. Travel South/Southeast (left) overland 0.07 miles to site.

PDS18-J: Proceed South (Left) on unnamed road and follow road South/Southwest for 1.42 miles. Travel South/Southeast (left) overland 0.6 miles to site.

Access to Sites South of Interstate 10 (Sites-PDS18-H/K): Traveling West from Lordsburg, NM on I-10 take Exit 11 (Animas-NM 338 S).

PDS18-H: Proceed South on NM 338 for 2.02 miles. Head East on Sacaton Ln. for 2.5 miles. Turn East (left) on unnamed road and travel 2.79 miles East/Northeast/North. Travel East (right) overland 0.55 miles to site.

PDS18-K: Proceed South on NM 338 for 2.02 miles. Head East on Sacaton Ln. for 2.5 miles. Turn East (left) on unnamed road and travel 3.33 miles East/Northeast/North Travel West (left) overland 0.09 miles to site.

Access to Site PDS18-L:Exit 22 off of I-10 and head South on Main Street (State Route 494) and travel for 3.2 miles. Road turns into/follow Banner Mine Road. Head Northwest on unnamed road (gated). Road goes through property (Northwest, then Southwest and then East) and can be used to reach top of 85 Hill (PDS18-L).

SECTION 4 – EXPLORATION DESCRIPTION (§302.D.3 & 4)

- A. Anticipated exploration: Start Date: <u>April 16th, 2018</u> End Date: <u>April 15th, 2019</u>
- B. List the mineral(s)/element(s) to be explored for: Copper & associated base and

precious metals

C. Proposed method(s) of exploration:

Air drilling (air rotary, coring, etc.):
12 # of holes 1640 Depth (ft.) 4.5 Diameter (in.)
<u>12</u> # of drill pads <u>120</u> Length (ft.) <u>120</u> Width (ft.)
Will drill pads be graded/bladed or overland: Graded/bladed Overland
Will drill pads need some mechanical leveling (grading/blading): Yes No
Approx. Weight of Drill Rig (lbs.) 75000 Number of Axles: 3
Total length of drill stem that can be carried on the rig: 0
Is a support pipe truck anticipated? I Yes No Section Weight (lbs.)
Weight of support compressor (lbs.): NA Trailer mounted?
Anticipated Drilling Contractor: Layne Christensen License No. 71734
Mud/fluid drilling:
of holesDepth (ft.)Diameter (in.)
of drill padsLength (ft.)Width (ft.)
Will drill pads be graded/bladed or overland: Graded/bladed Overland
Will drill pads need some mechanical leveling (grading/blading): Yes No
Will a closed loop system be used or will mud/fluid pits be used?

If mud/fluid pits are proposed:

<u>12</u> # of pits <u>20</u> Length (ft.) <u>120</u> Width (ft.) <u>4</u> Depth (ft.)
Anticipated excavating equipment: Backhoe (Caterpillar)
How will excavating equipment be transported to the site (i.e., driven, low-boy, etc.):
Equipment will be driven out to site after being transported to laydown/staging
Will mud pits be lined?: I Yes No
If yes, proposed material to line the mud pits: Enviroliner 1020 (20 mil)
Approx. Weight of Drill Rig (lbs.) 75000 Number of Axles: 3
Anticipated Drilling Contractor: Layne Christensen License No. 71734
Test pits / exploratory trenches:
of pitsLength (ft.)Width (ft.)Depth (ft.)
Anticipated excavating equipment:
How will excavating equipment be transported to the site (i.e., driven, low-boy, etc.):

Other methods of exploration (i.e., cuts, shafts, tunnels, adits, declines, blasting, etc.). Indicate method and details:

TOTAL ACREAGE TO BE DISTURBED DUE TO DRILL PADS = 3.96	acres
(to convert to acres, multiply total square footage of drill pads by 0.0000229)	

D. Disposal of drill cuttings

	If thi agre activ site t	is exploration project is for es to perform a gamma rac ities. Applicant/Owner/Ope to pre-exploration levels.	r uranium or oth diation survey at rator agrees to Yes	ner radioactiv each drill sit restore gam No □ N	ve eleme e prior to ma radia /A	ents/minerals, applicant o, and after, exploration tion levels at each drill
	Will	excess drill cuttings be buri t each drill pad location	ed at each drill s	ite location c ngle disposal	r within a pit	a single disposal pit?
	ŀ	f a <u>single disposal pit</u> is pro	posed, please p	rovide the fol	lowing:	
	[Description or GPS coordina	ates of the propo	sed cuttings	disposal	pit location:
	[Dimensions of the single pro	posed cuttings	disposal pit (length, w	idth, and depth):
	4	20 Length (ft.)	10	Width (ft.)	4	Depth (ft.)
TC (to)TAL	20 Length (ft.) ACREAGE TO BE DIST vert to acres, multiply tota	<u>10</u> URBED DUE Il square footag	_Width (ft.) TO DISPOS ge of dispos	<u>4</u> SAL PIT al pit by	Depth (ft.) = <u>.0508</u> acres 0.0000229)
TC (to E.	D TAL Conv	20 Length (ft.) ACREAGE TO BE DIST vert to acres, multiply tota er Supporting Equipment (cl	<u>10</u> CURBED DUE Il square footag neck all that app	_Width (ft.) TO DISPOS ge of dispos ly):	4 SAL PIT al pit by	Depth (ft.) = <u>.0508</u> acres 0.0000229)
TC (to E.	DTAL conv Othe	20 Length (ft.) ACREAGE TO BE DIST vert to acres, multiply tota er Supporting Equipment (cl 4x4 Trucks/Vehicles	<u>10</u> TURBED DUE Il square footag neck all that app Quantity:	_Width (ft.) TO DISPOS ge of dispos ly): 5	4 SAL PIT al pit by	Depth (ft.) = <u>.0508</u> acres 0.0000229)
TC (to E.	DTAL CONV Othe	20 Length (ft.) ACREAGE TO BE DIST vert to acres, multiply tota er Supporting Equipment (cl 4x4 Trucks/Vehicles Water Truck	<u>10</u> TURBED DUE Il square footag neck all that app Quantity: Weight (lbs.):	Width (ft.) TO DISPOS ge of dispos ly): <u>5</u> 18,000	4 SAL PIT al pit by	Depth (ft.) = <u>.0508</u> _acres 0.0000229)
TC (to E.	DTAL CONV Othe	20 Length (ft.) ACREAGE TO BE DIST vert to acres, multiply tota er Supporting Equipment (cl 4x4 Trucks/Vehicles Water Truck Geophysical Truck	<u>10</u> TURBED DUE Il square footag neck all that app Quantity: Weight (lbs.): Weight (lbs.):	Width (ft.) TO DISPOS ge of dispos ly): 5 18,000	4 SAL PIT al pit by	Depth (ft.) = <u>.0508</u> acres 0.0000229)
TC (to E.	OTAL CONV Othe	20 Length (ft.) ACREAGE TO BE DIST vert to acres, multiply tota er Supporting Equipment (cl 4x4 Trucks/Vehicles Water Truck Geophysical Truck Pipe Truck (rig support)	<u>10</u> TURBED DUE Il square footag neck all that app Quantity: Weight (lbs.): Weight (lbs.): Weight (lbs.):	Width (ft.) TO DISPOS ge of dispos ly): <u>5</u> 18,000 54,000	4 SAL PIT al pit by	Depth (ft.) = <u>.0508</u> _acres 0.0000229)
TC (to E.	OTAL CONV Othe	20 Length (ft.) ACREAGE TO BE DIST vert to acres, multiply tota er Supporting Equipment (cl 4x4 Trucks/Vehicles Water Truck Geophysical Truck Pipe Truck (rig support) Bulldozer	<u>10</u> TURBED DUE Il square footag neck all that app Quantity: Weight (lbs.): Weight (lbs.): Weight (lbs.): Weight (lbs.):	Width (ft.) TO DISPOS ge of dispos ly): <u>5</u> 18,000 <u>54,000</u>	4 SAL PIT al pit by	Depth (ft.) = <u>.0508</u> acres 0.0000229)

Type:

Type:

Quantity: 2

List:

Quantity/Type: 1/small enclosed trailer for logging drill cl

Trackhoe

Trailers

Other

Scaper/Grader

Portable Toilet

 F. Roads and Overland Travel:

List of <u>new</u> roads to be constructed for this exploration project:

Description of NEW Roads	Length (ft.)	Width (ft.)	Total Acres (length x width x 0.0000229)
Road off of existing road through uneven surfaces to P	381	10	.087
TOTAL ACRES DISTURBED BY NEW ROAD C	CONSTRU	JCTION :	0.087

Describe how new roads will be constructed:

An excavator bucket (backhoe) will be used to build a short road starting from an existing road through to the overland travel route. This road will be created to safely gain access to PDS18-H Site. No new material from proposed construction will be needed. Road length is 381 feet but needs intermittent re-surfacing.

List for extension or widening of existing roads:

Description of Modification to EXISTING Roads	Length (ft.)	Width (ft.)	Total Acres (length x width x 0.0000229)
Intermittent re-contouring of diminished existing road	512	10	0.12
TOTAL ACRES DISTURBED BY ROAD II	MPROVE	MENTS :	0.12

Describe how existing roads will be extended or widened:

An excavator bucket will be used to re-contour eroded existing road. Length is 512 ft. but needs only intermittent re-contouring.

List for routes of overland travel:

Description of OVERLAND TRAVEL Routes	Length (ft.)	Width (ft.)	Total Acres (length x width x 0.0000229)
Mostly direct open routes to drill pad locations; minor	15685	10	3.59
TOTAL ACRES DISTURBED BY OVER	RLAND T	RAVEL :	3.59

G. Support Facilities

Describe (location and size) any support facility disturbances (equipment staging, equipment and material storage and/or lay down areas, vehicle parking, temporary housing and/or trailers) to be created or situated on the site during exploration operations.

One staging/lay-down area will be created on one of the proposed drill pads.

H. TOTAL ACREAGE TO BE DISTURBED BY PROJECT = $\frac{7.8078}{2}$ acres (include all disturbed acreage from drill pads, cuttings disposal pit, new roads, improved roads and overland travel routes)

***For clarification, while Kennecott has suggested that the total acreage is 7.8078 acres under this permit, at no point in time will Kennecott exceed 5 acres of disturbance. This number reflects a total acreage, including overland travel and contemplating all 12 drill sites are drilled, and does not contemplate concurrent reclamation. Kennecott plans to have a "rolling" program for both disturbance and bond purposes.

SECTION 5 - CHEMICAL USE (§302.D.4)

A. Check any and all chemicals that will be used for this project.

Drilling Mud (i.e., EZ Mud)	Type/Quantity:	Baroid Quick Gel/400 lbs.
Diesel Fuel	Quantity:	90 Gallons
Down-hole Lubricants	Type/Quantity:	AP mud lube/20 gallons
Lost Circulation Materials	Type/Quantity:	Baroid Quick Foam/20 gallons
Oils/Grease	Quantity:	5 gallons
Gasoline	Quantity:	20 gallons
Hydraulic Fluid	Quantity:	5 gallons
Ethylene Glycol	Quantity:	
Cement	Type/Quantity:	Portland Cement/500 lbs.
Water	Source:	City of Lordsburg, NM
Bentonite	Quantity:	
Fertilizer	Type/Quantity:	
Other	Type/Quantity:	Soda Ash/100 lbs.

B. Describe, in detail, a plan for the containment, use and disposal of all chemicals listed above:

Containment/Spill protection –Two 55-gallon drums with secure, clamped lids for oil/solvent spill clean-up to absorb an amount of oil equal to the volume of hydraulic oil and the volume of motor and transmission oil contained in the drill rig, and a sufficient number of oil absorbent pads capable of oil/solvent recoverv for spill C. Describe where equipment fueling/refueling will occur:

Fueling/refueling will occur on the proposed drill pads with adequate liner/containment.

D. Describe how hazardous material spills/leaks will be handled:

Daily inspections of all equipment will be conducted and documented. Part of the inspection includes looking for leaks on the equipment lines (i.e. hydraulic lines). If a leak is discovered absorbent pads will be used to soak up as much of the spilled/leaked material as possible. Pads will then be placed into a 55-gallon drum with secure/clamped lids and disposed of at a disposal center or under the guidance of regulatory authority. If spill occurs contact will be made with the proper regulatory authorities, New Mexico Environment Department/EPA, to report environmental

E. Identify spill cleanup materials that will be kept on-site (check all that apply):

Bentonite clay or cat litter						
Adsorbent pads, rolls, mats, socks, pillows, dikes, etc.						
Drum or barrel for containing contaminated soil/adsorbent materials						
Other/list:						
Other/list:						
Other/list:						

F. Applicant/owner/representative agrees to immediately notify the State of New Mexico immediately of any spills of hazardous materials (see page 1 of this application for phone numbers to notify):

SECTION 6 – GROUNDWATER/SURFACE WATER INFORMATION (§302.D.5)

A. Provide an estimate of depth to ground water and the total dissolved solids (TDS) concentration.

Depth to groundwater (ft.): 200 TDS concentration (mg/L): _____

Describe the source of this information:

USGS-National Water Information System (Hidalgo County-NM) No total dissolved solids (TDS) concentration information found for this area.

R	Will dewatering activities be conducted:	
D.	will dewatering activities be conducted.	

If yes, please describe:

C. Is groundwater anticipated to be encountered during exploration: I Yes No

If <u>YES</u>:

Have you completed Form WR-07 (Application for permit to drill a well with no consumptive use of water) and mailed it to the District Office of the State Engineer? Yes

Have you completed Form WD-08 (Well plugging plan of operations) and mailed it to the District Office of the State Engineer? Yes

Attachment _____ (copies of the completed WR-07 and WD-08 forms)

D. Exploration Borehole Abandonment

Dry Boreholes

Dry hole abandonment (option 1): 100% bentonite pellets/chips (i.e. HOLEPLUG® manufactured by Baroid Industrial Products), dropped from surface then hydrated in place according to the manufacturer's recommendations, emplaced from total depth to within 12 feet of the original ground surface, followed by 10 feet of neat cement, followed by 2 feet of topsoil/topdressing.

Dry hole abandonment (option 2): Neat cement slurry, mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 2 feet of the original ground surface, followed by 2 feet of topsoil/topdressing.

Dry hole abandonment (option 3): Cement + 6% bentonite slurry, mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 2 feet of the original ground surface, followed by 2 feet of topsoil/topdressing.

■ Dry hole abandonment (option 4): High-density bentonite clay (≥ 20% active solids; i.e. QUIK-GROUT® manufactured by Baroid Industrial Products), mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 12 feet of the original ground surface, followed by 10 feet of neat cement, followed by 2 feet of topsoil/topdressing.

Dry hole abandonment (option 5): Other materials / describe and justify use:

Wet Boreholes

- Wet hole abandonment (option 1): Neat cement slurry, mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 2 feet of the original ground surface, followed by 2 feet of topsoil/topdressing.
- Wet hole abandonment (option 2): High-density bentonite clay (≥ 20% active solids; i.e. QUIK-GROUT® manufactured by Baroid Industrial Products), mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 12 feet of the original ground surface, followed by 10 feet of neat cement, followed by 2 feet of topsoil/topdressing.

Wet hole abandonment (option 3): Other sealing material approved by the Office of the State Engineer. Describe and include well plugging plan approval by the State Engineer:

D. Applicant agrees to contain any water produced from the exploration borehole at the drill site and acknowledges that discharge of this water to a watercourse may be a violation of the Federal Clean Water Act:
 Yes
 No

- E. Is any drilling proposed to occur <u>within the channel</u> of any perennial, intermittent, or ephemeral streams? Yes No
- F. Is any drilling anticipated to occur <u>within 100 feet</u> of any perennial, intermittent, or ephemeral streams? Yes No

SECTION 7 – RECLAMATION & OPERATION PLAN (§302.D.6 AND 302.I.K)

A. Salvage/Preservation of Topsoil

Before any g	rading/bladii	ng or similar activ	ities occur in	relation to this	s project, opera	tor
agrees to sal	vage and pr	eserve all topsoil	and topdress	sing for use in	future reclamat	ion of
this project	Yes	🗌 No				

Describe how topsoil will be salvaged prior to initiation of exploration activities (check all that apply):

N/A – no construction work will occur, therefore no soil salvage is needed.

Excavated from drill pads and stored at each drill pa	ad
---	----

- Excavated from road improvements/construction and stored adjacent to road
- Excavated from mud/fluid pits and storage at each pit
- Other, describe:
- B. Erosion Control

Describe the best management practices that will be implemented to control erosion:

Silt fencing	Location:	
Straw waddles	Location:	
Straw bales	Location:	
Ditches/swales	Location:	
Berms/dikes/dams	Location:	Around perimeter of drill sites
Sediment basins	Location:	
Other or N/A	Type/Location:	

C. Wildlife Protection / Noxious Weed Prevention

Will the perimeter	of drill pits be f	enced to prevent wildlif	e entrapment?	Yes	🗌 No
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Proposed pit perimeter fence material: Chain link fence

Describe how the pit perimeter fencing will be installed and secured (i.e., T-posts, wooden stakes, etc.):

Fence will be secured with T-posts

Will at least	one s	ide of	the	interior	of	the	drill	pits	be	sloped	at	3:1	as	a r	amp	for	wildlife
escape?	Ye	s 🗌	No														

If No, will another type of constructed escape ramp be installed? Describe:

Applicant/Owner/Operator con	mmits to p	pressure-washing	or steam-clean	all equipment prior
to entering the permit area:	Yes	🗌 No		

D. Reclamation Details

Describe in general how re-contouring or re-establishment of the surface topography will be restored:

Re-contouring/re-establishment will be completed using a backhoe bucket. Before/during/after drilling photos will be taken, these will be used to re-establish the original surface topography. Describe how the reclamation of portals, adits, drilling fluid/mud and/or waste pits, shafts, ponds, roads and other disturbances will be performed:

Reclamation will be completed using a backhoe to backfill any drilling fluid and/or waste pits restoring landscape to the original topography.

Is seeding of the re	claimed areas	proposed:	Yes	🗌 No
If no, provide a	justification as	to why no	revegetation	is needed:

Plant mix to be used in the re-establishment of vegetation:

US Forest Service specified mix applied through broadcast at their recommended rate
 BLM specified mix applied through broadcast at their recommended rate
 Other:

Plant Name	Seeding Rate (lbs./acre)		Rate (lbs./acre)		
	-				
	_				
	_				
	_				
	_				
	_				
	_				
	_				
	_				
Broadcast applied or drill-seeded:	Broa	adcast	Drill-seeded		

Scarification Methods (check all that apply):

Primary tillage to greater than 6-inches depth of all constructed drill pads and roads

Secondary tillage of all constructed drill pads and roads, and/or overland travel routes

Chain drag or tire drag over seeds in areas used for overland travel

Light raking of soil over seeds in areas used for overland travel

🗌 None

Other/describe:

Mulch Use:

Certified weed-free straw mulch will be placed over areas that have been tilled/disced or ripped at a rate of 2 tons per acre, and will be crimped in place

No mulch is proposed

E. Reclamation Timeline

Applicant/Owner/Operator commits to reclamation of the disturbed area as soon as possible following the completion or abandonment of the exploration operation, unless the disturbed area is included within a complete permit application for a new mining permit:

Yes
No

Anticipated Start of Reclamation:

0-30 days after completion of drilling

□ 31-60 days after completion of drilling

Other/specify: As soon as exploration activites end; seasonal and weather dependent.

SECTION 8 – PERMIT FEES AND FINANCIAL ASSURANCE (§302.I.2 AND 5)

A. Financial assurance must be posted with Mining and Minerals Division prior to approval of this application. The acceptable forms of financial assurance are surety bonds, letters of credit, and certificates of deposit. Provide an estimate of, and an instrument for, the proposed financial assurance required by Subpart 3.

Surety Bond	
-------------	--

Letter of Credit

Cash Account / Certificate of Deposit

Estimated amount of financial assurance:

Or

Applicant will provide the amount of financial assurance calculated by MMD.

B. Attach the permit fees as determined pursuant to Subpart 2. The application fee for a minimal impact exploration permit is \$500.00.

Money Order/Cashier's Check Check

Check Number : 0080001939

Financial Institution: Bank of America

SECTION 9 - CERTIFICATION REQUIREMENT (§302.1.3 & 4)

I certify that I have personally examined and am familiar with the information submitted herein, and based on my inquiry of those individuals responsible for obtaining the information; I believe the submitted information is true, accurate, and complete. I agree to comply with the reclamation requirements set forth in this permit application and related correspondence, the New Mexico Mining Act and the Rules. Further, I certify that I am not in violation of any other obligation under the New Mexico Mining Act or the Rules adopted pursuant to that Act and I allow the Director to enter the permit area, without delay, for the purposes of conducting inspections during exploration and reclamation.

	En Br-	
Signature of Permittee of	Authorized Agent:	
Name (type or print):	Erik Best	
Title/Position:	Operating Officer	
	6 March 2018	

Date:

BLM 3809 Notice

Erik Best, Land Manager Kennecott Exploration Company 4700 Daybreak Parkway South Jordan, UT 84009 USA T +1 801 363-5870

Private and Confidential Status Requested

February 28, 2018

Joseph M. Navarro Environmental Protection Specialist U.S. Bureau of Land Management Las Cruces District Office 1800 Marquess Street Las Cruces, NM, 88005

Re: Notice of Intent to Conduct Mineral Exploration, Hidalgo County, New Mexico

Dear Mr. Navarro,

Kennecott Exploration Company ("Kennecott"), a subsidiary of Rio Tinto, with an address of 4700 Daybreak Parkway, South Jordan, UT 84009, Tel: 801-363-5870, (Federal Identification Number (FEIN) 52-1626611; New Mexico Business ID # 5600588) and pursuant to the BLM's § 3809 regulations, proposes to conduct Notice Level mineral exploration consisting of 9 rotary core drill holes on BLM lands in Hidalgo County, New Mexico. Kennecott holds mineral rights (unpatented mining claims) where current exploration under this notice is planned. <u>Kennecott will limit any surface disturbance on BLM</u> <u>lands subject to this Notice to less than five acres (emphasis supplied)</u>. Additionally, under this Notice, Kennecott will not conduct exploration in the "Lordsburg Playa".

A. Lands Affected:

Kennecott holds unpatented mining claims in Section 33 of Township 22S Range 19W NMPM, and Sections 4, 5, 7, 8, 17, 29, and 33 Township 23S Range 19W NMPM, Hidalgo County, New Mexico, where all work under this notice is contemplated (*the "Lands"; see claim information at Table 1 and maps at Figure 1a, 1b, 1c, and 1d*). These lands are approximately 6 miles SW of Lordsburg, NM. For access, Kennecott proposes using both existing trails that may require minimal maintenance, and also, overland travel where there is not significant disturbance planned. All drill sites and access roads/overland routes will be demarcated with "T" posts marked with flagging, prior to commencement of activities. Kennecott is aware of third party senior claims; Kennecott will ensure that the activities contemplated by this Notice will not impact those claims.

B. Cultural and Wildlife Resources:

Kennecott has commissioned a cultural resources survey as part of this Notice, with no identified cultural resources being impacted. Kennecott will submit a report of the survey as soon as practicable. In the event that Kennecott does find additional cultural resources impacting areas for disturbance under this

Notice, Kennecott will immediately cease activities impacting such areas and will report those findings to the New Mexico State Historical Preservation Office.

Consultation with the BLM did not identify any wildlife species of concern.

C. Commencement and Duration:

Anticipated drilling commencement date is approximately April 16, 2018, and is projected to last for up to 60 days, seasonally and weather dependent. Drilling operations are conducted on a schedule of 12 hours a day (one shift), 7 days a week. Reclamation of drill sites is anticipated to be completed at the cessation of exploration activities, seasonally and weather dependent.

D. Planned Activity:

Kennecott is planning a drill program of 9 drill holes on BLM lands. The total disturbance for all drill pads and maintenance to existing roads is **3.05 acres** (emphasis supplied).

Kennecott will utilize experienced drill contractors utilizing one (1) truck mounted "Schramm 685 drill rig" (*See photo at Figure 2*) and up to four (4) support trucks for the drilling operations. Reverse Circulation (RC) drilling is a drilling technique that uses the supply of air down through the center of the drill-string and rotary drilling bits to gain penetration and depth. This technology is being used increasingly in mineral exploration due to its ability to drill in difficult ground conditions with maximum sample recovery, and with reduced environmental impacts. Relatively small volumes of water are required to keep the drill bit cool during drilling. Some fine drill cuttings ("chips") are generated during drilling for geologic logging/sampling.

It is anticipated that it will take 3-5 days to drill and abandon each drill hole.

Kennecott and its drill contractors will access the sites with 4x4 Trucks/Vehicles. One of the support trucks is contemplated to be a 4000-gallon water truck.

E. Drill Pads

Nine (9) drill sites are proposed under this Notice. Most sites are located adjacent to existing trails or are in natural clearings; drill pads will may require minimal disturbance or levelled with earth moving equipment. The Schramm 685 drill rig requires a relatively small operating area of approximately 120 ft. x 120 ft (0.33 acres). These proposed sites will have exploratory boreholes drilled to depths up to 1640 ft with an average of 1500 ft.

There will be a sump associated with each drill pad, which will be lined and fenced off.

Additionally, trash will be removed daily and Kennecott will have hydrocarbon containment and fire suppression equipment on site.

One drill pad is envisioned to also be used as a staging area/lay down site.

F. Drill Access

Kennecott is proposing to use existing trails that may require minimal disturbance, and where practicable, use of overland travel that does not require any ground disturbance. There are numerous existing public roads and publically accessible trails on BLM lands. The existing roads/access trails run approximately north-south through the area and will be the primary access. Existing trails and Overland Travel Routes off of existing roads will be used to access the drill sites. For all areas and excepting UTV's and support trucks, Kennecott plans on using truck-mounted heavy equipment that minimizes surface disturbance.

Most of the planned drill sites are located, where possible, immediately adjacent to their access roads and will be located as such providing it does not impede public access. An additional 9388 feet (1.78 miles) of unprepared overland travel routes are planned. Table 1 shows the respective claim names and numbers with associated estimates of ground disturbance including disturbance at drill sites. Total disturbance under this Notice to the 9 drill sites and road requiring maintenance is estimated to total 3.05 acres.

G. Water Management

While potable water will be used for the drill program, groundwater may be encountered. Together with this Notice, Kennecott is seeking a New Mexico State Engineer "Application for Permit to Drill a Well with No Water Right" (NM State Engineer form WR-07)

Drill cuttings will be buried in lined sumps on site.

H. Water Source for Drilling:

Kennecott is planning on securing potable water in Lordsburg, NM, which will be transported to the site to support drilling and to make cement slurry used for drillhole abandonment.

I. Proximity to Water Bodies:

The proposed exploration program lands are located in rolling desert terrain with dry washes. There is no permanent water body nearby the lands covered by this Notice.

The planned access will cross seasonal water streambeds on pre-existing access roads/trails.

J. Signage Controls:

When the drill rig is operational, the drill site will be cordoned off and marked with highly visible signage including warning signs indicating that it is an active work site. Kennecott will have containment for all potential leaks of drill fluids and hydrocarbons at the drill sites. Additionally, the drill rig is fitted with fire precautions including engine and exhaust guarding, and adequate firefighting equipment will be available at drill sites.

K. Abandonment:

All drill holes will be abandoned to meet New Mexico State requirements. Holes will be abandoned immediately after drilling activities and will be cemented from bottom-to-top using "Portland" cement and water in a proportion to yield a slurry weight of approximately fifteen (15) pounds per gallon. This method of plugging will ensure successful long term plugging of each hole.

L. Drill Pad and Access Reclamation:

Kennecott's practice is to record the status of drill sites prior to ground disturbance, during drilling, and after reclamation to monitor and document the reclamation process.

All drill sites and access trails will be reclaimed in accordance with BLM and New Mexico State MMD requirements and Kennecott procedures. If required by the BLM and the MMD, reclaimed areas will be seeded with an approved seed mixture.

M. Bonding:

As part of this Notice, Kennecott is requesting a surety bond calculation from the BLM and MMD in an appropriate amount for the activities contemplated by the Notice. In order to comply with Kennecott's internal requirements, the bond amount will need to be on State or Federal Government letterhead.

N. Health, Safety, Environment and Communities (HSEC)

Kennecott is committed to the highest standards of Health, Safety, Environment and Communities (HSEC) practice. Kennecott uses an audited environmental management system and will implement an "Integrated Project Management Plan" for the proposed exploration program. This Management Plan will contain an "Emergency Response Plan", copies of permits, identified HSEC risks and controls, and Rio Tinto operational guidelines on drill site environmental management, reclamation, and fire control.

Kennecott is attaching to this Notice, Kennecott's guidance notes on Reclamation and Topsoil Management together with Kennecott's Ground Disturbance (*see Figure 3 and 4 respectively*)

If you have any questions or comments, or require further information, please contact me by email at <u>erik.best@riotinto.com</u>

Sincerely,

KENNECOTT EXPLORATION COMPANY

E. B.

Erik Best Land Manager

cc. R. Franklin A. Jergenson

Planned Drill Site ID	Associated Claim ID/(New Mexico Mining Claim)	Overland Route Claim ID/(New Mexico Mining Claim)	Disturbance (acres)
PDS18-A	LW225 & LW226/(NMMC 196664) & (NMMC 196665)	LW201 & LW225/(NMMC 196647 & 196664)	0.33
PDS18-B	LW239/(196673)	LW238 & LW262/NMMC 196674 & 196679)	0.33
PDS18-C	LW260/(NMMC 196681)	LW260/(NMMC 196681)	0.33
PDS18-D	LW346/(NMMC 196823)	LW346/(NMMC 196823)	0.33
PDS18-F	LW364/(NMMC 196757)	LW364/(NMMC 196757)	0.33
PDS18-G	LW403/(NMMC 196800)	LW403/(NMMC 196800)	0.33
PDS18-H	LS 003/(NMMC 197208)	LS003 & LS004 & LS005/(NMMC 197208 &197209 & 197210)	0.33
PDS18-I	LW141/(NMMC 196640)	LW141/(NMMC 196640)	0.33
PDS18-K	LW018/(NMMC 196547)	LW016 & LW018/(NMMC 196545 & 196547)	0.41
State PDS	None	LW416, LW436, LW437, LW438/(NMMC 196737 & 196777 & 196776 & 196775)	0



Figure 1a: Overview Map of Lands












Figure 2: Photo of Truck Mounted RC Drill Rig



Figure 3: Guidance Note of Ground Disturbance

Exploration

Procedure: Ground Disturbance - NAR

Role of Originator: HSEC Coordinator

Date approved: 22-Feb-2010

Document version number: 1.1

Purpose

This Procedure describes requirements for minimizing environmental impacts when carrying out activities that require vegetation and/or land clearing.

Scope

This Procedure applies to all RTX NAR employees and contractors involved in vegetation and/or land clearing activities, including road building, drill pad construction, air-strip construction, and trenching.

Accountabilities

Project Geologist

- Prior to beginning work, carefully plan all road building and other ground disturbance activities according to this guideline.
- Provide training to personnel to recognize endangered or valuable (commercial) species.
- Ensure all applicable regulations are adhered to.

Project Coordinator

- Develop project-specific procedures for ground disturbance activities and communicate them to contractors.
- Regularly inspect and correct deficiencies at the project site.

Contractors

 Ensure that environmental impacts associated with ground disturbance are managed according to legal requirements and project-specific procedures.

All Employees and Contractors

- Be aware of fire restrictions and forest or bush fire risks.
- Take all precautions to avoid starting fires.

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Procedure Detail

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1.0 General Requirements

All clearing activities must be planned and managed to expose the smallest practical area of land for the shortest amount of time, and to reclaim the area as soon as possible. The intent is to minimize disturbance without impacting on safety aspects (e.g. drill sites shall be as small as practicable without potential negative impact on safety). All regulations applicable to the activity must be defined and adhered to. Refer to NAR HSEC Legal Obligations Register.

The construction of access roads can result in hidden environmental and socio-economic impacts. The following must be considered when deciding to build roads:

- The cost of a road includes not just initial construction, but also maintenance and rehabilitation, as well as increased reputational and economic risk to KEX from impacts to the environment. Refer to RTX NAR Change Management Procedure.
- RTX must assume some responsibility for other users of the road and any impacts they
 might impose on the environment through hunting, fishing, camping, or other off road
 activities.

2.0 Planning

Prior to any ground disturbance, it is essential that all aspects of the activity are considered and planned carefully. Careful planning of a road or track will reduce environmental impacts, reduce maintenance costs, and make reclamation easier, cheaper, and more effective.

Planning must include the following:

2.1. Identification of Environmental Issues

Before beginning work, all project specific environmental issues related to ground disturbance must be identified in a risk assessment. To properly understand the site risks, an inspection of the length of the proposed route should be completed. The pre-existing site conditions must be documented with photos and/or an inspection report. For major disturbances and/or sensitive areas, a baseline environmental study and/or archaeological study, conducted by an appropriate professional, may be required.

2.2. Communication with Stakeholders

Discussions should take place with landowners/land managers and other key stakeholders prior to ground disturbance so their views can be taken into consideration. Local groups may provide information on alternative existing routes, areas to be avoided (sensitive or inaccessible areas, breeding grounds), or potential future uses of the road or track (which may influence the standard of construction). Consultation should continue as necessary during the work program and decommissioning stages.

2.3. Alternative Access Options

In difficult terrain, alternate methods of access (e.g. helicopter) may be less expensive and have less environmental impact. Existing roads should be used as much as possible. If using existing private roads, permission must be obtained from the appropriate road owner or manager, and RTX should provide for road maintenance. Consider scheduling the work for winter or dry season when

frozen or dry waterways may be used for access, and equipment may be driven over frozen or dry solid ground with minimal disturbance.

2.4. Determine the Best Route

Where available aerial photographs should be used to plan routes that:

- Maximize the use of existing adjacent tracks, to reduce the length requiring clearing;
- Follow the contour of the land;
- Make use of existing clearings and areas less prone to environmental impact (consider the possibility of driving vehicles directly over existing vegetation rather than clearing a track);
- Are located away from streams, wet areas, drainage features, steep slopes, areas of high erosion potential and other environmentally sensitive areas;
- Involve minimal stream crossings and require minimal tree clearing, particulalry of any old growth or mature trees or cacti; and
- Are visually unoblrusive to the general public (this is an aesthetic consideration as well as one that discourages any future potential recreational use). eg. dog-legs at intersections and meandering routes. See Figure 1.



Figure 1. Correct positioning and "dogleg" layout of a new track leaving an existing roadway

2.5. Development and Reclamation Plan

Before beginning construction, a Reclamation Plan must be developed. Refer to the RTX NAR Reclamation and Topsoll Management Procedure. Please note that reclaimation plans may be Incorporated into Project Management Plans as determined by the Project Geologist and HSEC Team. The decesion may be based on risk, project size and project complexity.

3.0 Construction

General Construction Requirements 3.1.

During road construction and other ground clearing activities, all efforts must be made to minimize the disturbance of vegetation, soil, and rock.

In addition, the following must be adhered to:

- Prior to work (if relevant), all equipment must be cleaned and checked so as to prevent the introduction of weeds.
 - Roads must be designed and constructed to match their intended use.
- Avoid working at times of animal migration, spawning, nesting, or calving.
- Work should be completed with the smallest, lightest machine suitable and safe for the Job.
- Only experienced, trained, and certified operators are permitted to use heavy equipment.
- The length and width of the road must be marked prior to beginning work to prevent overcutting.

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- Fuels and olls must be managed according to the RTX NAR Hazardous Materials Management Procedure.
- Employees and Contractors must be aware of fire restrictions and forest or bush fire risks and take all precautions to avoid starting fires.

3.2. Vegetation Removal and Management

The careful removal and management of vegetation and topsoil will minimize erosion and facilitate rehabilitation. Refer to the RTX NAR Reclamation and Topsoil Management Procedure.

- MINIMIZE VEGETATION AND SOIL DISTURBANCE, DO NOT CLEAR VEGETATION MORE THAN 6 MONTHS IN ADVANCE OF WHEN IT IS REQUIRED.
- Train personnel to recognize endangered or valuable (commercial) species to avoid culling them.
- Cut vegetation close to the ground (unless a dozer is to be used for road building).
- Leave an appropriate buffer zone around all waterways (check local regulatory requirements).
- As much as possible, leave large trees intact and weave the track around them (to reduce visual and commercial impact)
- Manage cut and cleared vegetation so that it does not degrade habitats or pose a fire hazard.
- Remove cut vegetation, decaying vegetation (mulch), topsoll, and subsoil and stockplle separately. If possible, leave the organic mat, roots, and topsoil intact. Refer to RTX NAR Reclamation and Topsoil Management Procedure.

3.3. Surface Water Management and Erosion Control

During clearing activities, surface water must be managed with water diversion systems in order to reduce the volume of water entering disturbed areas (run-on), and prevent ditch water (runoff) from draining directly to streams. Sediment should be controlled (settled and/or filtered) as close to source as possible using temporary structures such as straw bale barriers or silt fences.

Stream crossings must be constructed to an appropriate standard and in compliance with local regulations.

3.4. Reopening Old Tracks

When opening former tracks or access roads, overhanging vegetation and logs across the track must be cut rather than pushed out of the way with either an excavator or a dozer. All former drainage must be reopened and additional drainage installed wherever necessary.

- 4.0 Operation and Maintenance
 - Vehicles must drive at a reasonable speed and in a manner that minimizes soll erosion and disturbance to vegetation.
 - Disturbed areas, sediment control structures, and stream crossings must be inspected regularly.
 - To reduce and control dust, keep surfaces sprayed with water or a dust suppressant wherever practical, and reduce vehicle speeds.
 - All damage caused to existing roads and tracks during the course of exploration activities must be repaired.

4.1. Other Land Clearing Activities

Other land clearing operations generally disturb a much smaller area than access roads but are subject to similar environmental procedures. Site selection is critical for special use clearings such as airstrips and campsites that may see long-term use.

Airstrips on land require a large flat well drained area with clear approach and departure paths. Airstrips typically require stripping and stockpiling of topsoil to expose subsoil. Areas with coarse sand and gravel are ideal to promote natural drainage.

Special considerations for campsite selection are described in the RTX NAR Camp Management Procedure.

5.0 Drill Pads

Drill pads are to be kept to the minimum possible size required for safe and practical drilling operations and should be located in an area that requires minimal or no clearing wherever practical. All drill pad sites must be located an appropriate distance from drainages, water bodies, and environmentally sensitive areas.

All cleared topsoil, subsoils and vegetation are to be stockpiled separately and managed in accordance with the *RTX NAR Reclamation and Topsoil Management Procedure*. Reclamation of drill pads must also be conducted according to the RTX NAR *Reclamation and Topsoil Management Procedure*.

6.0 Bulk Sampling, Trenching and Borrow Pits

The following issues must be considered during excavation activities:

- Divert any water which could run into the work area.
- Use fences around the work area and/or shore or bench excavation walls as required to
 protect wildlife and human life
- If material with Acid Rock Drainage (ARD) potential or other hazardous geological material (such as Uranium) is encountered, it should be handled as per the RTX NAR Drilling Management Procedure (generally buried and capped).
- Any groundwater should be managed as per the RTX NAR Water Management Procedure.
- Refer to RTX NAR Rehabilitation and Topsoll Management Procedure.

7.0 Inspections and Audits

Periodic Inspections of cleared areas are to be undertaken by the Project Geologist or Project Coordinator. Sites are required to be Inspected for, but not limited to:

- Signs of erosion;
- Unnecessary driving off access roads and tracks; and
- Litter and rubbish.

References

- Prospectors and Developers Association of Canada (PDAC). Environmental Excellence in Exploration. 2002-2003. Available at: <u>URL:http://private.e3mining.com</u>. Accessed September 22, 2004.
- 2. NAR HSEC Legal Obligations Register
- 3. RT HSEC Interactions Procedure
- 4. RTX NAR Change Management Procedure
- 5. RTX NAR Contractor Management Procedure
- 6. RTX NAR Camp Management Procedure
- 7. RTX NAR Water Management Procedure
- 8. RTX NAR Drilling Management Procedure
- 9. RTX NAR Waste Management Procedure
- 10. RTX NAR Hazardous Materials Management Procedure
- 11. RTX NAR Reclamation and Topsoil Management Procedure
- 12. Project Specific HSEC Management Plan

Figure 4: Guidance Note of Reclamation and Topsoil Management

Exploration

Procedure: Reclamation and Top Soil Management - NAR

Role of Originator: HSEC Coordinator

Date approved: 21-Feb-2010

Document version number: 1.1

Purpose

This Procedure is to describe the proper handling of topsoil and the steps that must be followed for reclamation of areas disturbed by exploration activities.

Scope

This Procedure applies to all RTX NAR employees and contractors involved in topsoil management or reclamation activities, including reclamation of roads, trenches, drill pads, and camps.

Accountabilities

Project Geologist

- Develop a project-specific reclamation plan as early as possible in the program, and revise it as necessary as the project develops.
 - Ensure that reclamation work is successful and documented.

Project Coordinator

- Supervise and manage all earthworks and reclamation works on site.
- Periodically monitor reclaimed areas. -

Contractors

Ensure that earthworks and reclamation works are completed according to the project specific reclamation plan.

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1.0 General Requirements

The purpose of reclamation is to return disturbed sites to their near-original profile, drainage, and vegetation, to the maximum practical extent. Early and effective planning, prior to work commencing, is key to successful reclamation. All land disturbed by exploration activities must be reclaimed as soon as practical after the completion of the work (unless an alternative land use has been planned).

2.0 Topsoil Management

Topsoil must be carefully managed because it provides valuable nutrients, microorganisms, seeds, minerals, and rootstocks that are needed for successful reclamation following exploration activities. Topsoil management strategies must be included in a project specific reclamation plan (this can be part of the *Project HSEC Management Plan*), developed at the beginning of the project, and revised as required throughout the project.

The plan should include the following considerations:

- whether clearing and stripping of topsoll within a specific area can be avoided in the first place;
- Investigation of the area to be stripped to determine the depth of the soil horizons and the quality of the topsoil;
- timing of work and subsequent reclamation so that topsoil storage times are minimized (to protect soil integrity for reclamation);
- vegetation, topsoils and subsoils must be stripped and stockpiled separately, as per Figure
 Stockpile locations should be planned carefully to minimize movement of soils;
- design topsoil stockpiles to be spread out as low as possible, in windrows less than 2m high;
- protection of stockpiles from water runoff (drains may be required on slopes);
- wet topsoil should not be handled, as this tends to destroy soil structure;
- if stockpiles are to be stored for a long time, they should be revegetated (preferably with local seeds) to help prevent erosion;
- monitoring of the stockpiles to ensure avoidance of weed infestation;
- replacement of all topsoil and subsoll in the correct order of removal and thickness; and
- scattering cut vegetation over the area to minimize erosion, act as a seed source, for moisture retention, and shade for new growth during reclamation.



be stripped and stockpiled separately

3.0 Reclamation

3.1. Planning for Reclamation

Prior to work being done on an exploration project, a project specific reclamation plan (this can be part of the *HSEC Management Plan*) must be in place that sets objectives and criteria for success, and describes what will be done to achieve them.

The following issues must be considered in developing the reclamation plan:

the views and expectations of relevant landowners and stakeholders;

- future land use and resource demands (eg. landowners and stakeholders may want access roads left open);
- the scale of the disturbance;
- Identification of environmentally or culturally sensitive areas and/or features (eg. permafrost, wetlands, watercourses, wildlife habitat corridors, endangered or protected species, archaeological sites, etc);
- whether or not baseline studies are required (eg. water quality testing, wildlife and floral inventories), and whether or not environmental, or archaeological professionals are required to do the work;
- training of employees and contractors on their environmental obligations;
- timing of the work (reclamation should be done as soon as practical after work is completed and concurrently where possible);
- documentation requirements for pre disturbance and post disturbance conditions (photos taken from designated monitoring points, maps, inspection reports, soil profile logs, etc. as needed);
- re-contouring and other earthworks requirements (including topsoll management);
- revegetation or development of land for alternative use; and
- environmental monitoring and audits to determine the success of reclamation.

The reclamation plan must be revised as necessary during the work program. Refer to RTX NAR Change Management Procedure.

3.2. Implementing a Reclamation Program

The following actions must be considered during reclamation work (implementation will vary depending on the type and scale of disturbance):

- the general tidy up of any remaining waste, sample bags, survey tape, markers, etc.;
- removal of all temporary structures and facilities (fencing, water storage tanks, etc.) as well as any residual chemicals, hydrocarbons, or contaminated soil (according to the RTX NAR Hazardous Materials Management Procedure);
- installation of erosion control measures where required prior to vegetation establishment;
- re-contour land to re-establish (as close as possible) pre-disturbance topography and drainage patterns (refer to the RTX NAR Ground Disturbance Procedure);
- for extremely compacted areas, consider tilling/scarring/ripping to promote revegetation (see Figure 2);
- replacement of subsoil, topsoil, and vegetation cuttings in the proper order; and
- revegetation of the disturbed area as per section 2.0.



Figure 2. Compacted roads and tracks should be ripped to promote re-vegetation

Roads and Tracks 3.3.

In addition to those described in section 2.0, reclamation of roads and tracks will include the following considerations:

- the removal of all drains, culverts, and creek crossings; and
- placement of barriers and/or signs across track entrances to prevent access.

Drill Pads 3.4.

In addition to the considerations listed in section 2.0, reclamation of drill pads will include the following:

- Any sumps or other excavations should be filled in by replacing, in the correct order, excavated and stockplled material (refer to section 2.0)
- Hole plugging/capping, drill core management, and other requirements must be managed as per the RTX NAR Drilling Management Procedure and RTX NAR Water Management Procedure.

3.5. Trenches, Sumps, Bulk Sampling Sites, and Borrow Pits

In addition to those described in section 2.0, reclamation of excavated areas including trenches, sumps, bulk sample sites, and borrow pits will include the following considerations:

- borrow pit floors may require tilling if severely compacted;
 - if re-contouring to the original form is not possible, excavation walls are to be shored to a safe angle, to allow safe egress for people and wildlife;
 - when filling a trench or plt, soil should be lightly compacted, and slightly mounded to compensate for settling and to discourage water collection; and
 - pits should always be reshaped so that they are free draining.

3.6. Exploration Camps

Overnight and short-term campsites should be generally cleaned up and left as close as possible to their original condition. Long term exploration campsites should be reclaimed as per section 2.0.

In addition:

- toilet facilities are to be appropriately decommissioned and reclaimed (lime added and buried with at least 0.5 m of soil);
- sumps must be backfilled as per section 2.0;
- any stockpiled wastes and recyclable materials must be removed; and

any exotic plants are to be removed.

3.7. Revegetation

Re-establishment of vegetation is often the most effective form of erosion control and site stabilization. Requirements for revegetation will be site specific and should be considered in the planning phase.

Key factors to consider include:

- the objectives for revegetating disturbed areas (these may include erosion control, weed control, aesthetics, replace livestock forage, replace commercial forest species etc.);
- whether natural revegetation is sufficient (eg. from properly handled and re-spread topsoil), or is seeding and/or planting required;
- is an environmental professional required (to select appropriate species of plants, choose seeding and/or planting methods and densities, determine the need for fertilizers or mulches, etc.); and
- fences and/or guards may be required to protect seeds and/or young plants from wildlife.

3.8. Post Reclamation Works

After reclamation works have been completed, follow-up actions should include:

- erecting appropriate signage where necessary to advise that reclamation is in progress and
 personnel are not permitted to enter the area;
- final communication with land owners, land managers and other relevant stakeholders to demonstrate to them that work is completed, or obtain their input on what further work may be required;
- documentation of the reclamation procedures implemented (including photographs); and
- monitoring should continue until an inspection or environmental audit confirms that reclamation operations have been successfully completed.

4.0 Monitoring

All reclaimed areas must be monitored periodically to determine the success of the reclamation effort. Criteria for success should be determined during the planning stage of reclamation.

Environmental monitoring programs must define:

- the required frequency and duration of monitoring;
- monitoring methods to be used (photographs, inspection reports, water testing, etc.);
- monitoring parameters (eg. percentage cover compared to a control site, plant density, etc.);
- any ongoing requirements for sites contaminated by hydrocarbons or other chemicals; and
- contingency plans for areas of failed revegetation, erosion, weed infestations, etc.

References

- 1. Prospectors and Developers Association of Canada (PDAC). Environmental Excellence in Exploration. 2002-2003. Available at: <u>URL:http://private.e3mining.com</u>. Accessed September 22, 2004.
- 2. RTX NAR Change Management Procedure
- 3. RTX NAR Contractor Management Procedure
- 4. RTX NAR Hazardous Materials Management Procedure
- 5. RTX NAR Ground Disturbance Procedure
- 6. RTX NAR Drilling Management Procedure
- 7. RTX NAR Water Management Procedure
- 8. Project Specific HSEC Management Plan

New Mexico State Land Office Plan of Operations

Erik Best, Land Manager Kennecott Exploration Company 4700 Daybreak Parkway South Jordan, UT 84009 USA T +1 801 363-5870

Private and Confidential Status Requested

March 2, 2018

Jack Yates Minerals Manager New Mexico State Land Office 310 Old Santa Fe Trail PO Box 1148 Santa Fe, NM 87504-1148

Re: NM State Land Office; Kennecott Exploration Company's Plan of Operations for Mineral Exploration, Hidalgo County, New Mexico

Dear Mr. Yates,

Kennecott Exploration Company ("Kennecott"), a subsidiary of Rio Tinto, with an address of 4700 Daybreak Parkway, South Jordan, UT 84009, Tel: 801-363-5870, (Federal Identification Number (FEIN) 52-1626611; New Mexico Business ID # 5600588) proposes to conduct mineral exploration consisting of 2 rotary core drill holes on New Mexico State Land Office ("NMSLO") lands in Hidalgo County, New Mexico where Kennecott holds mineral rights (New Mexico State Mineral Permit numbers HG-0124 and HG-0126) where current exploration under this Plan is contemplated. Kennecott is seeking a separate New Mexico Energy, Minerals & Natural Resources Department, Mining & Minerals Division ("MMD") Additionally, Kennecott will not conduct exploration in the "Lordsburg Playa".

A. Lands Affected:

Kennecott holds State Mineral Permits in Section 32 Township 22S Range 19W NMPM, Sections 16 and 32 Township 23S Range 19W NMPM Hidalgo County, New Mexico, where all work under this Plan is contemplated (*the "Lands"; see maps at Figure 1a, 1b, 1c, and 1d*). These lands are approximately 6 miles SW of Lordsburg, NM. For access, Kennecott proposes using both existing trails that may require minimal maintenance, and also, overland travel where there is not significant disturbance planned. All drill sites and access roads/overland routes will be demarcated with "T" posts marked with flagging, prior to commencement of activities.

B. Cultural and Wildlife Resources:

Kennecott has commissioned a cultural resources survey as part of this Plan, with no identified cultural resources being impacted. Kennecott will submit a report of the survey as soon as practicable. In the event that Kennecott does find additional cultural resources impacting areas for disturbance under this

Plan, Kennecott will immediately cease activities impacting such areas and will report those findings to the New Mexico State Historical Preservation Office.

Consultation with the NMSLO did not identify any wildlife species of concern.

C. Commencement and Duration:

Anticipated drilling commencement date is approximately April 16, 2018, and is projected to last for up to 60 days, seasonally and weather dependent. Drilling operations are conducted on a schedule of 12 hours a day (one shift), 7 days a week. Reclamation of drill sites is anticipated to be completed at the cessation of exploration activities, seasonally and weather dependent.

D. Planned Activity:

Kennecott is planning a drill program of 2 drill holes on NMSLO lands. The total disturbance for all drill pads and maintenance to existing roads and new temporary road is **1.17 acres** (emphasis supplied).

Kennecott will utilize experienced drill contractors utilizing one (1) truck mounted "Schramm 685 drill rig" (*See photo at Figure 2*) and up to four (4) support trucks for the drilling operations. Reverse Circulation (RC) drilling is a drilling technique that uses the supply of air down through the center of the drill-string and rotary drilling bits to gain penetration and depth. This technology is being used increasingly in mineral exploration due to its ability to drill in difficult ground conditions with maximum sample recovery, and with reduced environmental impacts. Relatively small volumes of water are required to keep the drill bit cool during drilling. Some fine drill cuttings ("chips") are generated during drilling for geologic logging/sampling.

It is anticipated that it will take 3-5 days to drill and abandon each drill hole.

Kennecott and its drill contractors will access the sites with 4x4 Trucks/Vehicles. One of the support trucks is contemplated to be a 4000-gallon water truck.

E. Drill Pads

Two (2) drill sites are proposed under this Plan on NMSLO lands. Sites are located adjacent to existing trails or are in natural clearings; drill pads will may require minimal disturbance or levelled with earth moving equipment. The Schramm 685 drill rig requires a relatively small operating area of approximately 120 ft. x 120 ft (0.33 acres). These proposed sites will have exploratory boreholes drilled to depths up to 1640 ft with an average of 1500 ft.

There will be a sump associated with each drill pad, which will be lined and fenced off.

Additionally, trash will be removed daily and Kennecott will have hydrocarbon containment and fire suppression equipment on site.

One drill pad, likely on adjacent BLM lands where exploration activities are also contemplated, is envisioned to also be used as a staging area/lay down site.

F. Drill Access

Kennecott is proposing to use existing trails that may require minimal disturbance, and where practicable, use of overland travel that does not require any ground disturbance. There are numerous existing public roads and publically accessible trails on BLM and NMSLO lands. The existing roads/access trails run approximately north-south through the area and will be the primary access. Existing trails and Overland Travel Routes off of existing roads will be used to access the drill sites. For all areas and excepting UTV's and support trucks, Kennecott plans on using truck-mounted heavy equipment that minimizes surface disturbance.

Most of the planned drill sites are located, where possible, immediately adjacent to their access roads and will be located as such providing it does not impede public access. An additional 6297 feet (1.19 miles) of unprepared overland travel routes are planned. Total disturbance under this Plan to the 2 drill sites and road requiring maintenance and new temporary road is estimated to total 1.12 acres.

G. Water Management

While potable water will be used for the drill program, groundwater may be encountered. Together with this Plan, Kennecott is seeking a New Mexico State Engineer "Application for Permit to Drill a Well with No Water Right" (NM State Engineer form WR-07)

Drill cuttings will be buried in lined sumps on site.

H. Water Source for Drilling:

Kennecott is planning on securing potable water in Lordsburg, NM, which will be transported to the site to support drilling and to make cement slurry used for drillhole abandonment.

I. Proximity to Water Bodies:

The proposed exploration program lands are located in rolling desert terrain with dry washes. There is no permanent water body nearby the lands covered by this Plan.

The planned access will cross seasonal water streambeds on pre-existing access roads/trails.

J. Signage Controls:

When the drill rig is operational, the drill site will be cordoned off and marked with highly visible signage including warning signs indicating that it is an active work site. Kennecott will have containment for all potential leaks of drill fluids and hydrocarbons at the drill sites. Additionally, the drill rig is fitted with fire precautions including engine and exhaust guarding, and adequate firefighting equipment will be available at drill sites.

K. Abandonment:

All drill holes will be abandoned to meet New Mexico State requirements. Holes will be abandoned immediately after drilling activities and will be cemented from bottom-to-top using "Portland" cement and water in a proportion to yield a slurry weight of approximately fifteen (15) pounds per gallon. This method of plugging will ensure successful long term plugging of each hole.

L. Drill Pad and Access Reclamation:

Kennecott's practice is to record the status of drill sites prior to ground disturbance, during drilling, and after reclamation to monitor and document the reclamation process.

All drill sites and access trails will be reclaimed in accordance with NMSLO and New Mexico State MMD requirements and Kennecott procedures. If required by the NMSLO and the MMD, reclaimed areas will be seeded with an approved seed mixture.

M. Bonding:

Kennecott has posted a \$25,000 "Mega-bond" with the NMSLO. Additionally, Kennecott is seeking a separate bond to be held by the MMD for exploration work as contemplated by Kennecott.

N. Health, Safety, Environment and Communities (HSEC)

Kennecott is committed to the highest standards of Health, Safety, Environment and Communities (HSEC) practice. Kennecott uses an audited environmental management system and will implement an "Integrated Project Management Plan" for the proposed exploration program. This Management Plan will contain an "Emergency Response Plan", copies of permits, identified HSEC risks and controls, and Rio Tinto operational guidelines on drill site environmental management, reclamation, and fire control.

Kennecott is attaching to this Plan, Kennecott's guidance notes on Reclamation and Topsoil Management together with Kennecott's Ground Disturbance (*see Figure 3 and 4 respectively*)

If you have any questions or comments, or require further information, please contact me by email at <u>erik.best@riotinto.com</u>

Sincerely,

KENNECOTT EXPLORATION COMPANY

E. Br

Erik Best Land Manager

cc. R. Franklin A. Jergenson





Lordsburg West-Project Area









Figure 1d: Southern part of Lands



Lordsburg West-Road Maintenance/New Road/Overland Travel



Figure 2: Photo of Truck Mounted RC Drill Rig

Figure 3: Guidance Note of Ground Disturbance

Exploration

Procedure: Ground Disturbance - NAR

Role of Originator: HSEC Coordinator

Date approved: 22-Feb-2010

Document version number: 1.1

Purpose

This Procedure describes requirements for minimizing environmental impacts when carrying out activities that require vegetation and/or land clearing.

Scope

This Procedure applies to all RTX NAR employees and contractors involved in vegetation and/or land clearing activities, including road building, drill pad construction, air-strip construction, and trenching.

Accountabilities

Project Geologist

- Prior to beginning work, carefully plan all road building and other ground disturbance activities according to this guideline.
- Provide training to personnel to recognize endangered or valuable (commercial) species.
- Ensure all applicable regulations are adhered to.

Project Coordinator

- Develop project-specific procedures for ground disturbance activities and communicate them to contractors.
- Regularly inspect and correct deficiencies at the project site.

Contractors

 Ensure that environmental impacts associated with ground disturbance are managed according to legal requirements and project-specific procedures.

All Employees and Contractors

- Be aware of fire restrictions and forest or bush fire risks.
- Take all precautions to avoid starting fires.

Definitions

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1.0 General Requirements

All clearing activities must be planned and managed to expose the smallest practical area of land for the shortest amount of time, and to reclaim the area as soon as possible. The intent is to minimize disturbance without impacting on safety aspects (e.g. drill sites shall be as small as practicable without potential negative impact on safety). All regulations applicable to the activity must be defined and adhered to. Refer to NAR HSEC Legal Obligations Register.

The construction of access roads can result in hidden environmental and socio-economic impacts. The following must be considered when deciding to build roads:

- The cost of a road includes not just initial construction, but also maintenance and rehabilitation, as well as increased reputational and economic risk to KEX from impacts to the environment. Refer to RTX NAR Change Management Procedure.
- RTX must assume some responsibility for other users of the road and any impacts they
 might impose on the environment through hunting, fishing, camping, or other off road
 activities.

2.0 Planning

Prior to any ground disturbance, it is essential that all aspects of the activity are considered and planned carefully. Careful planning of a road or track will reduce environmental impacts, reduce maintenance costs, and make reclamation easier, cheaper, and more effective.

Planning must include the following:

2.1. Identification of Environmental issues

Before beginning work, all project specific environmental issues related to ground disturbance must be identified in a risk assessment. To properly understand the site risks, an inspection of the length of the proposed route should be completed. The pre-existing site conditions must be documented with photos and/or an inspection report. For major disturbances and/or sensitive areas, a baseline environmental study and/or archaeological study, conducted by an appropriate professional, may be required.

2.2. Communication with Stakeholders

Discussions should take place with landowners/land managers and other key stakeholders prior to ground disturbance so their views can be taken into consideration. Local groups may provide information on alternative existing routes, areas to be avoided (sensitive or inaccessible areas, breeding grounds), or potential future uses of the road or track (which may influence the standard of construction). Consultation should continue as necessary during the work program and decommissioning stages.

2.3. Alternative Access Options

In difficult terrain, alternate methods of access (e.g. helicopter) may be less expensive and have less environmental impact. Existing roads should be used as much as possible. If using existing private roads, permission must be obtained from the appropriate road owner or manager, and RTX should provide for road maintenance. Consider scheduling the work for winter or dry season when

frozen or dry waterways may be used for access, and equipment may be driven over frozen or dry solid around with minimal disturbance.

2.4. Determine the Best Route

Where available aerial photographs should be used to plan routes that:

- Maximize the use of existing adjacent tracks, to reduce the length requiring clearing; es.
- Follow the contour of the land;
- Make use of existing clearings and areas less prone to environmental impact (consider the 44 possibility of driving vehicles directly over existing vegetation rather than clearing a track);
- Are located away from streams, wet areas, drainage features, steep slopes, areas of high erosion potential and other environmentally sensitive areas;
- Involve minimal stream crossings and require minimal tree clearing, particulary of any old growth or mature trees or cacli; and
- Are visually unobirusive to the general public (this is an aesthetic consideration as well as one that discourages any future potential recreational use). eg. dog-legs at intersections and meandering routes. See Figure 1.



Figure 1, Correct positioning and "dogleg" layout of a new track leaving an existing roadway

Development and Reclamation Plan 2.5.

Before beginning construction, a Reclamation Plan must be developed. Refer to the RTX NAR Reclamation and Topsoll Management Procedure, Please note that reclaimation plans may be incorporated into Project Management Plans as determined by the Project Geologist and HSEC Team. The decesion may be based on risk, project size and project complexity.

3.0 Construction

3.1. General Construction Requirements

During road construction and other ground clearing activities, all efforts must be made to minimize the disturbance of vegetation, soil, and rock.

In addition, the following must be adhered to:

- Prior to work (if relevant), all equipment must be cleaned and checked so as to prevent the introduction of weeds.
 - Roads must be designed and constructed to match their intended use.
- Avoid working at times of animal migration, spawning, nesting, or calving.
- Work should be completed with the smallest, lightest machine suitable and safe for the job.
- Only experienced, trained, and certified operators are permitted to use heavy equipment.
- ÷ The length and width of the road must be marked prior to beginning work to prevent overcutting.

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- Fuels and oils must be managed according to the RTX NAR Hazardous Materials Management Procedure.
- Employees and Contractors must be aware of fire restrictions and forest or bush fire risks and take all precautions to avoid starting fires.

3.2. Vegetation Removal and Management

The careful removal and management of vegetation and topsoil will minimize erosion and facilitate rehabilitation. Refer to the RTX NAR Reclamation and Topsoil Management Procedure.

- MINIMIZE VEGETATION AND SOIL DISTURBANCE, DO NOT CLEAR VEGETATION MORE THAN 6 MONTHS IN ADVANCE OF WHEN IT IS REQUIRED.
- Train personnel to recognize endangered or valuable (commercial) species to avoid culling them.
- Cut vegetation close to the ground (unless a dozer is to be used for road building).
- Leave an appropriate buffer zone around all waterways (check local regulatory requirements).
- As much as possible, leave large trees intact and weave the track around them (to reduce visual and commercial impact)
- Manage cut and cleared vegetation so that it does not degrade habitats or pose a fire hazard.
- Remove cut vegetation, decaying vegetation (mulch), topsoll, and subsoil and stockplie separately. If possible, leave the organic mat, roots, and topsoil intact. Refer to RTX NAR Reclamation and Topsoil Management Procedure.

3.3. Surface Water Management and Eroslon Control

During clearing activities, surface water must be managed with water diversion systems in order to reduce the volume of water entering disturbed areas (run-on), and prevent ditch water (runoff) from draining directly to streams. Sediment should be controlled (settled and/or filtered) as close to source as possible using temporary structures such as straw bale barriers or silt fences.

Stream crossings must be constructed to an appropriate standard and in compliance with local regulations.

3,4. Reopening Old Tracks

When opening former tracks or access roads, overhanging vegetation and logs across the track must be cut rather than pushed out of the way with either an excavator or a dozer. All former drainage must be reopened and additional drainage installed wherever necessary.

- 4.0 Operation and Maintenance
 - Vehicles must drive at a reasonable speed and in a manner that minimizes soll erosion and disturbance to vegetation.
 - Disturbed areas, sediment control structures, and stream crossings must be inspected regularly.
 - To reduce and control dust, keep surfaces sprayed with water or a dust suppressant wherever practical, and reduce vehicle speeds.
 - All damage caused to existing roads and tracks during the course of exploration activities must be repaired.

4.1. Other Land Clearing Activities

Other land clearing operations generally disturb a much smaller area than access roads but are subject to similar environmental procedures. Site selection is critical for special use clearings such as airstrips and campsites that may see long-term use.

Airstrips on land require a large flat well drained area with clear approach and departure paths. Airstrips typically require stripping and stockpilling of topsoil to expose subsoil. Areas with coarse sand and gravel are ideal to promote natural drainage.

Special considerations for campsite selection are described in the RTX NAR Camp Management Procedure.

5.0 Drill Pads

Drill pads are to be kept to the minimum possible size required for safe and practical drilling operations and should be located in an area that requires minimal or no clearing wherever practical. All drill pad sites must be located an appropriate distance from drainages, water bodies, and environmentally sensitive areas.

All cleared topsoil, subsoils and vegetation are to be stockpiled separately and managed in accordance with the *RTX NAR Reclamation and Topsoil Management Procedure*. Reclamation of drill pads must also be conducted according to the RTX NAR *Reclamation and Topsoil Management Procedure*.

6.0 Bulk Sampling, Trenching and Borrow Pits

The following issues must be considered during excavation activities:

- Divert any water which could run into the work area.
- Use fences around the work area and/or shore or bench excavation walls as required to
 protect wildlife and human life
- If material with Acid Rock Drainage (ARD) potential or other hazardous geological material (such as Uranium) is encountered, it should be handled as per the RTX NAR Drilling Management Procedure (generally buried and capped).
- Any groundwater should be managed as per the RTX NAR Water Management Procedure.
- Refer to RTX NAR Rehabilitation and Topsoll Management Procedure.

7.0 Inspections and Audits

Periodic Inspections of cleared areas are to be undertaken by the Project Geologist or Project Coordinator. Sites are required to be inspected for, but not limited to:

- Signs of erosion;
- Unnecessary driving off access roads and tracks; and
- Litter and rubbish.

References

- Prospectors and Developers Association of Canada (PDAC). Environmental Excellence in Exploration. 2002-2003. Available at: <u>URL:http://private.e3mining.com</u>. Accessed September 22, 2004.
- 2. NAR HSEC Legal Obligations Register
- 3. RT HSEC Interactions Procedure
- 4. RTX NAR Change Management Procedure
- 5. RTX NAR Contractor Management Procedure
- 6. RTX NAR Camp Management Procedure
- 7. RTX NAR Water Management Procedure
- 8. RTX NAR Drilling Management Procedure
- 9. RTX NAR Waste Management Procedure
- 10, RTX NAR Hazardous Materials Management Procedure
- 11. RTX NAR Reclamation and Topsoil Management Procedure
- 12. Project Specific HSEC Management Plan

Figure 4: Guidance Note of Reclamation and Topsoil Management

Exploration

Procedure: Reclamation and Top Soil Management - NAR

Role of Originator: HSEC Coordinator

Date approved: 21-Feb-2010

Document version number: 1.1

Purpose

This Procedure is to describe the proper handling of topsoil and the steps that must be followed for reclamation of areas disturbed by exploration activities.

Scope

This Procedure applies to all RTX NAR employees and contractors involved in topsoil management or reclamation activities, including reclamation of roads, trenches, drill pads, and camps.

Accountabilities

Project Geologist

- Develop a project-specific reclamation plan as early as possible in the program, and revise it as necessary as the project develops.
 - Ensure that reclamation work is successful and documented.

Project Coordinator

- Supervise and manage all earthworks and reclamation works on site.
- Periodically monitor reclaimed areas. <u>نم</u>

Contractors

Ensure that earthworks and reclamation works are completed according to the project specific reclamation plan.

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1.0 General Requirements

The purpose of reclamation is to return disturbed sites to their near-original profile, drainage, and vegetation, to the maximum practical extent. Early and effective planning, prior to work commencing, is key to successful reclamation. All land disturbed by exploration activities must be reclaimed as soon as practical after the completion of the work (unless an alternative land use has been planned).

2.0 Topsoil Management

Topsoil must be carefully managed because it provides valuable nutrients, microorganisms, seeds, minerals, and rootstocks that are needed for successful reclamation following exploration activities. Topsoil management strategies must be included in a project specific reclamation plan (this can be part of the *Project HSEC Management Plan*), developed at the beginning of the project, and revised as required throughout the project.

The plan should include the following considerations:

- whether clearing and stripping of topsoil within a specific area can be avoided in the first place:
- Investigation of the area to be stripped to determine the depth of the soil horizons and the quality of the topsoil;
- timing of work and subsequent reclamation so that topsoil storage times are minimized (to protect soil integrity for reclamation);
- vegetation, topsoils and subsoils must be stripped and stockpiled separately, as per Figure
 Stockpile locations should be planned carefully to minimize movement of soils;
- design topsoil stockpiles to be spread out as low as possible, in windrows less than 2m high;
- protection of stockpiles from water runoff (drains may be required on slopes);
- wet topsoil should not be handled, as this tends to destroy soil structure;
- if stockpiles are to be stored for a long time, they should be revegetated (preferably with local seeds) to help prevent erosion;
- monitoring of the stockpiles to ensure avoidance of weed infestation;
- replacement of all topsoil and subsoil in the correct order of removal and thickness; and
- scattering cut vegetation over the area to minimize erosion, act as a seed source, for moisture retention, and shade for new growth during reclamation.



be stripped and stockplled separately

3.0 Reclamation

3.1. Planning for Reclamation

Prior to work being done on an exploration project, a project specific reclamation plan (this can be part of the HSEC Management Plan) must be in place that sets objectives and criteria for success, and describes what will be done to achieve them.

The following issues must be considered in developing the reclamation plan:

the views and expectations of relevant landowners and stakeholders;

- future land use and resource demands (eg. landowners and stakeholders may want access roads left open);
- the scale of the disturbance;
- Identification of environmentally or culturally sensitive areas and/or features (eg. permafrost, wetlands, watercourses, wildlife habitat corridors, endangered or protected species, archaeological sites, etc);
- whether or not baseline studies are required (eg. water quality testing, wildlife and floral inventories), and whether or not environmental, or archaeological professionals are required to do the work;
- training of employees and contractors on their environmental obligations;
- timing of the work (reclamation should be done as soon as practical after work is completed and concurrently where possible);
- documentation requirements for pre disturbance and post disturbance conditions (photos taken from designated monitoring points; maps, inspection reports, soil profile logs, etc. as needed);
- re-contouring and other earthworks requirements (including topsoil management);
- revegetation or development of land for alternative use; and
- environmental monitoring and audits to determine the success of reclamation.

The reclamation plan must be revised as necessary during the work program. Refer to RTX NAR Change Management Procedure.

3.2. Implementing a Reclamation Program

The following actions must be considered during reclamation work (implementation will vary depending on the type and scale of disturbance):

- the general tidy up of any remaining waste, sample bags, survey tape, markers, etc.;
- removal of all temporary structures and facilities (fencing, water storage tanks, etc.) as well
 as any residual chemicals, hydrocarbons, or contaminated soil (according to the RTX NAR
 Hazardous Materials Management Procedure);
- installation of erosion control measures where required prior to vegetation establishment;
- re-contour land to re-establish (as close as possible) pre-disturbance topography and drainage patterns (refer to the RTX NAR Ground Disturbance Procedure);
- for extremely compacted areas, consider tilling/scarring/ripping to promote revegetation (see Figure 2);
- replacement of subsoil, topsoil, and vegetation cuttings in the proper order; and
- revegetation of the disturbed area as per section 2.0.



Figure 2. Compacted roads and tracks should be ripped to promote re-vegetation

Roads and Tracks 3.3.

In addition to those described in section 2.0, reclamation of roads and tracks will include the following considerations:

- the removal of all drains, culverts, and creek crossings; and
- placement of barriers and/or signs across track entrances to prevent access.

Drill Pads 3.4.

In addition to the considerations listed in section 2.0, reclamation of drill pads will include the following:

- Any sumps or other excavations should be filled in by replacing, in the correct order, excavated and stockplied material (refer to section 2.0)
- Hole plugging/capping, drill core management, and other requirements must be managed as per the RTX NAR Drilling Management Procedure and RTX NAR Water Management Procedure.

3.5. Trenches, Sumps, Bulk Sampling Sites, and Borrow Pits

In addition to those described in section 2.0, reclamation of excavated areas including trenches, sumps, bulk sample sites, and borrow pits will include the following considerations:

- borrow pit floors may require tilling if severely compacted;
 - if re-contouring to the original form is not possible, excavation walls are to be shored to a safe angle, to allow safe egress for people and wildlife;
 - when filling a trench or pit, soil should be lightly compacted, and slightly mounded to compensate for settling and to discourage water collection; and
 - pits should always be reshaped so that they are free draining.

Exploration Camps 3.6.

Overnight and short-term campsiles should be generally cleaned up and left as close as possible to their original condition. Long term exploration campsites should be reclaimed as per section 2.0.

In addition:

- toilet facilities are to be appropriately decommissioned and reclaimed (lime added and buried with at least 0.5 m of soil);
- sumps must be backfilled as per section 2.0;
- any stockplied wastes and recyclable materials must be removed; and

any exotic plants are to be removed.

3.7. Revegetation

Re-establishment of vegetation is often the most effective form of erosion control and site stabilization. Requirements for revegetation will be site specific and should be considered in the planning phase.

Key factors to consider include:

- the objectives for revegetating disturbed areas (these may include erosion control, weed control, aesthetics, replace livestock forage, replace commercial forest species etc.);
- whether natural revegetation is sufficient (eg. from properly handled and re-spread topsoil), or is seeding and/or planting required;
- is an environmental professional required (to select appropriate species of plants, choose seeding and/or planting methods and densities, determine the need for fertilizers or mulches, etc.); and
- fences and/or guards may be required to protect seeds and/or young plants from wildlife.

3.8. Post Reclamation Works

After reclamation works have been completed, follow-up actions should include:

- erecting appropriate signage where necessary to advise that reclamation is in progress and personnel are not permitted to enter the area;
- final communication with land owners, land managers and other relevant stakeholders to demonstrate to them that work is completed, or obtain their input on what further work may be required;
- documentation of the reclamation procedures implemented (including photographs); and
- monitoring should continue until an inspection or environmental audit confirms that reclamation operations have been successfully completed.

4.0 Monitoring

All reclaimed areas must be monitored periodically to determine the success of the reclamation effort. Criteria for success should be determined during the planning stage of reclamation.

Environmental monitoring programs must define:

- Ihe required frequency and duration of monitoring;
- monitoring methods to be used (photographs, inspection reports, water testing, etc.);
- monitoring parameters (eg. percentage cover compared to a control site, plant density, etc.);
- any ongoing requirements for sites contaminated by hydrocarbons or other chemicals; and
- contingency plans for areas of failed revegetation, erosion, weed infestations, etc.

References

- Prospectors and Developers Association of Canada (PDAC). Environmental Excellence in Exploration. 2002-2003. Available at: <u>URL:http://private.e3mining.com</u>. Accessed September 22, 2004.
- 2. RTX NAR Change Management Procedure
- 3, RTX NAR Contractor Management Procedure
- 4. RTX NAR Hazardous Materials Management Procedure
- 5. RTX NAR Ground Disturbance Procedure
- 6. RTX NAR Drilling Management Procedure
- 7. RTX NAR Water Management Procedure
- 8. Project Specific HSEC Management Plan
Figures 1a-1g

















Figure 1g





Ideal Site Setup

w/Deck and Tank Site Plan 120'