DEPARTMENT OF ENVIRONMENTAL CONSERVATION

AIR QUALITY CONTROL MINOR PERMIT

Permit: AQ0837MSS01 **Preliminary – May 29, 2016**
Rescinds Permit: AQ0837CPT01 Revision 2

The Alaska Department of Environmental Conservation (Department), under the authority of AS 46.14 and 18 AAC 50, issues Air Quality Control Minor Permit AQ0837MSS01 to the Permittee listed below.

Permittee:	**Mystery Creek Resources, Inc.** 469 Stageline Loop Elko, NV 89801
Stationary Source:	**Nixon Fork Mine**
Location:	Latitude: 63º 15’ North; Longitude 154º 45’ West
Physical Address:	Near McGrath, Alaska 99627
Project:	Include 150 kW Cummins Generator to PSD Avoidance Limit
Permit Contact:	Blane Wilson, Phone (775) 401-1183

This project is classified under 18 AAC 50.508(6) for revising or rescinding the terms and conditions of a Title I permit. This permit satisfies the obligation of the Permittee to obtain a minor permit under 18 AAC 50. As required by AS 46.14.120(c) the Permittee shall comply with the terms and conditions of this permit.

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John F. Kuterbach
Manager, Air Permits Program

Table of Contents

Section 1 Emission Unit Inventory

1. **Emission Unit Authorization.** The Permittee is authorized to install and operate the emission units (EUs) listed in Table 1 in accordance with the terms and conditions of this permit and the minor permit application.

   Except as noted elsewhere in this permit, the information in Table 1 is for identification purposes only. The specific emission unit descriptions do not restrict the Permittee from replacing an emission unit identified in Table 1. The Permittee shall comply with all applicable provisions of AS 46.14 and 18 AAC 50 when installing a replacement emission unit, including any applicable minor or construction permit requirements.

Table 1: Emission Unit Inventory

EU ID	EU Name	EU Description	Fuel Type	Rating/Size	Installation or Construction Date
1	Generator Engine No. 1	Caterpillar 3508B DITA	Diesel	832 kW	2006
2	Generator Engine No. 2	Caterpillar 3508B DITA	Diesel	832 kW	2006
3	Generator Engine No. 3	Caterpillar 3508B DITA	Diesel	832 kW	2006
4	Compressor Engine	Caterpillar C-9 ATAAC	Diesel	335 hp	NA [1]
6a	Waste Oil Burner (Crystal)	Clean Burn 450-BLR	Waste Oil	0.45 MMBtu/hr	1996
6b	Waste Oil Burner (Shop)	Black Gold 200	Waste Oil	0.16 MMBtu/hr	2004
6c	Waste Oil Burner (Mill)	Black Gold 200	Waste Oil	0.16 MMBtu/hr	NA [1]
8	Dor Furnace	MIFCO T-200	Diesel	1.01 MMBtu/hr	1996
9	Shop/Mill Heaters (4)	Hastings UFO-25H	Diesel	0.285 MMBtu/hr (each)	1996
10	Small Heaters (20)	Various	Diesel	1.22 MMBtu/hr (combined)	1996
11	Incinerator	Smart Ash Cyclonic Burn Barrel	NA	150 lb/hr	2003
12 [2]	Baghouse	CAMCO	NA	4,000 ACFM	1995
13 [3]	Baghouse	Sly TubeJet SBR-98-8	NA	5,000 ACFM	2006
14	Diesel Engine	Onan 150DGFA	Diesel	150 kW	1991
15	Mill Boiler	Superior Scotch Marine Apache 8X300	Diesel	2.009 MMBtu/hr	After June 4, 2010
16	Incinerator	Food Waste Incinerator	Diesel	100 lb/hr	Before June 16, 2006
		Exhaust from Crystal Port	Dynamite	200 lb/day	NA

EU ID	EU Name	EU Description	Fuel Type	Rating/Size	Installation or Construction Date
101	Explosives (Underground)		ANFO	2,250 lb/day	NA
102	Truck Unloading Station	Coarse Ore Stockpile to Hopper (Fugitive)	NA	220 TPD	NA
103	Storage Bin	Hopper (Fugitive)	NA	220 TPD	2006-2007
103a [4]	Conveyor Belt Transfer Point (Controlled by watering)	Consolidation of Transfer Points (Fugitive)	NA	220 TPD	2006-2007
103b [5]	Conveyor Belt Transfer Point	Consolidation of Transfer Points (Point)	NA	220 TPD	2006-2007
103c [6]	Conveyor Belt Transfer Points	Consolidation of Transfer Points (Point)	NA	220 TPD	2006-2007
104	Jaw Crusher	Mill	NA	220 TPD	1995
105	Vibrating Screen	Mill	NA	220 TPD	1995
106	Cone Crusher	Mill	NA	220 TPD	2006-2007
107	Enclosed Storage Area	Fine Ore Storage Bin	NA	220 TPD	2006-2007
114	Material Transfer Units (Controlled by watering)	Underground Material Transfer Units	NA	NA	NA
201	Road System	Nixon Fork Mine Project Roadways (Unpaved)	NA	NA	NA

Notes:

[1] Emission unit has not been installed.
[2] Emission control device for EU ID 103b.
[3] Emission control device for EU IDs 103c and 104 through 106.
[4] Consists of the consolidation of multiple fugitive emission sources (i.e., coarse ore hopper (EU ID 103) to crusher apron feeder, fine ore bin to belt feeder discharge, belt feeder discharge to ball mill feed belt, and ball mill feed belt to ball mill).
[5] Consists of the consolidation of fugitive and point sources (i.e., No. 1 conveyor to No. 2 conveyor, No. 2 conveyor to No. 3 conveyor).
[6] Consists of the consolidation of fugitive and point sources (i.e., hopper to apron feeder, apron feeder to jaw crusher, jaw crusher to No. 1 conveyor, No. 3 conveyor to vibrating screen, vibrating screen discharge to No. 4 conveyor, No. 4 conveyor to cone crusher, cone crusher to No. 5 conveyor, and No. 5 conveyor to No. 1 conveyor).

Section 2 Emission Fees

2. **Administration Fees.** The Permittee shall pay to the Department all assessed permit administration fees. Administration fee rates are set out in 18 AAC 50.400-405.

3. **Assessable Emissions**. The Permittee shall pay to the Department annual emission fees based on the stationary source's assessable emissions as determined by the Department under 18 AAC 50.410. The assessable emission fee rate is set out in 18 AAC 50.410. The Department will assess fees per ton of each air pollutant that the stationary source emits or has the potential to emit in quantities greater than 10 tons per year. The quantity for which fees will be assessed is the lesser of:

   3.1 the stationary source's assessable potential to emit of 390 tpy; or

   3.2 the stationary source's projected annual rate of emissions that will occur from July 1 to the following June 30, based upon actual annual emissions emitted during the most recent calendar year or another 12 month period approved in writing by the Department, when demonstrated by:

      a. an enforceable test method described in 18 AAC 50.220;

      b. material balance calculations;

      c. emission factors from EPA's publication AP-42, Vol. I, adopted by reference in 18 AAC 50.035; or

      d. other methods and calculations approved by the Department**.**

4. **Assessable Emission Estimates.** Emission fees will be assessed as follows:

   4.1 no later than March 31 of each year, the Permittee may submit an estimate of the stationary source's assessable emissions to ADEC, Air Permits Program, ATTN: Assessable Emissions Estimate, 410 Willoughby Ave., PO Box 111800, Juneau, AK 99811-1800; the submittal must include all of the assumptions and calculations used to estimate the assessable emissions in sufficient detail so the Department can verify the estimates; or

   4.2 if no estimate is received on or before March 31 of each year, emission fees for the next fiscal year will be based on the potential to emit set forth in Condition 3.1.

Section 3 State Emission Standards

Visible Emissions Standards

5. **Industrial Process and Fuel-Burning Equipment Visible Emissions.** The Permittee shall not cause or allow visible emissions, excluding water vapor, emitted from EUs 1 through 107 listed in Table 1, to reduce visibility through the exhaust effluent by more than 20 percent averaged over any six consecutive minutes.

6. **Industrial Process and Fuel-Burning Equipment Particulate Matter.** The Permittee shall not cause or allow particulate matter emitted from EUs 1 through 107 listed in Table 1, to exceed 0.05 grains per dry standard cubic foot of exhaust gas corrected to standard conditions and averaged over three hours.

7. **Sulfur Compound Emissions.** The Permittee shall not cause or allow sulfur compound emissions, expressed as SO_2, from any heater/boiler or flare (excluding all non-road engines) listed in Section 1, to exceed 500 ppm averaged over a period of three hours.

Section 4 Ambient Air Quality Protection Requirements

8. **Ambient Air Boundary.** The Permittee shall maintain the ambient air boundary described in the April 2004 Public Access Control Plan (as provided in Section 12) as follows:

   8.1 Post the area with high contrast signs at the locations and manner described in the April 2004 Public Access Control Plan;

   8.2 Conduct semi-annual inspections of the signs described in Condition 8.1 -- clean, repair, or replace as necessary; and

   8.3 Maintain surveillance of the ambient air boundary, as described in the April 2004 Public Access Control Plan.

9. **General Ambient Air Requirements.** The Permittee shall:

   9.1 Limit the total diesel fuel consumption for EU IDs 1 through 3 and 14 as set out in Condition 12;

   9.2 Locate the exhaust stack(s) for EU IDs 1, 2 and 3 approximately as indicated by the "GENS" marker in Section 9, or as authorized by the Department upon approval of an ambient demonstration using an alternative location;

   9.3 Use water spray dust controls after blasting; and

   9.4 Eliminate fugitive emissions associated with reprocessing the tailings pond within 24 months after starting the tailing reprocessing operations, or submit a revised PM-10 increment compliance demonstration that includes these fugitive emissions.

      a. Permittee shall notify the Department within 10 days before start up and within 10 days after shut down of reprocessing operations of the tailings pond;

      b. For the tailing reprocessing operations, the Permittee shall comply with the Condition 10.

10. **Facility-Specific Fugitive Dust Requirements.** In addition to the general requirements for controlling fugitive dust listed in the applicable operating permit issued for the source under 18 AAC 50 and AS 46.14, the Permittee shall comply with the following requirements specific to the Nixon Fork Mine Project.

   10.1 Perform a daily inspection of all unpaved roads (EU ID 201), temporary ore stockpiles and rock storage areas, stack tailings facility, and gravel pits for fugitive dust. If dust is present, and the road or stockpile is unfrozen, apply water or suitable dust suppression chemicals on roads and stockpiles, or cover the stockpiles. Maintain a log of daily inspection and actions to keep dust down. Keep the records for five years.

   10.2 For the baghouse EU ID 12:

      a. Monitor the pressure drop across the baghouse daily to ensure that it is within the limits recommended by the manufacturer.

b. Inspect the baghouse prior to initial startup, whenever the pressure drop across the baghouse is not within the limits recommended by the manufacturer, and every 180 days of operation. Replace worn or damaged bags prior to restarting the baghouse or within 72 hours of discovery, whichever occurs later.

c. Maintain maintenance logs detailing pressure drop across baghouse, baghouse inspections, and bag replacements. Keep records for five years.

10.3 During operation, use water control techniques to control dust on EU ID 114 (underground material transfer units).

Section 5 ORL to Avoid PSD Classification under 18 AAC 50.306

PSD Avoidance Limits for NOx:

11. **NOx Limits:** To avoid classification as a PSD major facility, the Permittee shall limit NOx emissions from EU IDs 1 through 4, 6a, 6b, 6c, 8 through 11, and 14 to no greater than 204 tons per year, as set out below:

    11.1 Limit NOx emissions from EU IDs 1 through 3 and 14 to no greater than 179 tons per 12-month rolling period; and

    11.2 Limit NOx emissions from EU IDs 4, 6a, 6b, 6c, and 8 through 11 to no greater than 25 tons per 12-month rolling period.

12. **Operational Limits:** Limit the total diesel fuel consumption for Emission Unit 1 through 3 and 14 to no greater than 1,075,000 gallons per year.[1]

13. **Operational Limits:** Limit the hours of operation of EU ID 4 to no more than 3,263 hours per year.

14. **Monitoring and Recording:**

    14.1 Monitor and record the daily diesel fuel consumption for EU IDs 1 through 3 and 14 when in operation (gallons) as follows:

    a. Install a dedicated continuous fuel monitoring system for recording combined fuel consumption accurate to less than two percent error on EU IDs 1 through 3 and 14;

    b. No later than 30 days after issuance of Minor Permit AQ0837MSS01, for EU ID 14 submit to the Department's Fairbanks Office copies of the meter specifications and meter accuracy certifications of the installed fuel meter; and

    c. Re-certify the fuel meter accuracy for EU IDs 1 through 3 and 14 at least every 60 months.

    14.2 Calculate and record the monthly fuel consumption by summing the daily fuel consumption in Condition 14.1. For any period during which the fuel consumption records are not recorded or the records are suspect, use the maximum design fuel consumption (62.0 gallon/hour for EU IDs 1 through 3 and 11.1 gallon/hour for EU ID 14) for each recorded hour of unit operation.

[1] Fuel consumption limit is also to protect the ambient air quality.

14.3 Calculate and record the monthly NOx emissions for EU IDs 1 through 3 and 14 (expressed as NO_2) by multiplying the fuel specific emission rate 0.33 (lb/gallon)[2] for EU IDs 1 through 3 and 0.34 (lb/gallon)[3] for EU ID 14 by the monthly fuel consumption calculated in Condition 14.2, as explained in Equation 1 below. The Permittee shall upon written Department approval use site-specific emission factors.

Equation 1: $$NO_X = ((FC_1 \times EF_1) + (FC_2 \times EF_2)) \times \frac{1\ ton}{2{,}000\ lb}$$

Where:

NOx = NOx emissions in tons per month

FC_1 = Fuel consumption in gallons per month for EU IDs 1 – 3.

EF_1 = NO_X emission factor in 0.33 pounds per gallon, except if source tests have been conducted under Condition 14.5 for EU IDs 1 through 3. Use the same emission factor for all the units.

FC_2 = Fuel consumption in gallons per month for EU ID 14.

EF_2 = NO_X emission factor in 0.34 pounds per gallon, except if source tests have been conducted under Condition 14.5 for EU ID 14.

14.4 Calculate and record the twelve month rolling total NO_X emissions by summing the monthly NOx emissions in Condition 14.3.

14.5 If the total 12 month rolling NO_X emissions calculated in Condition 14.4 exceeds the 179 tpy, conduct NO_X emission source tests following procedures listed in the applicable operating permit issued for the source under 18 AAC 50 and 46.14, on one unit within the group of similar units (Emission Unit 1 through 3) and Emission Unit 14. Conduct each source test at three loads within the normal operating range of the units within 90 days of exceeding 179 tpy.

a. Monitor and record the fuel consumption rate of each unit during each run of the test;

b. During the test, draw a representative fuel sample;

c. Analyze the fuel to determine its higher heating value and specific gravity using ASTM methods incorporated by reference in ASTM 396-62, *Specifications for Fuel Oil;*

d. Within the test report, document the average firing rate, fuel specific heat and gravity;

[2] NOx emission factor based on CAT emission data 3508B DITA engine load 100% [832 kWe].
[3] NOx emission factor based on EPA Tier 1 standards. Includes a 1.25 multiplier to convert the nominal ratings for the Tier 1 emission standard to NTE rates

e. Determine the NOx emission rate (lb/hour) and NOx emissions site-specific fuel emission factor (lb/gallon) for each load tested based on Method 19. If the maximum site-specific emission factor exceeds the value indicated in Condition 14.3, recalculate the monthly and 12-month rolling total emission to the date of the source test and submit an updated facility operating report for those periods.

14.6 Monitor the hours of operation for EU ID 4 as follows:

a. Log the startup and shutdown times of EU ID 4;

b. At the end of each month, calculate and record the monthly hours of operation for EU ID 4; and

c. At the end of each month, calculate and record the operating hours for EU ID 4 for the previous rolling 12-month period.

14.7 Report as excess emissions as described in the applicable operating permit issued for the source under 18 AAC 50 and AS 46.14, if the NOx emissions calculated under Condition 14.4 or 14.5e exceed 179 tpy, if the cumulative hours calculated under Condition 14.6c exceed 3,263 hours per year, or if Conditions 14.1 through 14.6 are not met.

14.8 Include in the facility operating report required under the applicable operating permit issued for the source under 18 AAC 50 and AS 46.14:

a. the 12-month rolling period total fuel use for each Emission Unit 1 through 3 and 14 per Condition 14.2;

b. the monthly and 12-month rolling total NO_X emissions for EU IDs 1 through 3 and 14 calculated under Conditions 14.4 and 14.5e; and

c. the monthly and 12-month rolling total hours for EU ID 4 calculated under Conditions 14.6b and 14.6c.

Section 6 General Recordkeeping, Reporting, and Certification Requirements

15. **Certification.** The Permittee shall certify any permit application, report, affirmation, or compliance certification submitted to the Department and required under the permit by including the signature of a responsible official for the permitted stationary source following the statement: *"Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete."* Excess emission reports must be certified either upon submittal or with an operating report required for the same reporting period. All other reports and other documents must be certified upon submittal.

    15.1 The Department may accept an electronic signature on an electronic application or other electronic record required by the Department if

        a. a certifying authority registered under AS 09.25.510 verifies that the electronic signature is authentic; and

        b. the person providing the electronic signature has made an agreement, with the certifying authority described in Condition 15.1a, that the person accepts or agrees to be bound by an electronic record executed or adopted with that signature.

16. **Submittals.** Unless otherwise directed by the Department or this permit, the Permittee shall send a certified copy of reports, compliance certifications, and other submittals required by this permit to ADEC, Air Permits Program, 610 University Ave., Fairbanks, AK 99709-3643, ATTN: Compliance Technician. The Permittee may, upon consultation with the Compliance Technician regarding software compatibility, provide electronic copies of data reports, emission source test reports, or other records under a cover letter certified in accordance with Condition 15.

17. **Information Requests.** The Permittee shall furnish to the Department, within a reasonable time, any information the Department requests in writing to determine whether cause exists to modify, revoke, reissue, or terminate the permit or to determine compliance with the permit. Upon request, the Permittee shall furnish to the Department copies of records required to be kept by the permit. The Department may require the Permittee to furnish copies of those records directly to the federal administrator.

18. **Recordkeeping Requirements.** The Permittee shall keep all records required by this permit for at least five years after the date of collection, including:

    18.1 copies of all reports and certifications submitted pursuant to this section of the permit; and

    18.2 records of all monitoring required by this permit, and information about the monitoring including (if applicable):

        a. calibration and maintenance records, original strip chart or computer-based recordings for continuous monitoring instrumentation;

b. sampling dates and times of sampling or measurements;

c. the operating conditions that existed at the time of sampling or measurement;

d. the date analyses were performed;

e. the location where samples were taken;

f. the company or entity that performed the sampling and analyses;

g. the analytical techniques or methods used in the analyses; and

h. the results of the analyses.

19. **Excess Emissions and Permit Deviation Reports.**

19.1 Except as provided in Condition 21, the Permittee shall report all emissions or operations that exceed or deviate from the requirements of this permit as follows:

a. In accordance with 18 AAC 50.240(c), as soon as possible after the event commenced or is discovered, report

(i) emissions that present a potential threat to human health or safety; and

(ii) excess emissions that the Permittee believes to be unavoidable;

b. in accordance with 18 AAC 50.235(a), within two working days after the event commenced or was discovered, report an unavoidable emergency, malfunction, or nonroutine repair that caused emissions in excess of a technology based emissions standard;

c. report all other excess emissions and permit deviations

(i) within 30 days of the end of the month in which emissions or deviation occurred, except as provided in Conditions 19.1c(ii) and 19.1c(iii);

(ii) if a continuous or recurring excess emissions is not corrected within 48 hours of discovery, within 72 hours of discovery unless the Department provides written permission to report under Condition 19.1c(i); and

(iii) for failure to monitor, as required in other applicable conditions of this permit.

19.2 When reporting either excess emissions or permit deviations, the Permittee shall report using either the Department's on-line form, which can be found at http://www.dec.state.ak.us/air/ap/site.htm or if the Permittee prefers, the form contained in Attachment 2 of this permit. The Permittee must provide all information called for by the form that is used.

19.3 If requested by the Department, the Permittee shall provide a more detailed written report as requested to follow up an excess emissions report.

20. **Operating Reports.** The Permittee shall submit to the Department an original of an operating report by August 1 for the period January 1 through June 30 of the current year and by February 1 for the period July 1 through December 31 of the previous year.

20.1 The operating report must include all information required to be in operating reports by other conditions of this permit.

20.2 If excess emissions or permit deviations that occurred during the reporting period are not reported under Condition 20.1, either

a. The Permittee shall identify

(i) the date of the deviation;

(ii) the equipment involved;

(iii) the permit condition affected;

(iv) a description of the excess emissions or permit deviation; and

(v) any corrective action or preventative measures taken and the date of such actions; or

b. when excess emissions or permit deviations have already been reported under Condition 19 the Permittee may cite the date or dates of those reports.

21. **Air Pollution Prohibited.** No person may permit any emissions which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property.

Section 7 Standard Permit Conditions

22. The Permittee must comply with each permit term and condition. Noncompliance with a permit term or condition constitutes a violation of AS 46.14, 18 AAC 50, and, except for those terms or conditions designated in the permit as not federally enforceable, the Clean Air Act, and is grounds for

    22.1 an enforcement action;

    22.2 permit termination, revocation and reissuance, or modification in accordance with AS 46.14.280; or

    22.3 denial of an operating permit renewal application.

23. It is not a defense in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with a permit term or condition.

24. Each permit term and condition is independent of the permit as a whole and remains valid regardless of a challenge to any other part of the permit.

25. The permit may be modified, reopened, revoked and reissued, or terminated for cause. A request by the Permittee for modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

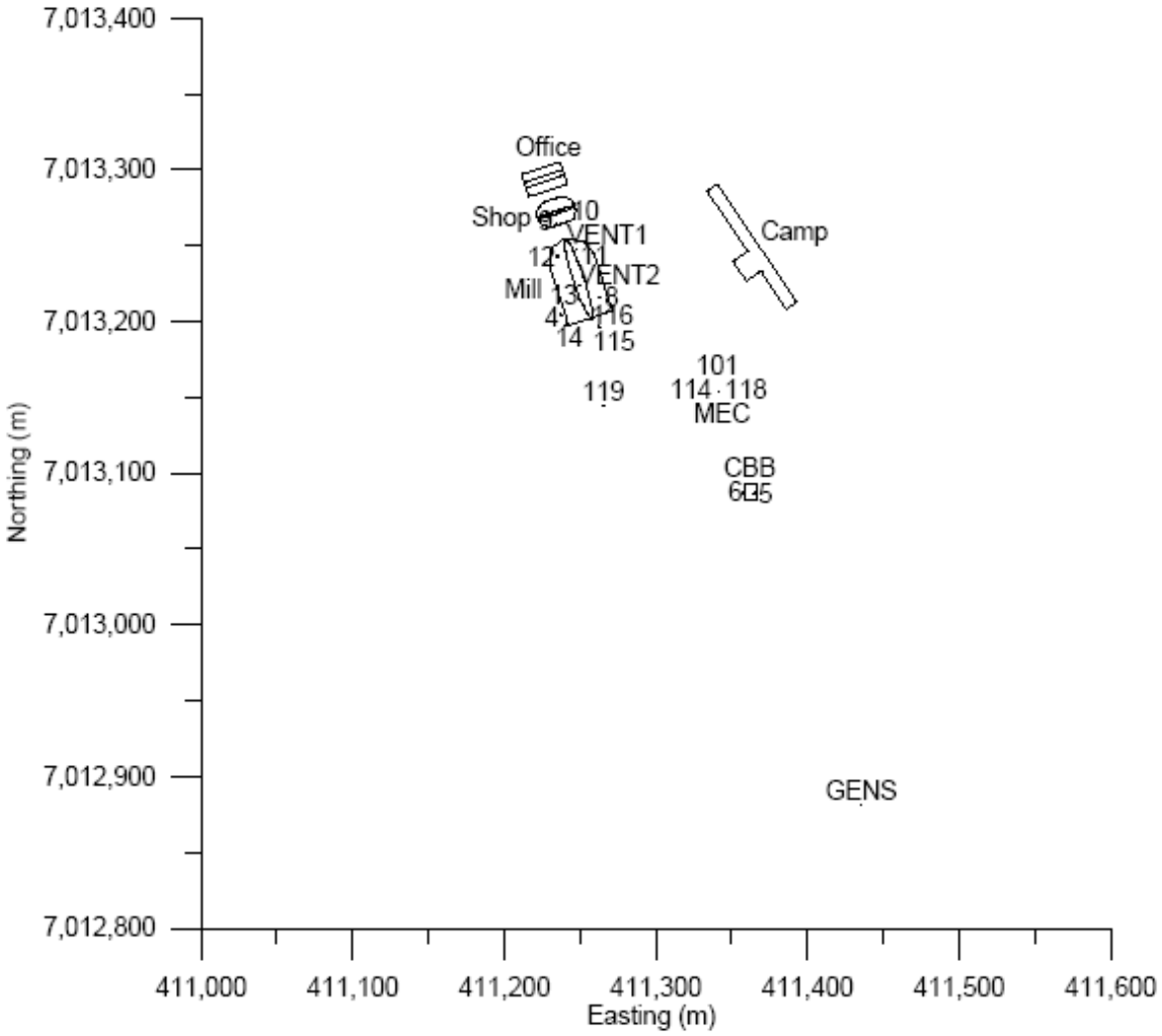
26. The permit does not convey any property rights of any sort, nor any exclusive privilege.

Section 8 Permit Documentation

Date	Document Details
May 11, 2004	AQC Construction Permit Application for the Nixon Forks Mine Project, prepared for Mystery Creek Resources Inc., by Hoefler Consulting Group.
July 12, 2004	Letter from Jim Baumgartner (ADEC) to Chris Lindsey (Hoefler) including incomplete Application items. List of ADEC questions and comment on application.
October 7, 2004	Letter from Chris Lindsey (Hoefler) to Albert Faure (ADEC) Responses to ADEC Application Completeness Review Questions.
October 27, 2004	Email from Albert Faure (ADEC) to Chris Lindsey (Hoefler) clarification of mine equipment and operations. Included Explosive emissions, Incinerator and Mercury retort.
November 10, 2004	Email from Chris Lindsey (Hoefler) to Albert Faure (ADEC) regarding the clarification of mine operations and equipment.
November 24, 2004	Email from Alan Schuler (ADEC) to Al Trbovich (Hoefler) regarding clarification of modeling results.
November 29, 2004	Email from Chris Lindsey (Hoefler) to Albert Faure (ADEC) regarding emission inventory
November 30, 2004	Email from Alan Schuler (ADEC) to Al Trbovich (Hoefler) regarding modeling.
January 24, 2005	Email from Al Trbovich (Hoefler) to Alan Schuler (ADEC) regarding response to modeling.
March 14, 2005	Email from Chris Lindsey (Hoefler) to Alan Schuler (ADEC) regarding Nixon Fork Mine gensets
April 18, 2005	Letter from Al Trbovich (Hoefler) to Bill Walker (ADEC) Comments regarding preliminary Air Quality Construction Permit No. AQ837CPT01 for the Nixon Fork Mine.
August 23, 2005	Request for change to Figure 2 (email from Chris Lindsey to Alan Schuler)
August 24, 2005	Issued Administrative Revision 1 revising Figure 2
March 19, 2009	Request for Responsible Official Change
January 27, 2016	Application received for Minor Permit No. AQ0837MSS01

Section 9 Exhaust Stack Location

Figure 2. Locations of Buildings and Emission Points



Revised August 18, 2005

Section 10 Visible Emissions Form

VISIBLE EMISSION OBSERVATION FORM

This form is designed to be used in conjunction with EPA Method 9, "Visual Determination of the Opacity of Emissions form Stationary Sources." Temporal changes in emission color, plume water droplet content, background color, sky conditions, observer position, etc. should be noted in the comments section adjacent to each minute of readings. Any information not dealt with elsewhere on the form should be noted under additional information. Following are brief descriptions of the type of information that needs to be entered on the form: for a more detailed discussion of each part of the form, refer to "Instructions for Use of Visible Emission Observation Form."

- Source Name: full company name, parent company or division or subsidiary information, if necessary.
- Address: street (not mailing or home office) address of facility where VE observation is being made.
- Phone (Key Contact): number for appropriate contact.
- Source ID Number: number from NEDS, agency file, etc.
- Process Equipment, Operating Mode: brief description of process equipment (include type of facility) and operating rate, % capacity, and/or mode (e.g. charging, tapping, shutdown).
- Control Equipment, Operating Mode: specify type of control device(s) and % utilization, control efficiency.
- Describe Emission Point: for identification purposes, stack or emission point appearance, location, and geometry; and whether emissions are confined (have a specifically designed outlet) or unconfined (fugitive).
- Height Above Ground Level: stack or emission point height relative to ground level; can use engineering drawings, Abney level, or clineometer.
- Height Relative to Observer: indicate height of emission point relative to the observation point.
- Distance from Observer: distance to emission point; can use rangefinder or map.
- Direction from Observer: direction plume is traveling from observer.
- Describe Emissions and Color: include physical characteristics, plume behavior (e.g., looping, lacy, condensing, fumigating, secondary particle formation, distance plume visible, etc.), and color of emissions (gray, brown, white, red, black, etc.). Note color changes in comments section.
- Visible Water Vapor Present?: check "yes" if visible water vapor is present.
- If Present, is Plume…: check "attached" if water droplet plume forms prior to exiting stack, and "detached" if water droplet plume forms after exiting stack.
- Point in Plume at Which Opacity was Determined: describe physical location in plume where readings were made (e.g., 1 ft above stack exit or 10 ft. after dissipation of water plume).
- Describe Plume Background: object plume is read against, include texture and atmospheric conditions (e.g., hazy).
- Background Color: sky blue, gray-white, new leaf green, etc.
- Sky Conditions: indicate cloud cover by percentage or by description (clear, scattered, broken, overcast).
- Wind Speed: record wind speed; can use Beaufort wind scale or hand-held anemometer to estimate.
- Wind Direction From: direction from which wind is blowing; can use compass to estimate to eight points.
- Ambient Temperature: in degrees Fahrenheit or Celsius.

  Wet Bulb Temperature: can be measured using a sling psychrometer

  RH Percent: relative humidity measured using a sling psychrometer; use local US Weather Bureau measurements only if nearby.
- Source Layout Sketch: include wind direction, sun position, associated stacks, roads, and other landmarks to fully identify location of emission point and observer position.

  Draw North Arrow: to determine, point line of sight in direction of emission point, place compass beside circle, and draw in arrow parallel to compass needle.

  Sun's Location: point line of sight in direction of emission point, move pen upright along sun location line, mark location of sun when pen's shadow crosses the observer's position.
- Observation Date: date observations conducted.
- Start Time, End Time: beginning and end times of observation period (e.g., 1635 or 4:35 p.m.).
- Data Set: percent opacity to nearest 5%; enter from left to right starting in left column. Use a second (third, etc.) form, if readings continue beyond 30 minutes. Use dash (-) for readings not made; explain in adjacent comments section.

  Comments: note changing observation conditions, plume characteristics, and/or reasons for missed readings.

  Range of Opacity: note highest and lowest opacity number.
- Observer's Name: print in full.

  Observer's Signature, Date: sign and date after performing VE observation.
- Organization: observer's employer.

Certified By, Date: name of "smoke school" certifying observer and date of most recent certification.

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AIR QUALITY DIVISION - VISIBLE EMISSIONS OBSERVATION FORM

Page No._____

Source Name		Type of Source			Observation Date			Start Time	End Time
					Sec / Min	0	15	30	45	Comments
Address					1					
City	State	Zip			2					
Phone # (Key Contact)		Source ID Number			3					
Process Equipment		Operating Mode			4					
Control Equipment		Operating Mode			5					
Describe Emission Point					6					
Height above ground level	Height relative to observer	Inclinometer Reading			7					
Distance From Observer		Direction From Observer Start	End		8					
Describe Emissions & Color Start		End			9					
Visible Water Vapor Present? If yes, determine approximate distance from the										
No Yes	stack exit to where the plume was read				10					
Point in Plume at Which Opacity Was Determined					11					
Describe Plume Background		Background Color Start			12					
Start		End								
End					13					
Sky Conditions: Start					14					
Wind Speed		Wind Direction From Start	End		15					
Ambient Temperature		Wet Bulb Temp	RH percent		16					
NOTES: 1 Stack or Point Being Read		2 Wind Direction From			17					
3 Observer Location 4 Sun Location 5 North Arrow 6 Other Stacks					18					
					19					
					20					
					21					
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					
					Range of Opacity					
					Minimum			Maximum		
I have received a copy of these opacity observations					Print Observer's Name					
Print Name:					Observer's Signature			Date		
Signature:										
Title		Date			Organization					
					Certified By:				Date	

Section 11 ADEC Notification Form

Excess Emissions and Permit Deviation Reporting
State of Alaska Department of Environmental Conservation
Division of Air Quality

_____ _____
Stationary Source Name **Air Quality Permit Number**

_____
Company Name

When did you discover the Excess Emissions/Permit Deviation?
Date: / / Time: :

When did the event/deviation?
Begin: Date: / / Time: : (please use 24hr clock)
End: Date: / / Time: : (please use 24hr clock)

What was the duration of the event/deviation: : (hrs:min) or days
(total # of hrs, min, or days, if intermittent then include only the duration of the actual emissions/deviation)

Reason for notification: (please check only 1 box and go to the corresponding section)
☐ Excess Emissions Complete Section 1 and Certify
☐ Deviation from permit conditions complete Section 2 and certify
☐ Deviation from COBC, CO, or Settlement Agreement Complete Section 2 and certify

Section 1. Excess Emissions

(a) Was the exceedance ☐ Intermittent or ☐ Continuous

(b) Cause of Event (Check one that applies)**:**

☐ Start Up/Shut Down ☐ Natural Cause (weather/earthquake/flood)
☐ Control Equipment Failure ☐ Scheduled Maintenance/Equipment Adjustments
☐ Bad fuel/coal/gas ☐ Upset Condition ☐ Other

(c) Description

Describe briefly what happened and the cause. Include the parameters/operating conditions exceeded, limits, monitoring data and exceedance.

(d) Emission unit(s) Involved:

Identify the emission units involved in the event, using the same identification number and name as in the permit. Identify each emission standard potentially exceeded during the event and the exceedance.

EU ID	Emission Unit Name	Permit Condition Exceeded/Limit/Potential Exceedance

(e) Type of Incident (please check only one):

☐ Opacity % ☐ Venting (gas/scf) ☐ Control Equipment Down
☐ Fugitive Emissions ☐ Emission Limit Exceeded ☐ Record Keeping Failure
☐ Marine Vessel Opacity ☐ Failure to monitor/report ☐ Flaring
☐ Other:

(f) Unavoidable Emissions:

Do you intend to assert that these excess emissions were unavoidable? ☐ YES ☐ NO
Do you intend to assert the affirmative defense of 18 AAC 50.235? ☐ YES ☐ NO

Certify Report (go to end of form)

Section 2. Permit Deviations

(a) Permit Deviation Type (check one only) (check boxes correspond with sections in permit)

☐ Emission Unit Specific
☐ General Source Test/Monitoring Requirements
☐ Recordkeeping/Reporting/Compliance Certification
☐ Standard Conditions Not Included in Permit
☐ Generally Applicable Requirements
☐ Reporting/Monitoring for Diesel Engines
☐ Insignificant Emission Unit
☐ Stationary Source-Wide
☐ Other Section: (title of section and section # of your permit)

(b) Emission unit(s) Involved:

Identify the emission unit involved in the event, using the same identification number and name as in the permit. List the corresponding Permit condition and the deviation.

EU ID	Emission Unit Name	Permit Condition /Potential Deviation

(c) Description of Potential Deviation: Describe briefly, what happened and the cause. Include the parameters/operating conditions and the potential deviation.

(d) Corrective Actions: Describe actions taken to correct the deviation or potential deviation and to prevent future recurrence.

Certification:

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Printed Name:_____Title_____Date _____

Signature: _____Phone number_____

NOTE: *This document must be certified in accordance with 18 AAC 50.345(j)*

To Submit this report:

1. Fax this form to: 907-465-5129
Or
2. Email to: DEC.AQ.Airreports@alaska.gov
if faxed or emailed,
Or
3. Mail to: ADEC
Air Permits Program
610 University Avenue
Fairbanks, AK 99709-3643
Or
4. Phone notifications: 907-451-5173.
Phone notifications require written follow up report.
Or
5. Submission of information contained in this report can be made electronically at the following website:
http://dec.alaska.gov/Applications/Air/airtoolsweb/Home/Index

If submitted online, report must be submitted by an authorized E-Signer for the Stationary Source.

Section 12 Public Access Control Plan

Mystery Creek Resources, Inc.
Nixon Fork Mine
Public Access Control Plan

- **Purpose**

The purpose of this document is to describe the Public Access Control Plan that will be used to protect the general public from health and safety hazards incident to the heavy industrial activities planned at the Nixon Fork Mine. The Nixon Fork Mine project will involve underground blasting, surface and underground heavy equipment operation, and ore production and milling. To provide protection of public health and welfare, the Bureau of Land Management (BLM) has authorized reasonable restrictions on general public access into the project area. This plan describes the access control plan that will be used to implement these access restrictions.

Mystery Creek Resources, Inc. (MCRI) is fully committed to meeting the applicable Alaska Ambient Air Quality Standards (AAQS) at the ambient air boundary of the project. The boundary is presented in Figure G-1, the Ambient Air Boundary Map. MCRI is also fully committed to adequately protecting the health and safety of its work force by meeting the standards for air exposure of the Mine Safety and Health Administration (MSHA) within the ambient air boundary. A primary purpose of this plan is to delineate the area to be protected and controlled for occupational health and safety (within the ambient air boundary) from the area that is subject to unrestricted, general public access where the AAQS are applicable (outside the ambient air boundary). A secondary purpose is to ensure that measures are in place to restrict public access within the ambient air boundary.

- **General Information**

The Nixon Fork Mine site is located 32 air miles to the northeast of McGrath. A general location map is provided in Figure G-2. The nearest community to the site is Medfra, approximately 8 air miles south of the project site. The project site is separated from Medfra by an area of rolling hills.

Currently, the only general access to the property is by air. Historical access to the Nixon Fork Mine area was by a rough 13-mile road from Medfra. The state right of way

for this road, built decades ago with public funds to support the old mine, is occasionally used as a winter and summer access route to the site.

Dispersion modeling has been conducted and demonstrates modeled compliance with all applicable AAQS at all points on and outside of the ambient air boundary.

- **Public Access Control Measures**

- Physical Barriers

The upland area surrounding the Nixon Fork Mine site is remote, isolated, and not conducive to overland travel. The ambient air boundary generally follows the federal unpatented mining claims boundary with several exceptions. Some portions of the federal unpatented mining claims were excluded from the ambient air boundary to ease dispersion modeling efforts. These exceptions are described in Figure G-1.

- Posting

In addition to the physical barriers cited above, public access to the site will be restricted using strategically located signs. Signs restricting public access and warning of potential health hazards will be posted as required by the Bureau of Land Management (BLM). See Figure G-1 for sign placement along the boundary.

The sign specifications along the ambient air boundary are:

- Signs will be posted as required by the BLM.
- Each sign will be 2 feet by 4 feet and will be mounted on posts.
- Each sign will be inspected semi-annually and will be repaired or replaced, as necessary.
- Each sign will be free of visible obstructions.
- Each sign will read:

DANGER

NIXON FORK MINE/MILL SITE
UNDERGROUND MINING AND BLASTING IN PROGRESS

CLOSED TO PUBLIC

- Private Airstrip

The private airstrip facility within the ambient air boundary will be closed to general public access. Consistent with the BLM requirements, emergency landings and official agency inspections will be allowed. Signs will be posted at the northern and southern ends of the airstrip stating that the airstrip is private.

The sign specifications for the private airstrip are:

- Each sign will be 4 feet by 6 feet and will be mounted on posts.
- Each sign will be inspected semi-annually and will be repaired or replaced, as necessary.
- Each sign will be free of visible obstructions.
- Each sign will read:

PRIVATE AIRSTRIP

DANGER

NIXON FORK MINE/MILL SITE
UNDERGROUND MINING AND BLASTING IN PROGRESS

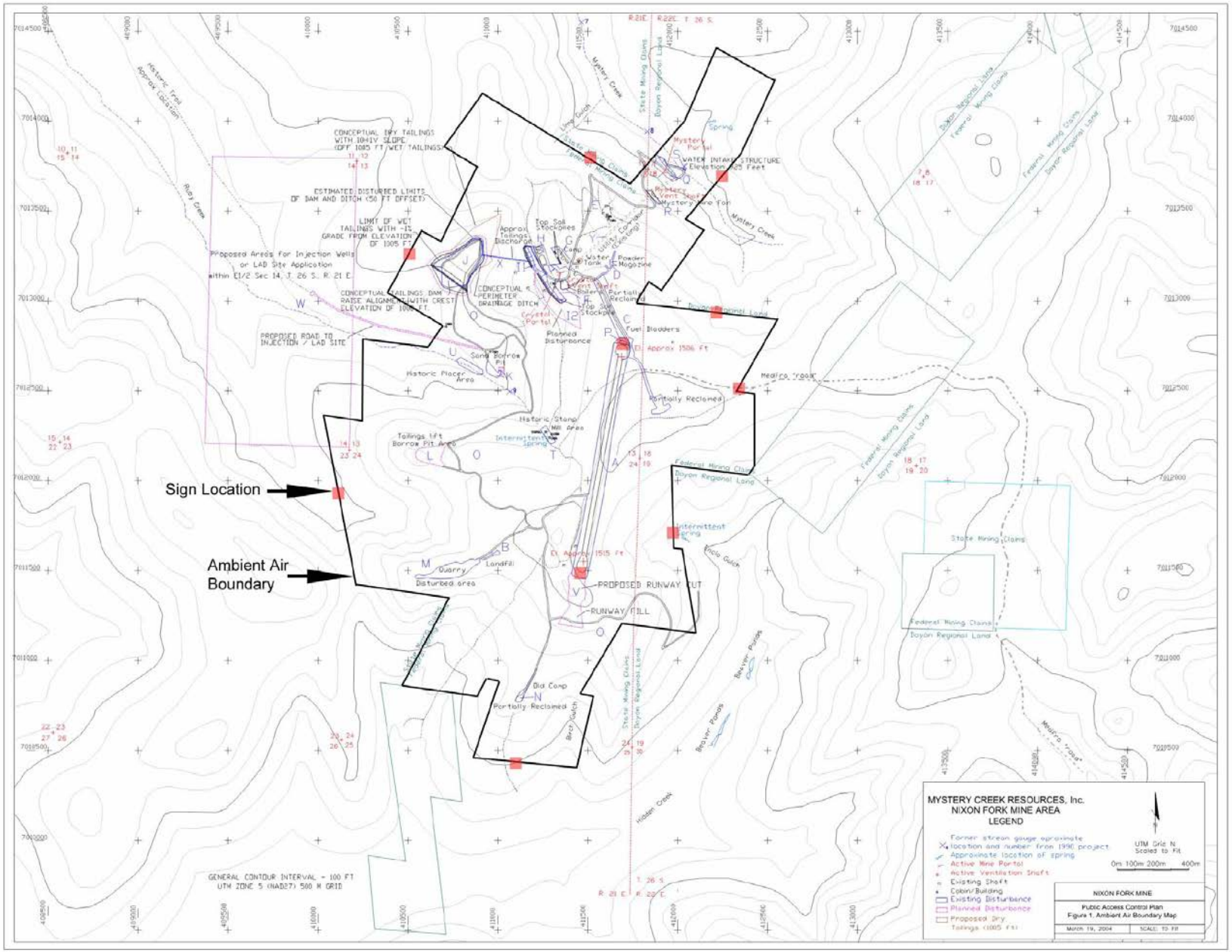
CLOSED TO PUBLIC USE

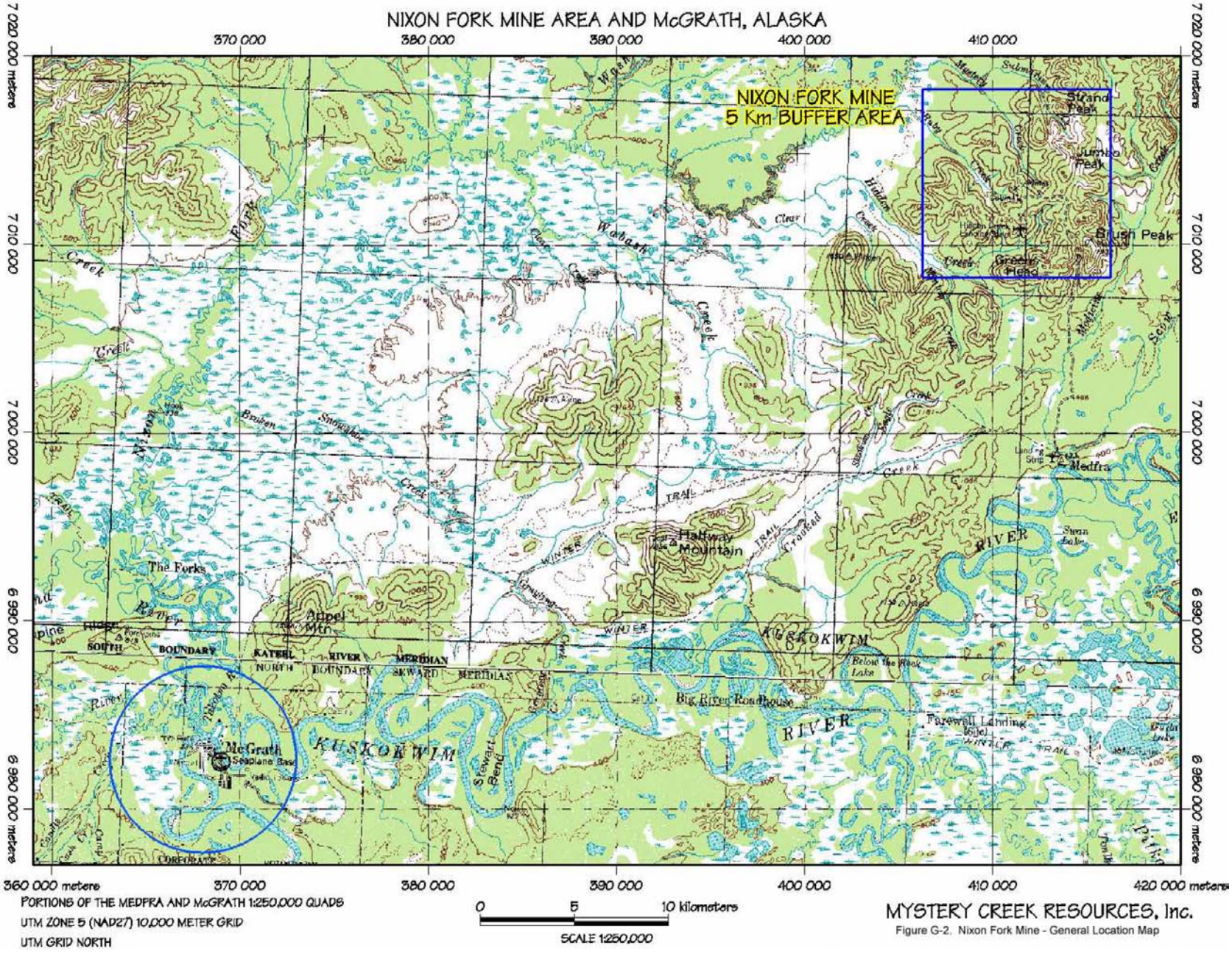
Needed Crossings

Consistent with the BLM requirement, an individual who establishes a need to cross the property will be allowed to do so under escort of a MCRI employee. No stops will be allowed within the ambient air boundary for any reason. MCRI expects few, if any, crossing requests given the remote location of the Nixon Fork Mine. A list of these individuals, if any, will be maintained and provided to BLM annually.

Trespass Individuals

Consistent with the BLM requirement, trespass individuals, if any, will be reported to BLM as soon as practical.


Sign Location
Ambient Air Boundary
PROPOSED RUNWAY CUT
RUNWAY HILL
MYSTERY CREEK RESOURCES, Inc.
NIXON FORK MINE AREA
LEGEND
NIXON FORK MINE
Public Access Control Plan
Figure 1. Ambient Air Boundary Map
March 19, 2004
SCALE: TO FIT


NIXON FORK MINE AREA AND McGRATH, ALASKA
NIXON FORK MINE
5 Km BUFFER AREA
7 020 000 meters
7 010 000
7 000 000
6 990 000
6 980 000 meters
360 000 meters
370 000
380 000
390 000
400 000
410 000
420 000 meters
Strand Peak
Limbo Peak
Brush Peak
Grassy Flats
Medfra
Halfway Mountain
The Forks
Appel Mtn
McGrath
Seaplane Base
Big River Roadhouse
Farewell Landing
KUSKOKWIM RIVER
SOUTH BOUNDARY
KATERE NORTH BOUNDARY
MERIDIAN SEWARD MERIDIAN
Below the Rock Lake
Swan Lake
Stewart Bend
PORTIONS OF THE MEDFRA AND McGRATH 1:250,000 QUADS
UTM ZONE 5 (NAD27) 10,000 METER GRID
UTM GRID NORTH
0 5 10 kilometers
SCALE 1:250,000
MYSTERY CREEK RESOURCES, Inc.
Figure G-2. Nixon Fork Mine - General Location Map