USDA United States Department of Agriculture Forest Service South Park Ranger District
PO Box 219
320 US Highway 285
Fairplay, CO 80440
719-836-2031
Fax: 719-836-3875

File Code: 2810
Date: March 23, 2021

James and Jennifer Curtis
Claimants/ Operators
18 Tioga Trail
Florissant, CO 80816

Dear James and Jennifer,

I received your revised Notice of Intent (NOI) on March 8, 2021, to conduct prospecting and exploration – level activities on the Tarryall 3 unpatented mining claim administered by the South Park Ranger District, in portions of Section 12, T. 8 S., R.77 W., 6th Principal Meridian, Park County, Colorado. Your NOI for the Tarryall 3 unpatented claim has been assigned an identification number of ***2810-021210-NOI-2021-006***; please use this identification number for future correspondence.

Although a Plan of Operations (POO) is not needed at this time, there are concerns with your proposed dredging activities on North Tarryall Creek. As such, our fisheries and wildlife biologists have created mitigation measures we are requesting for all dredging activities in North Tarryall Creek. They are as follows:

Riparian, Water and Soil Conservation Measures

For all in-stream suction dredging or similar activities:

- Materials too large in size to be moved by hand or hand-held implements shall remain undisturbed.
- Anchorage systems for suction dredging operations shall not span the stream or interfere with the passage of watercraft.
- Avoid creating dams or diversions, including inadvertent damming caused by tailing placement.
- Conduct dredging and excavation operation only within the existing wetted perimeter (water line) in the active stream channel and avoid mining or otherwise disturbing streambanks.
- Schedule dredging or excavation to avoid periods of fish spawning and rearing from October 1st through June 1st.
- Provide for fish passage around and through the mining area.
- Provide space between current and recent dredging operations.
- Conduct dredging operations in a way that avoids significant increases in downstream turbidity.
- Use fish screens with woven wire mesh or perforations that do not exceed 0.1 inch on water intake of the dredging equipment.

- If water depletions in the stream are anticipated, report the estimated amount to the Forest Service. If possible, try to avoid water depletions and use a closed loop system.

For all onshore high banking or similar activities:

- Water being used for this operation needs to be returned to the same part of the waterway, immediately following processing, and settling.
- The only disturbance authorized within the stream area is the placement of water pumps.
- Construction of diversion ditches, road building, or significant earthwork is not authorized.
- Onshore work areas are limited to those areas at least 100 feet from the stream and outside of any riparian zones (stream side or wetland vegetation). Riparian vegetation shall not be damaged by operations.

Measures in U.S. Forest Service Handbook 2509.25, Region 2 Watershed Conservation Handbook (U.S. Forest Service 2006) and identified in the Forest Land and Resource Management Plan (LRMP) (1984) for the PSICC, shall be used to protect water resources, minimize sediment input into the stream, and limit impacts to riparian habitat due to mining activities.

- No digging in the creek, or along the edge of the creek that would cause the bank to be undercut and unstable.
- No trees along the stream shall be removed or compromised as they are providing bank stability.
- Beavers will not be removed, and their dams will not be taken down.
- If willows must be removed, re-planting will need to be part of the reclamation.
- High banking may destabilize and erode or undercut the banks. It may also introduce sediment into the creek. Bank destabilization and undercutting will be avoided during high banking.
- To minimize sediment entering North Tarryall Creek, a stilling basin (e.g., a small plastic or inflatable pool) will be used to catch and settle out sediment before re-introducing water back into the North Tarryall Creek or re-used for further dredging.
- The operator shall avoid putting equipment into the stream that may leak petroleum products into the stream. No parking in the creek.
- Human waste shall be packed out of the Forest and disposed of appropriately. No waste or portable toilets will be left behind.
- Stream access will take place in only a few designated locations that would limit impacts on vegetation and soils. Please show your access locations on your maps.
- Mining waste, hazardous materials, all fuel and equipment and excess excavated materials will be stored away from drainages and wet areas to avoid contaminating water. These materials will need to be stored according to standards (i.e., > 100' away from the creek on top of a container that would trap any possible spills). Fueling of equipment will take place outside of the stream (> 100 feet).
- Construction equipment entering or leaving the stream or lake will be pressure washed or steam cleaned to remove any mud, soil, or vegetative material to avoid the spread of invasive species.
- The Operator will follow standard protocol established by Colorado Parks and Wildlife (CPW) and the USFS for preventing the spread of aquatic invasive species, including washing waders and equipment to avoid the spread of invasive species. Any equipment

brought into the creek will require whirling disease cleaning and will undergo inspection for noxious weeds consistent with Forest Service requirements and standards (Attachment 1). The USFS may request inspection of equipment prior to being placed into service.

- Obtain all necessary permits to comply with the Clean Water Act. This could include 401, 402, or 404 permits from the Army Corps of Engineers (ACOE) or Environmental Protection Agency (EPA).

The key phrase determining whether a mining operation will need an authorized Plan of Operations and reclamation performance bond may be found in 36 CFR 228.4(3), which is, "significant disturbance of surface resources." In following the above measures, you should be able to avoid creating significant disturbance to surface resources, and therefore, avoid the need for a Plan of Operations and a reclamation performance bond.

Other activities that will require a Plan of Operations and reclamation performance bond include:

- Failing to backfill any holes, pits, or trenches.
- Cutting any trees.
- Using mechanized equipment.
- Using roads that are not National Forest System (NFS) roads with mechanized vehicles (including Off Highway Vehicles).
- Creating new access routes or roads.
- Constructing any structures or facilities.
- Placing signage other than mine claim corner post identification.
- Do anything that may cause a significant disturbance.

You are required to follow these standards to remain in compliance with your NOI.

Please note that where not otherwise restricted, it is prohibited to camp more than 28 days within a continuous 60-day period, and/or occupy any campsite for more than 14 days during this 60-day continuous period within three miles of the previous campsite. In addition, Forest Service MVUM rules and regulation require vehicles to park in areas immediately adjacent to NFS roads, preferable in areas without vegetation.

Finally, as reminder, you are required to follow all State and Federal mining and water quality rules and regulations.

If you have any further questions or comments, please call Amy Titterington, Geologist, at 719-836-2031, or email her at amy.j.titterington@usda.gov.

Sincerely,

JOSHUA VOORHIS Digitally signed by JOSHUA VOORHIS
Date: 2021.03.25 08:59:10 -06'00'

JOSHUA VOORHIS
District Ranger

Enclosures:
1) CPW Quaternary Ammonia Disinfection Protocols
2) South Park Ranger District Reclamation Standards – Riparian Stipulations
3) NOI Instructions and Form

cc: DRMS – Elliott Russell; Park County Planning Department – Sheila Cross; Colorado Parks & Wildlife (CPW) - Tyler Swarr

GUIDELINES FOR OPERATING EQUIPMENT WITHIN A STREAM CHANNEL ON THE PSICC

Riparian, Water, Fisheries, and Soil Conservation Measures

For all in-stream suction dredging or similar activities:

- Materials too large in size to be moved by hand or hand-held implements shall remain undisturbed.
- Anchorage systems for suction dredging operations shall not span the stream or interfere with the passage of watercraft.
- Avoid creating dams or diversions, including inadvertent damming caused by tailing placement.
- Conduct dredging and excavation operation only within the existing wetted perimeter (water line) in the active stream channel and avoid mining or otherwise disturbing streambanks.
- Schedule dredging or excavation to avoid periods of fish spawning and rearing from October 1st through June1st.
- Provide for fish passage around and through the mining area.
- Provide space between current and recent dredging operations.
- Conduct dredging operations in a way that avoids significant increases in downstream turbidity.
- Use fish screens with woven wire mesh or perforations that do not exceed 0.1 inch on water intake of the dredging equipment.
- If water depletions in the stream are anticipated, report the estimated amount to the Forest Service. If possible, try to avoid water depletions and use a closed loop system.

For all on-shore high banking or similar activities:

- Water being used for this operation needs to be returned to the same part of the waterway, immediately following processing and settling.
- The only disturbance authorized within the stream area is the placement of water pumps.
- Construction of diversion ditches, road building or other significant earthwork is not authorized.
- On-shore work areas are limited to those areas at least 20 feet from the stream and outside of any riparian zones (stream side or wetland vegetation). Riparian vegetation shall not be damaged by operations.
- Do not excavate material from or store excavated material in any stream, swale or wetland.

Measures in U.S. Forest Service Handbook 2509.25, Region 2 Watershed Conservation Handbook (U.S. Forest Service 2006) and identified in the Forest Land and Resource Management Plan (LRMP) (1984) for the PSICC, shall be used to protect water resources, minimize sediment input into the stream, and limit impacts to riparian habitat due to mining activities.

- No digging in the creek, or along the edge of the creek that would cause the bank to be undercut and become unstable.

- Willows shall not be removed. If willows must be removed the USFS will be informed, and re-planting will need to be part of the reclamation.
- No trees along the stream shall be removed or compromised as they are providing bank stability.
- Beavers will not be removed and their dams will not be taken down.
- High banking may destabilize and erode or undercut the banks. It may also introduce sediment into the creek. Bank destabilization and undercutting will be avoided during high-banking.
- The operator shall avoid putting equipment into the stream that may leak petroleum products into the stream. No parking in the creek. Equipment will be inspected daily during the use period for leaks. If a leak occurs report it and install emergency traps to contain it and clean it up.
- Human waste shall be packed out of the Forest and disposed of appropriately. No waste or portable toilets will be left behind.
- Stream and access will take place in only a few designated locations that would limit impacts on vegetation and soils. *Please show your access locations on your maps.*
- Mining waste, hazardous materials, all fuel and equipment and excess excavated materials will be stored away from drainages and wet areas to avoid contaminating water. These materials will need to be stored according to standards (i.e., > 100' away from the creek on top of a container that would trap any possible spills and prevent seepage to groundwater). Fueling of equipment will take place outside of the stream and riparian areas in gentle upland sites.
- All concentrated use sites will be located at least 100' from streams, if practicable, always outside riparian areas and wetlands. Armor and reclaim sites within 100' of streams to prevent detrimental soil and bank erosion.
- Construction equipment entering the stream or lake will be pressure washed or steam cleaned to remove any mud, soil, or vegetative material to avoid the spread of invasive species.
- The Operator will follow standard protocol established by Colorado Parks and Wildlife and the SFS for preventing the spread of aquatic invasive species, including washing waders and equipment to avoid the spread of invasive species. Any equipment brought into the creek will require whirling disease/chytrid fungus cleaning and will undergo inspection for noxious weeds consistent with Forest Service requirements and standards (Attachment 1). The USFS may request inspection of equipment prior to being placed into service
- Obtain all necessary permits to comply with the Clean Water Act. This could include 401, 402, or 404 permits from the Army Corps of Engineers.

COLORADO
Parks and Wildlife
Department of Natural Resources

Quaternary Ammonia Compound Disinfection Protocols

INTERNAL AGENCY RECOMMENDATIONS

The following information is provided for within-agency wader and gear disinfection when well-known, commercially available quaternary ammonia compound (QAC) disinfectant products are in use.

Bath Disinfection Recommendations

Submersion of small gear and waders:

- Prior to disinfection, clean debris, mud, and vegetation off of equipment and waders.
  - Muddy disinfectant solution can lose its effectiveness and capacity to kill invasive organisms.
- Visually inspect waders and equipment for New Zealand mudsnails and other invasive aquatic organisms prior to cleaning.
- The recommended minimum active QAC concentration for effective disinfection is 0.4% or 4.0 ml of QAC per L of water; amount of disinfectant per gallon varies, and is dependent upon the percent active QAC in the disinfectant being used (Table 1).
- Equipment and waders should be submerged in disinfectant solution for a minimum of 10 minutes.
- Follow all handling instructions on disinfectant label or Material Safety Data Sheet (MSDS).

Table 1. Commercially available QAC disinfectants, percent (%) active QAC, percent QAC concentration in solution, amount of disinfectant needed (ml and ounces) per gallon of water to obtain a minimum active QAC concentration of 0.4%, and ratio of disinfectant to water. Italics indicate that product has been discontinued.

Disinfectant Name	% Active QAC (MSDS)	% QAC Conc. In Solution	ml per gal	Ounces per gal	QAC:H_2O
Sparquat 256	*12.5*	*0.4*	*121.2*	*4.1*	*1:31*
Quat 4	10.0	0.4	153.8	5.2	1:25
Super HDQ Neutral	16.9	0.4	91.7	3.1	1:41
Green Solutions (GS) High Dilution Disinfectant 256	21.7	0.4	71	2.4	1:53
Vedco 128	8.45	0.4	180.4	6.1	1:21
Quat 128	8.45	0.4	180.4	6.1	1:21

Checking Disinfectant Solution Efficacy

Muddy or diluted disinfectant can lead to a loss of effectiveness and capacity to kill invasive organisms. It is important to change the solution once it becomes muddy and/or diluted due to repeated use. If you are uncertain about the concentration, "Quat Check 1000" Test Papers can be purchased from Grainger. The solutions is diluted to a ratio of 1:5 (one cup of solution to five cups of water) prior to testing. If the diluted solution is between 600 and 800 ppm (or higher), as indicated by the color of the test strip, the solution can continue to be used. If the solution is less than 600 ppm, the solution is no longer effective at killing invasive organisms. Dispose of per the manufacturer's label and make a new disinfection bath using the guidelines provided above.

Spray Disinfection Recommendations

Cleaning off small gear and waders using disinfectant spray:

- Prior to disinfection, clean debris, mud, and vegetation off of equipment and waders.
- Visually inspect waders and equipment for New Zealand mudsnails and other invasive aquatic organisms prior to cleaning.
- The recommended minimum active QAC concentration for effective spray-application disinfection is twice that for submersion disinfection, 0.8% or 8.0 ml of QAC per L of water (Table 2).
- Equipment and waders should be fully covered in disinfectant solution for a minimum of 10 minutes. Reapplication may be necessary if hot (evaporative) or wet conditions dilute spray solution on equipment.
- Follow all handling instructions on disinfectant label or MSDS.
- Power washing with hot water (140° F) is an option, if available.

Table 2. Commercially available QAC disinfectants, percent (%) active QAC, percent QAC concentration in solution, amount of disinfectant needed (ml and ounces) per gallon of water to obtain a minimum active QAC concentration of 0.8%, and ratio of disinfectant to water. Italics indicate that product has been discontinued.

Disinfectant Name	% Active QAC (MSDS)	% QAC Conc. In Solution	ml per gal	Ounces per gal	QAC:H_2O
Sparquat 256	*12.5*	*0.8*	*242.4*	*8.2*	*1:16*
Quat 4	10.0	0.8	307.6	10.4	1:12
Super HDQ Neutral	16.9	0.8	183.4	6.2	1:21
Green Solutions (GS) High Dilution Disinfectant 256	21.7	0.8	142	4.8	1:27
Vedco 128	8.45	0.8	360.8	12.2	1:11
Quat 128	8.45	0.8	360.8	12.2	1:11

SPARQUAT REPLACEMENT RECOMMENDATIONS

Super HDQ Neutral (Spartan Chemical) produced the highest New Zealand mudsnail mortality (100%) following the manufacturer's label recommendation for QACs in solution at an exposure duration of ten minutes. In addition, spray application of Super HDQ Nuetral to breathable

wader material resulted in 100% mortality at concentrations of 0.4, 0.8, and 1.2% QACs in solution. Super HDQ is therefore recommended as replacement for Sparquat 256. Bath disinfection recommendations remain at 0.4% QACs in solution (lower than manufacturer's recommendation). Spray disinfection recommendations remain at 0.8% QACs in solution (higher than manufacturer's recommendation) to account for uneven application or shorter exposure durations (Stout et al. 2016). Super HDQ Neutral distributers can be found through the Spartan Chemical website (http://www.spartanchemical.com/where-to-buy/local-distributors/).

General Public Recommendations

Due to the disparate QAC concentrations in the various products available for purchase by the public, it is possible that confusion could be created by having different dilution recommendations for these various products. Therefore, a standard rate of dilution should be set for the general public when using QAC's for disinfection, which will be of adequate active QAC concentration to produce complete disinfection when using even the lowest active ingredient products. The recommendation for *any* QAC used by the general public to disinfect waders is 6 ounces per gallon (see Table 3 for QAC concentration in solution); this ensures a full kill of invasive aquatic organisms if they are using lower concentration products (such as Vedco 128 or Quat 128). All steps in the disinfection process otherwise remain the same.

Table 3. Commercially available QAC disinfectants, percent (%) active QAC, percent QAC concentration in solution, and amount of disinfectant recommended to the public (ml and ounces) per gallon of water to obtain a full kill of invasive aquatic organisms. Italics indicate that product has been discontinued. NOTE: 6 ounces disinfectant per gallon equates to a ratio of QAC to water of 1:21.

Disinfectant Name	% Active QAC (MSDS)	% QAC Conc. In Solution	ml per gal	Ounces per gal
Sparquat 256	*12.5*	*0.59*	*177.5*	*6.0*
Quat 4	10.0	0.47	177.5	6.0
Super HDQ Neutral	16.9	0.79	177.5	6.0
Green Solutions (GS) High Dilution Disinfectant 256	21.7	1.0	177.5	6.0
Vedco 128	8.45	0.40	177.5	6.0
Quat 128	8.45	0.40	177.5	6.0

Additional non-chemical public disinfection recommendations include bagging or wrapping wading gear and equipment and freezing overnight (or longer in deep freeze), and allowing equipment and wading gear to dry in a warm or hot sunny location for 24-48 hours (Colorado Division of Wildlife 2005). Note that bleach has not been found to be effective at killing New Zealand mudsnails (USFS 2013).

Efficacy Against Other ANS of Concern

The recommendations made in this document for disinfecting gear that has come in contact with New Zealand mudsnail infested waters are higher than those for *Myxobolus cerebralis* (Hedrick

et al. 2008), chytrid fungus (Johnson et al. 2003), quagga mussels (Britton and Dingman 2011), and zebra mussels (Wong 2012). Therefore, these recommendations should be effective for preventing the spread of these species as well. Consult the literature for disinfection concentrations for other ANS of concern that are not included in this list.

DISPOSAL

Wastewater treatment plants are capable of processing water containing small amounts of QACs in solution. Therefore, rinsing used solutions of QACs down a sanitary sewer is a safe method of disposal. However, QACs should be kept out of storm sewers and other waterways. Always dilute old product before rinsing down sanitary sewers directly from the container, and follow MSDS and label recommendations regarding rinsing and disposal of empty containers. QACs become tightly bound to organic matter in soils and sediments (Owens et al. 2000) and are degraded by aerobic bacteria (Tezel 2009). Therefore, small amounts of QAC from spray or bath disinfection may come in contact with the environment with few negative effects. However, it is not recommended to dump large amounts of QAC solutions directly on the ground.

REFERENCES

Britton, D. K., and S. Dingman. 2011. Use of quaternary ammonium to control the spread of aquatic invasive species by wildland fire equipment. Aquatic Invasions 6:169-173.

Colorado Division of Wildlife. 2005. New Zealand mudsnail management plan: current status and suggested management actions. Colorado Division of Wildlife, Denver, Colorado. 21 pp.

Hedrick, R. P., T. S. McDowell, K. Mukkatira, E. MacConnell, and B. Petri. 2008. Effects of freezing, drying, ultraviolet irradiation, chlorine, and quaternary ammonium treatments on the infectivity of myxospores of *Myxobulus cerebralis* for *Tubifex tubifex*. Journal of Aquatic Animal Health 20:116-125.

Johnson, M. L., L. Berger, L. Philips, and R. Speare. 2003. Fungicidal effects of chemical disinfectants, UV light, desiccation and heat on the amphibian chytrid *Batrachochytrium dendrobatidis*. Diseases of Aquatic Organisms 57:255-260.

Owens, J. M., P. D. Guiney, P. H. Howard, D. B. Aronson, and D. A. Gray. 2000. Indoor household pesticides: hazardous waste concern or not? Pages 43-44 *in* G. W. Ware, editor. Reviews of Environmental Contamination and Toxicity. Springer-Verlag, New York.

Stout, J. B., B. W. Avila, and E. R. Fetherman. 2016. Efficacy of commercially available quaternary ammonia compounds for controlling New Zealand mudsnails. North American Journal of Fisheries Management 36(2):277-284.

Tezel, U. 2009. Fate and effect of quaternary ammonium compounds in biological systems. Georgia Tech Library and Information Center. Accessed January 26, 2015 at https://smartech.gatech.edu/handle/1853/28229.

USFS. 2013. Preventing spread of aquatic invasive organisms common to the intermountain region. United States Forest Service, Region 4. 11 pp.

Wong, W. H. 2012. Develop effective decontamination protocols for wildland firefighting equipment exposed to quagga/zebra mussels: testing the efficacy of quaternary ammonium compounds on killing dreissenid veligers and adults. Report to the U.S. Fish and Wildlife Service. 4 pp.

STATE OF COLORADO

Russell - DNR, Elliott <elliott.russell@state.co.us>

Curtis NOI Response

Titterington, Amy -FS <amy.j.titterington@usda.gov> Thu, Mar 25, 2021 at 11:20 AM
To: "milehighprospectors@centurylink.net" <milehighprospectors@centurylink.net>
Cc: "Russell - DNR, Elliott" <elliott.russell@state.co.us>, Sheila Cross <SCross@parkco.us>, "Swarr - DNR, Tyler" <tyler.swarr@state.co.us>

Hi James and Jennifer,

Your NOI response from the South Park Ranger District is attached. A hard copy will be mailed to you in the next few days.

Please follow the riparian stipulations and best management practices outlined in the letter and the attachment to remain in compliance with your NOI. I have also included a copy of Colorado Parks and Wildlife's wader cleaning protocols. You are expected to clean your waders between uses in order to minimize the spread of aquatic nuisance species.

Prior to operations, please check with the Army Corps of Engineers to determine whether or not a 404 permit will be required. I will need you to provide me with a copy of their response. The local contact is Josh Carpenter at Joshua.G.Carpenter@usace.army.mil.

If you have any questions, don't hesitate to contact me.

Amy

Amy Titterington, PG, CMA I
Geologist/ AML Coordinator

Forest Service

PSICC, South Park Ranger Distirct

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3 attachments

- **FS_Curtis_NOIResponse_032321.pdf**
  305K
- **Quaternary Ammonia Compound Disinfection Protocols (2018).pdf**
  393K
- **Riparian Stipulations.pdf**

146K