APPEAL TO THE APPEAL DECIDING OFFICER
UNITED STATES DEPARTMENT OF AGRICULTURE FOREST SERVICE
EASTERN REGION

WATERLEGACY, Appellant

APPEAL UNDER 36 C.F.R. §215 FROM RECORD OF DECISION (ROD) AND FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) for SUPERIOR NATIONAL FOREST FEDERAL HARDROCK MINERALS PROSPECTING PERMITS PROJECT.

ROD SIGNATURE DATE: May 18, 2012
LEGAL NOTICE DATE: June 1, 2012
APPEAL FILING DEADLINE: July 16, 2012

RESPONSIBLE OFFICIAL:
Timothy Dabney, Acting Forest Supervisor
Superior National Forest

APPEAL TAKEN TO:
USDA Forest Service, Eastern Region
Appeal Deciding Officer
Regional Forester Charles Myers
626 E. Wisconsin Avenue, Suite 700
Milwaukee, WI 53202
appeals-eastern-regional-office@fs.fed.us

JUST CHANGE LAW OFFICES
Paula Goodman Maccabee
1961 Selby Avenue
St. Paul, MN 55104
Atty. ID No: 129550
Ph: 651-646-8890
Fax: 651-646-5754
Cell: 651-775-7128
pmaccabee@justchangelaw.com

Counsel for Appellant WaterLegacy

NOTICE OF APPEAL

This administrative appeal is taken from the Superior National Forest Federal Hardrock Minerals Prospecting Permit Project Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) signed by Timothy Dabney, Acting Forest Supervisor, Superior National Forest on May 18, 2012, of which legal notice was provided on June 1, 2012. The appellant, WaterLegacy, a Minnesota 501(c)(3) organization formed to protect Minnesota waters and the communities that rely on them, filed comments on the Draft Environmental Impact Statement (DEIS) in this matter on June 24, 2011 ("WL DEIS Comment," attached as Exhibit A).

SPECIFIC CHANGES SOUGHT

1) Assure protection of groundwater from brackish water intrusions through testing and casing of boreholes with elevated chlorides and conductivity to protect *all* groundwater, rather than only groundwater within 500 feet of existing wells.

2) Implement Alternative 5 drill site noise mitigation and seasonal restrictions to reduce impacts on solitude, impacts on recreation, soil and water impacts, impacts on species of concern and wildlife, and impacts of non-native invasive species. To ensure protection of BWCAW solitude, additional noise reduction measures of Alternative 4 should also be applied at BWCAW receptors.

INTRODUCTION

WaterLegacy appreciates that the United States Forest Service (USFS) has made changes in the FEIS and ROD consistent with our comments on the DEIS, including the following:

- Limiting the prospecting EIS only to the permit applications specifically identified for the project (WL DEIS Comment, p. 3, ROD-4)

- Requiring that any future permits and operations plans must require a separate and complete National Environmental Protection Act (NEPA) compliance process. (WL DEIS Comment, p. 14, ROD-6). This includes mineral bulk sampling. (ROD-18, FEIS, p. 8)

- Ensuring that the prospecting EIS does not authorize any mining or minerals development, including, and that such a proposal would require a new and separate

NEPA process. (WL Comment, p. 3, ROD-16).

- Preventing impacts on water quantity resulting from cumulative withdrawals of water from the same water body by multiple companies and explorations. (WL DEIS Comment, pp. 2, 11, ROD-16, FEIS, p. 48).

- Increasing protection of natural stands of wild rice in lakes, rivers and streams. (WL Comment, p. 10, ROD-16).

The changes sought in the ROD requested in this appeal -- protection of groundwater resources from brines throughout the Superior National Forest project area and implementation of Alternative 5, along with any additional protection provided by Alternative 4 -- were specifically requested in WaterLegacy's comments on the DEIS and are properly raised in these proceedings.

These additional changes requested by WaterLegacy are required under federal and state statutes and regulations and by applicable sections of the 2004 Superior National Forest Land and Resource Management Plan (Forest Plan), which are made applicable to this project under the National Forest Management Act (NFMA). (FEIS, p. 4). The FEIS and Technical Documents included as Appendices to the FEIS provide pertinent evidence demonstrating that the decisions of the Responsible Official regarding the specific changes sought were made in error and should be reversed on appeal.

DISCUSSION

I. Stipulations should assure protection of groundwater from brackish water intrusions through testing for brines and casing of boreholes to protect *all* groundwater, rather than only groundwater within 500 feet of existing wells.

In the prior DEIS, on which WaterLegacy commented last June, stipulations to protect groundwater from brackish water intrusions were wholly inadequate. The only protection proposed by the DEIS was to require a Brackish Water Management Plan in order to drill within three miles of the Lake Superior shoreline. (Prospecting DEIS, WAT-12, pp. 59, 63 discussed in WL DEIS Comment, p. 9).

In our comments last June, WaterLegacy summarized scientific research demonstrating that intrusions of brackish waters or brines may be found anywhere within the Duluth Complex rock formation, not only within three miles of Lake Superior, and that salt inclusions have been

found in cores from the Maturi, MinnAmax, Dunka Road (PolyMet), and Dunka Pit areas. (WL DEIS Comment, p. 9)[1]. We requested comprehensive mitigation measures recognizing that brackish water intrusions and the risk of contaminating groundwater with brackish waters or brines extended throughout the minerals exploration project area. (WL DEIS Comment, p. 2).

The FEIS and its technical documents contained in Appendix G reflect additional research and field investigation conducted to determine the presence of brackish intrusions in the project area and the likelihood that these brackish intrusions would impact groundwater or surface water. The USFS record of decision appears to reflect a compromise approach that would seek to test for salinity in borings and protect groundwater resources within 500 feet of an existing drinking water well, but would provide no testing or mitigation for groundwater that is not located within 500 feet of an existing well. The ROD states:

> I have also carefully considered public comment raising the concern that exploratory drilling could cause pockets of brackish (i.e. salty) groundwater to reach freshwater supplying drinking water wells. In response to this public comment, my staff completed some limited monitoring of existing drill holes and found some holes to contain brackish water (data is in project file). This is not surprising since it is known that brackish water is present in deeper underground rocks throughout the region. . .
>
> Although the probability that exploratory drilling would result in brackish water impacting drinking water supplies in wells located within the Duluth Complex is low, I also considered that the risk is not zero. Further, there is very little data available to characterize the extent of the risk. Therefore, I am adopting a precautionary approach to include a stipulation to address this concern. This stipulation requires that when a drill site is within 500 feet of a drinking water well, the permittee must either permanently abandon the hole once drilling is complete, or monitor the drill hole for chloride levels above 250 mg/L (the State of Minnesota secondary drinking water standard). If chloride levels above 250 mg/L are found, the permittee must permanently abandon the hole per Minnesota Department of Health (MDH) regulations. Alternatively, the permittee may keep the hole open if it is cased. (ROD-16)

WaterLegacy appreciates the Forest Service's recognition of the risk that drilling could cause movement of brackish water and contamination of groundwater. However, Minnesota water quality statutes and rules and the scientific evidence require stipulations that protect *all* groundwater from contamination, not only the groundwater near existing wells. The field

[1] WaterLegacy's comments cited and attached copies of Dahlberg &Saini-Eidukat, *A Chlorine-bearing Phase in Drill Core of Serpentinized Troctolitic Rocks of the Duluth Complex, Minnesota*, Canadian Mineralogist Vol. 29, 1991, pp. 239-244; Severson & Barnes, *Geology, Mineralization, and Geostatics of the Minnamax/Babbitt Cu-Ni Deposit (Local Boy Area), Minnesota Part II: Mineralization and Geostatics*, NRRI, Technical Report TR-90-13b (1991).

sampling reported in Appendix G of the FEIS demonstrates elevated chlorides in project area boreholes and sumps suggests that the risk of contamination of groundwater as a result of brackish intrusions has been underestimated in the ROD. Applicable law and the evidentiary record provided in the FEIS Appendix G require a stipulation to protect all project area groundwater from introduction of brackish water through drilling activities, not only groundwater within 500 feet of existing wells.

Minnesota statutes and rules require protection and preservation of all groundwater as a state resource:

> The legislature finds that it is in the public interest to manage groundwater and surface water resources from the perspective of aquifers, watersheds, and river basins to achieve protection, preservation, enhancement, and restoration of the state's valuable groundwater and surface water resources. Minn. Stat. 103A.212.

State law reflects a goal that "groundwater be maintained in its natural condition, free from any degradation caused by human activities." Minn. Stat. 103H.001. Subd. 6. The term "groundwater" is not restricted to waters near existing wells, but means "water contained below the surface of the earth in the saturated zone *including, without limitation, all waters whether under confined, unconfined, or perched conditions, in near-surface unconsolidated sediment or regolith, or in rock formations deeper underground*." Minn. Stat. 115.01, Subd. 6 (emphasis added).

Transport or introduction of brines within aquifers as a result of exploratory drilling would be considered "degradation," since the term is defined broadly to mean "changing groundwater from its natural condition by human activities." Minn. Stat. §103H.005. This activity would also be considered "pollution," which is defined to include "alteration made or induced by human activity of the chemical, physical, biological, or radiological integrity of waters of the state" as well as the release of noxious substances. Minn. Stat. 115.01, Subd. 13(b). "Aquifers" and "all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof" are defined as protected "waters of the state." Minn. Stat. § 115.01, Subd. 22.

Minnesota Pollution Control Agency rules require maximum protection to all underground waters to preserve their *potential* as well as actual use for drinking water.

> It is the policy of the agency to consider the *actual or potential use* of the underground waters for potable water supply as constituting the highest priority use and as such to provide *maximum protection to all underground waters*. The ready availability nearly statewide of underground water constitutes a natural resource of immeasurable value which must be protected as nearly as possible in its natural condition. For the conservation of underground water supplies for present and future generations and prevention of possible health hazards, it is necessary and proper that the agency employ a nondegradation policy to prevent pollution of the underground waters of the state. Minn. R. 7060.0200 (emphasis added).

Water quality standards contained in Part 7050.0220 apply to underground as well as to surface waters. Minn. R. 7060.0200. U. S. EPA primary and secondary drinking water standards apply to Minnesota drinking water. Minn. R. 7050.0220, Subp. 2A. The U.S. EPA secondary drinking water standard for chlorides is 250 mg/L.

Under these Minnesota statutes and rules, transport of chlorides through mining boreholes that alters the natural chemistry of groundwater and impacts the potential potability of that water would be considered pollution and degradation of state groundwater resources. U.S. EPA standards for chlorides would be applicable to all Minnesota groundwater.

The discussion and data contained in the FEIS and its appendices requires that the WAT-9 stipulation to protect groundwater from brackish water or brines be revised to protect *all* groundwater, whether or not it is adjacent to existing wells. The FEIS states that one of its concerns in protecting groundwater quality is potential "introduction of salty or brackish water into the groundwater resource" and "Potability or ability to meet drinking water standards will be considered the indicator for this potential impact." (FEIS, p. 149). As explained above, protection of potability applies to all Minnesota groundwater, not only that within 500 feet of existing wells.

In addition, a Desired Condition in the Superior National Forest Plan protects the quality of and future use of groundwater, prescribing, "Management activities do not reduce existing quality of surface or groundwater or impair designated uses of surface and ground water." (Forest Plan D-WS-4, p. 2-10)

The FEIS acknowledges that highly saline water has been encountered in the project area where exploratory drilling is proposed:

> Saline groundwater conditions near Lake Superior have been a known phenomena to

> local well drillers for a number of years. However, saline groundwater has also occurred in other portions of the SNF. Saline water or water high in chloride concentrations are recognized in the Copper-Nickel Study authored in 1979 which states, "*Highly saline water has been encountered in some bedrock areas in the Study Area…The source and spatial distribution of this water in the Study Area is unknown*" (Thingvold, Eger, Hewitt, Honetschlager, Lapakko, & Mustalish, 1979). Monitoring of active drill sites in 2012 confirmed the presence of elevated chloride conditions (Rye, 2012f), (Rye, 2012g). The presence of saline water is closer to the surface near Lake Superior than other portions of the SNF and is generally deeper in the area of intense mineral exploration activity. Additional detail on the extent of the saline water conditions is provided in the appendix of this report and project file (Rye, 2012c; Larson, 2012). (FEIS, p. 154) (emphasis in original).

The technical documents attached in FEIS Appendix G provide additional information regarding the presence of brines in the Superior National Forest ("SNF") area. Technical memoranda prepared by SNF Hydrologist Marty Rye explain that there is no systemized data collection or mapping of the salinity of groundwater on the SNF, and none of the Minnesota state agencies have developed more than a rough limit of its existence. (FEIS, App. G-30). However, it is known that "Saline groundwater is present within the SNF, especially near Lake Superior." (FEIS, App. G-40). It is rare for saline water to be artesian (flowing at the surface) or to migrate upward, but there have been instances of artesian flow at the AMAX site as well as within a couple miles of Lake Superior. (p. G-40) At the Minnamax site, deep exploratory boreholes and an exploration shaft encountered shield brines. In the case of borehole B1-303, dilute shield brine flowed to the surface. (p. G-43)

FEIS Appendix G documents additional research confirming the risk of brackish waters in the project area. SNF Hydrologist Rye explains, "Subsequent investigation and water sampling confirmed the possibility of elevated chloride concentrations occurring in groundwater throughout the SNF (Rye, 2012a; Rye, 2012b; Rye, 2012c)." (G-52).

Most striking are the results of field testing of boreholes conducted by USFS staff. "Field samples were collected to evaluate the utility of testing water while actively drilling to determine if a lense of saline water has been encountered." (G-135) Field sampling in 2012 demonstrated that *4 out of the 5 boreholes tested* or "all but one of the sites" had chloride levels exceeding the Minnesota groundwater quality standard of 250 mg/L. (FEIS, App. G-137). Chloride levels at one site were as high as 3,460 mg/L. (FEIS, App. G-128).

Additional testing was conducted at the sumps associated with these boreholes,

demonstrating consistently elevated chloride concentrations. “The chloride concentrations of the sumps at Site 15 and F4 are similar to the concentration in the boreholes at Site 15 and F4 during active drilling. All but one of the sites exceeded the secondary drinking water standard for chloride of 250 mg/l.” (G-137)

In addition to demonstrating the presence of brackish water in project area boreholes and sumps, the FEIS Appendix G explained that the only way to determine the location of salinity and the risk of its propagation through fractures is by testing at individual borehole locations. SNF Hydrologist memos summarize, “It is very difficult to determine how/whether fractures are connected, if they hold water, and what type of water they contain.” (FEIS, App. G-31)

A hole is considered ‘water-bearing’ if it has a yield of 0.25 gallons per minute in accordance with MDH Rules 4725.00500. (p. G-36) Some fractures are interconnected and others are more isolated. A fracture can have water above and/or below a dry fracture and the static head within fractures can vary (water flows from a high static head to a lower static head). “Hence, an exploratory hole can not only hydraulically connect a fracture with another one below it; water could also flow up the boring and into a higher fracture.” (p. G-35) As a result of these factors, summarizes Rye, it is not possible to predict, prior to drilling: “a) if a specific hole is going to have brackish water (or water at all), b) at what depth it would be encountered, c) whether a hole is connected to other fractures, d) the volume of brackish water, or e) the rate it is entering and leaving the hole.” (FEIS, App. G-31)

Fortunately, testing for the presence of brackish water intrusions is simple and practical. “Chloride concentration is considered a good measure of the brackish or salinity of the water. Commercially available strips can measure the chloride concentration. These strips seem to be a viable field method for testing water samples and are valuable in obtaining immediate results (Rye, 2012a).” (FEIS, App. G-38) The material cost of an on-site chloride test using a funnel and disposable filter is between $4 and $8 and requires from 15 to 20 minutes to run the test and record results. (FEIS App. G-130). Another practical and feasible means of testing chlorides is to take a sample and submit it to a lab for analysis. This method would cost about $20 per test, would take only a minute and would provide results using the EPA standard. (FEIS App. G-130). If borehole testing showed elevated chlorides, the FEIS Appendix G also proposes a slug test to measure for conductivity. (FEIS App. G-39).

Minnesota statutes and rules and the FEIS evidence from field testing in the project area

require a stipulation to protect *all* project area groundwater from degradation or pollution resulting from introduction of brackish waters through drilling activities, rather than just that groundwater within 500 feet of an existing well. The technical documents described above suggest that the following stipulation would be simple and cost-effective to protect Minnesota groundwater and surface water from brackish intrusion:

> (Proposed WAT – 10) Operator shall test all boreholes for chlorides. If borehole chlorides exceed 250 mg/L, operator shall conduct a test of conductivity to determine if the hole is water-bearing and test sump chloride levels. If chloride levels exceed 250 mg/L in a water-bearing hole, the hole shall be permanently abandoned, with casing to the next impermeable layer, and a report provided to the USFS. If chloride levels in a sump exceed 250 mg/L, operator shall pump out and contain sump fluids in an impermeable facility.

II. Implementation of Alternative 5 is required as a practicable means to avoid or minimize environmental harm, consistent with the USFS statutory mission, the Forest Plan and the FEIS. This implementation should be coupled with noise limits specific to BWCAW receptors proposed in Alternative 4.

Alternatives 2, 3, 4 and 5 for the Hardrock Prospecting Project would allow minerals exploration activities to take place. WaterLegacy is appealing the Responsible Officer's decision to select Alternative 4. We believe that failure to select Alternative 5 is arbitrary and capricious given clear evidence in the FEIS that Alternative 5 would avoid and minimize environmental harms. There are no countervailing technical considerations or conflicts with the mission of the USFS. In fact, ensuring compliance with Alternative 5 would be less difficult than verifying compliance with the alternative selected in the ROD, and Alternative 5 would more closely conform to the USFS mission and provisions of the Forest Plan.

Alternative 5 would require noise mitigation measures, such as baffles, at all drill sites to reduce ambient sound from 84 dBA to 70 dBA at 20 feet from the drill rig and would restrict drilling and other prospecting activities so that they could only take place from November 1 through April 30. (FEIS, p. v). The selected Alternative 4 would neither require mitigation at all drill sites, nor seasonal restrictions, but would limit ambient sound where monitored receptors inside the BWCAW measured exceedances of 35 decibels more than 10 percent of the time (L10) or exceedances of 30 decibels more than 50 percent of the time (L50). (FEIS, p. v, Stipulation RV-3). Either Alternative would also require compliance with Minnesota state noise

rules, which prevent nighttime noise in residential areas, resorts or campgrounds from exceeding 50 decibels more than 50 percent of the time (L50) or from exceeding 55 decibels more than 10 percent of the time (L10). Minn. R. 7030.0040, Subp. 2; Minn. R. 7030.0050, Subp. 2.

WaterLegacy's prior comments on the draft EIS highlighted our concerns that the proposed selection of Alternative 4 without the protections of Alternative 5 would increase impacts on solitude in wilderness areas, impacts on recreation, impacts to soil resources, impacts to ground and surface waters, impacts to endangered species and to other wildlife during breeding seasons and impacts of non-native invasive plant species. (WL DEIS Comments, pp. 11-12). WaterLegacy proposed that the noise mitigation measures and seasonal restrictions contained in Alternative 5 should be combined with application of a noise decibel limit at BWCAW receptors at least as stringent as that proposed in Alternative 4. (WL DEIS Comments, p. 2).

In addition to advocating that Alternative 5 be implemented to avoid and minimize environmental harm to solitude, recreation and wildlife, WaterLegacy suggested that the seasonal restriction contained in Alternative 5 would make stipulations protecting various Ecological Land Types ("ELTs") more enforceable. Rather than investigating the location of each drilling activity to determine if seasonal restrictions on specific ELTs were being followed, the USFS could request prospectors to provide documentation of start dates and weather conditions on which they begin and cease yearly operations, and any resident, hunter or recreational visitor as well as field staff could identify and report off-season prospecting. (WL Comment, p. 13).

The ROD submitted with the FEIS rejected Alternative 5 and selected Alternative 4. (ROD-1, ROD-14). Rejection of Alternative 5 is inconsistent with the evidentiary record and applicable federal regulations.

Federal regulations pertaining to the record of decision ("ROD") require that the agency must justify any deviation when all practicable means to avoid or minimize environmental harm are not selected. The Code of Federal Regulations, 40 C.F.R. 1505.2 (2012) provides that the ROD must:

(a) State what the decision was.

(b) Identify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable.

> An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions. An agency shall identify and discuss all such factors including any essential considerations of national policy which were balanced by the agency in making its decision and state how those considerations entered into its decision.
>
> (c) State whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not.

The ROD stated that "all practicable means to avoid or minimize environmental harm have been adopted in this decision" (ROD-6). However, this statement is contrary to the FEIS evidentiary record and is thus arbitrary, capricious and an abuse of agency discretion.

An agency's decision is arbitrary, capricious and an abuse of discretion pursuant to 5 U.S.C. § 706 if the agency "offered an explanation for its decision that runs counter to the evidence before the agency" or "failed to base its decision on consideration of the relevant factors." *Richardson v. BLM*, 565 F.3d 683, 704 (10th Cir. 2009)(holding that the BLM failed to comply with NEPA and the Federal Land Management Policy Act). "In order for a factual determination to survive review under the arbitrary and capricious standard, an agency must 'examine the relevant data and articulate a rational connection between the facts found and the decision made.'" *Id*., at 713-714, *citing Citizens' Comm. to Save Our Canyons v. Krueger,* 513 F.3d 1169, 1176 (10th Cir. 2008); *Or. Natural Res. Council Fund v. Brong,* 492 F.3d 1120, 1125, 1130 (9th Cir. 2007)(holding that the BLM's arbitrary action violated NEPA, the applicable Forest Plan and the Federal Land Management Policy Act).

Courts will vacate a final agency finding where "The data does not furnish a rationale for, or evidence to support" the finding. *Earth Island Institute v. Hogarth*, 494 F.3d 757, 767 (9th Cir. 2007). A baseless decision is granted no deference:

> Although in recognition of its technical expertise and experience, we often defer to the analysis of an agency, especially within its area of competence, we need not do so when the agency's decision is without substantial basis in fact. *Fed. Power Comm'n v. Florida Power & Light Co., 404 U.S. 453, 463, 92 S. Ct. 637, 30 L. Ed. 2d 600 (1972)*. An agency action is not supportable if it did not consider all the relevant factors and if there is no rational connection between the facts found and the determination made.

Id., at 766.

The FEIS demonstrates that Alternative 5 is a practicable alternative that would avoid

and minimize environmental harms. The following findings quote or paraphrase the FEIS:

1. Noise mitigation proposed in Alternative 5 is practicable: "To reduce potential impacts to people from noise from drilling operations, Alternative 5 provides for seasonal noise reduction within the project area by allowing drilling exploration and other project activities to occur only from November 1 through April 30. Limiting operations to this time frame would result in not impacting people with noise from drilling during the time frame when recreation use on and near the SNF is at its highest. In addition, this alternative further addresses potential noise impacts by requiring that drilling operations result in no more than about 70 dBA at 20 feet from the source (drill rig) throughout the exploration operations. This could be accomplished by utilizing noise abatement measures, such as baffles as described for Alternative 3." (FEIS, p. 47)

2. Comparing effects of alternatives on soils for the 29 permit applications and for Forest-wide analysis, "Alternative 5 would have less impact than the other action alternatives due to the seasonal restriction applying to all drilling." (FEIS, Table 12, p. 72 and Table 13, p. 74)

3. Comparing effects of alternatives on non-native invasive plants (NNIP) for the 29 permit applications and for Forest-wide analysis, "Alternative 5 has a lower risk of NNIP spread due to seasonal restriction." (FEIS, Table 12, p. 72 and Table 13, p. 74)

4. Comparing effects of alternatives on recreation for the 29 permit applications and for Forest-wide analysis, Alternative 5 "negative effects would be lower than Alternatives 2-4 due to seasonal restriction to recreation receptors." (FEIS, Table 12, p. 73 and Table 13, p. 75-76)

5. Comparing effects of alternatives on the BWCAW for the 29 permit applications and for Forest-wide analysis, "Alternative 5 would have the lowest negative effect to opportunity for solitude, followed by Alternative 4, Alternative 3 and Alternative 2." (FEIS, Table 12, p. 74 and Table 13, p. 76, see also FEIS, p. vi).

6. Comparing effects of alternatives on recreational residences for the 29 permit applications and for Forest-wide analysis, Alternative 5 "Avoids most impacts since most use occurs in summer." (FEIS, Table 14, p. 76 and Table 15, p. 77).

7. Comparing effects of alternatives on private residences for the 29 permit applications and for Forest-wide analysis, Alternative 5 "Avoids impact to summer users." (FEIS, Table

14, p. 76 and Table 15, p. 77).

8. Comparing effects of alternatives on developed campgrounds for the 29 permit applications and for Forest-wide analysis, Alternative 5 "Avoids most impacts since most use occurs in summer." (FEIS, Table 14, p. 76 and Table 15, p. 77).

9. Comparing effects of alternatives on the BWCAW for the 29 permit applications and for Forest-wide analysis, Alternative 5 has the "Lowest impact due to mitigation and seasonal restriction." (FEIS, Table 14, p. 76 and Table 15, p. 77).

10. Discussing impacts to recreation, the FEIS states, "To reduce potential impacts to people from noise from drilling operations, Alternative 5 provides for seasonal noise reduction within the project area by allowing drilling exploration and other project activities to occur only from November 1 through April 30. Limiting operations to this time frame would result in not impacting people with noise from drilling during the time frame when recreation use on and near the SNF is at its highest. In addition, the sound level reduction requirements from Alternative 3 also apply to Alternative 5." (FEIS, pp. 79-80)

11. As compared with Alternative 2, Alternative 5 reduces the distance of ambient noise audibility per drill site by more than two-thirds and reduces the area of audibility by more than 90 percent. Noise reduction for Alternative 4 depends on location. (FEIS, Table 21, p. 95).

12. As compared with Alternative 2, Alternative 5 reduces the distance where noise per drill site exceeding 50 decibels can be heard by more than two-thirds (from 448 feet to 117 feet) and reduces the area where noise at this level can be heard by more than 90 percent (from 13 acres to 1 acre). The distance at which noise per drill site between 34 and 50 decibels can be heard is also reduced by more than two-thirds (from up to 1734 feet to up to 480 feet) and the area in which this noise can be heard is reduced by more than 90 percent (from 204 acres to 16 acres). Noise reduction for Alternative 4 depends on location. (FEIS, Table 21, p. 95).

13. The area of audibility of noise for Alternative 5 is markedly smaller than the area of audibility for Alternative 4 (FEIS, Fig. 15, p. 110 and Fig.17, p. 114, attached in Exhibit B). Similarly, the sound contour for Alternative 5 shows a marked reduction in the area of impact as compared to the sound contour for Alternative 4. (FEIS, Fig. 16, p 112 and Fig. 18, p. 116, attached in Exhibit B). Alternative 5 even reduces the modeled area of audibility and sound

contour impacts to the BWCAW.

14. With respect to noise, the FEIS concluded: "There could be minor to moderate impacts in areas outside the wilderness. Moderate impacts would be more likely under Alternatives 2 and 4 for people located outside buildings, particularly for tent campers located near drill sites (e.g. Birch Lake Campground). Alternatives 3 and 5 would usually cause minor impacts, although moderate impacts may still occur for receptors very close to a drill site." (FEIS, p. 102, p. 119)

15. With respect to BWCAW impacts, "Alternative 5 would have the same cumulative effects as Alternatives 2-4, except cumulative effects in the summer would be avoided due to the seasonal restriction. There may be some concentration of effects in the winter compared to Alternatives 2-4, although this would not be substantial since the majority of drilling is anticipated to occur during frozen ground conditions in all action alternatives." (FEIS, p. 129) The FEIS explained in a subsequent section that only 20 percent of the area covered by current operating plans and 19 percent of forest-wide soils have no restrictions limiting drilling to frozen or dry soil conditions. (FEIS, pp. 143-144)

16. With respect to the BWCAW, "Alternative 5 would avoid impacts to most wilderness users by limiting drilling season." (FEIS, p. 130).

17. Alternative 5 would reduce impacts on recreation from road usage: "Because temporary roads needed for vegetation management and mineral exploration are generally not open for public use and are decommissioned and reclaimed upon completion of activities, effects . . . are not expected to last longer than the duration of the exploration activities. These other projects and actions would have even less of a cumulative effect under Alternative 5 since recreation decreases dramatically between the months of November through April." (FEIS, p. 133)

18. Alternative 5 would reduce local impacts to water: "As described above, stipulations and permit restrictions would adequately protect surface and groundwater resources from impact. There would be less localized impact due to timing restriction of November 1 to April 30." (FEIS, p. 161).

19. Alternative 5 would reduce impacts on Regional Forester sensitive species (e.g. bald eagle, northern goshawk, boreal owl, great gray owl, olive-sided flycatcher, American three-toed woodpecker, various rare butterflies, wood turtle): "More species would be present in

the project area in Alternatives 2-4 than in Alternative 5. Winter noise levels would have no effect on species that migrate from the area for the winter. Season of activities considers that the fewest number of wildlife species are present during the winter and that noise effects may impact wildlife at any time of the year." (FEIS, species identified pp. 167-168, quoted at p. 170)

20. Alternatives 5 would impact fewer species due to reduced effects from "road collisions or noise." Although limiting operations to November 1 through April 30 would decrease the competitive advantage of Canada lynx due to snow compaction in the project area, Alternative 5 would "be beneficial to lynx and other wildlife species by reducing disturbance during breeding seasons." (FEIS, p. 177)

21. Noise mitigation in Alternative 5 would reduce affects on birds and wildlife. The FEIS explained that ambient industrial noise may interfere with bird communication, change species foraging and anti-predator behavior, reproductive success, density, community structure and immune function. "Animal responses to noise are also highly variable and include fleeing, avoidance, immune response, startle responses, reduced feeding, increased vigilance, frequency, amplitude, and/or temporal communication shifts to avoid noise conflict, and adaptation . . . Animals may adapt to anthropogenic noise but the documented responses are generally neutral or maladaptive." (FEIS, p. 172).

22. The FEIS modeled maximum sound effects of 10 drilling operations on wildlife and determined that the area of audibility for Alternative 5 would be less than one-tenth of that for Alternative 4 depending on location (up to 5.5 miles as compared to up to 65.1 miles for noise that can be heard 50 percent of the time and up to 31.2 miles as compared to 374.7 miles for noise that can be heard 10 percent of the time). (FEIS, Table 30, p. 178).

23. In terms of noise impacts on wildlife, "Alternative 4 would have more effects than Alternatives 3 and 5. . . The affected area would be range from 1.2 percent up to 14.4 percent depending on the adjacency of drill rigs to recreation receptors. Only drill rigs near receptors mitigated under Alternative 4 or Minnesota Rules on Noise would be baffled but others would not be baffled resulting in higher sound levels near those rigs far enough from recreation receptors to not need baffling. Activities would take place year-round, affecting all species during breeding season and those that spend the winter. Year-round sound from drilling activities and helicopter use would affect all species of wildlife. Although it is

difficult to determine how each sensitive species or species of public concern might be affected, it is likely that in Alternative 4 all species would be impacted by reduced communication and predator avoidance abilities to some degree during the entire year." (FEIS, p. 179)

24. In contrast, "Alternative 5 includes mitigation to reduce sound volume in the entire project area, and a seasonal restriction on drilling. Alternative 5 would have the least noise effects to wildlife of the action alternatives." (FEIS, pp. 180, 182).

25. Alternative 5 would have the lowest impacts on wildlife, even taking into account wintering species: "The affected area would be 1.2 percent because all drill rigs would be baffled, but activities would only take place during the winter. Fewer animals would experience increased noise in Alternative 5 because all drill rigs would have sound baffles to reduce noise levels and the fewest number of species would be present in the project area. Alternative 5 would not affect migratory species such as song birds and trumpeter swans and would not affect most species during their breeding periods. It would increase the effects to species like wintering great gray and boreal owls that rely heavily on sound cues to find prey. Both species are winter visitors or residents and highly mobile. Although they would be able to move to suitable hunting habitat away from the noise of drill rigs they may risk losing territorial advantages and have increased energy expenditures in new surroundings. Noise from helicopters would disturb the fewest number of species during the breeding season, which starts in early spring for eagles." (FEIS, p. 180)

26. In terms of non-native invasive species (NNIS), "There would be less risk of non-native invasive plant spread under Alternative 5 . . . Alternative 5 would only permit exploration activities from November 1 through April 30. Although the assumptions about acres of disturbance, number of drill pads, etc., would be the same, the majority of exploration activity would occur under frozen ground conditions with snow on the ground because of the seasonal restriction. For this reason, there would be less soil disturbance and hence less opportunity for non-native invasive plant spread." (192)

As detailed above, the FEIS explains that Alternative 5 is environmentally preferable to avoid and minimize impacts of prospecting activities even though there may be some additional concentration of activities in the winter. Determination of compliance with Alternative 5 would be readily accomplished by setting standards at drilling sites and observing dates of operation.

Alternative 5, like other restrictions proposed in the FEIS, is practicable, feasible and reflects only minor costs to permittees:

> While additional costs to operators from noise restrictions and other proposed stipulations would occur under the action alternatives they would be less than under the No Action Alternative where the long run costs would be greater if the opportunity cost of forgone hardrock mineral discovery is considered. In addition, the additional marginal costs of drilling restrictions represent a small portion of overall drilling costs and are outweighed by benefits of hardrock mineral discovery. (FEIS, p. 230)

The potential that Alternative 5 "reduces flexibility for operations by permittees" (ROD-14) is not substantiated by the FEIS and is an insufficient justification for rejecting this environmentally preferable alternative.

Neither the agency mission nor the 2004 Superior National Forest Plan provide a countervailing reason to reject Alternative 5. In fact, both provide additional support for its selection in keeping with the knowledge reflected in the FEIS and the protection of resources and property rights in the project area. The mission of the USFS is "to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations." [2] Guiding Principles of the USFS include:

- We use the best scientific knowledge in making decisions and select the most appropriate technologies in the management of resources.
- We are good neighbors who respect private property rights.
- We strive for quality and excellence in everything we do and are sensitive to the effects of our decisions on people and resources.
- We follow laws, regulations, executive direction, and congressional intent. (*Id*.)

The National Forest Management Act (NFMA) requires that projects comply with the Forest Plan. (FEIS, p. 14). The sole provision cited in the ROD might support rejection of No Action Alternative 1, but would provide additional support for Alternative 5:

> Ensure that exploring, developing and producing mineral resources are conducted in an environmentally sound manner so that they may contribute to economic growth and national defense." (Forest Plan, D-MN-2, p. 2-9, cited at ROD-2)

Additional Forest Plan provisions supporting selection of Alternative 5 include:

> The Forest continues to provide rare or unique benefits that may not be common on or

[2] US Forest Service – Mission, Motto, Vision and Guiding Principles, available at http://www.fs.fed.us/aboutus/mission.shtml).

available from other public or private lands, such as opportunities for experiencing solitude in remote settings. (Forest Plan, D-SE-3, p. 2-37)

Contribute to local-scale social and economic vitality by promoting and/or protecting area cultural values, traditional employment, recreation opportunities, historical landscape features, commodity related natural resources, and aesthetic qualities of the forest. (Forest Plan, O-SE-1, p. 2-37)

Contribute to the conservation and recovery of federally-listed, proposed, or candidate threatened and endangered species and the habitats upon which these species depend. (Forest Plan, D-WL-3(c), p. 2-27)

Minimize negative impacts to known sensitive species from management activities that may disturb pairs in their breeding habitat during critical breeding season (varies by species). (Forest Plan, G-WL-12, p. 2-31)

Resource conditions exist that minimize undesirable occurrences of non-native, invasive species. (Forest Plan D-VG-3, p. 2-22)

During project implementation, reduce the spread of non-native invasive species. (Forest Plan G-WL-23, p. 2-36)

Finally, although WaterLegacy believes that the restrictions of Alternative 4 are insufficient to protect solitude, recreation, wildlife and other Forest resources, WaterLegacy agrees with the USFS that decibel limitations specific to the BWCAW should be set in this environmental review process to avoid and minimize environmental harm. Where monitoring can be done for specific BWCAW receptors to identify mitigation needed to meet standards specific to the wilderness, Alternative 4 has the potential to "reduce impacts to the greatest degree of the action alternatives for the BWCAW for drill sites located near the wilderness by requiring maximum limits for sound levels reaching the wilderness." (FEIS, p. 121)

Given the likelihood of exploration at the edge of the BWCAW in the future as well as the proposed 29 permits and the fact that Minnesota noise rules are not tailored to and do not specifically address the need to preserve solitude in the wilderness, WaterLegacy believes that the congressional intent in designating the BWCAW would be best reflected by establishing specific standards in the ROD that restrict noise in the BWCAW. Although we proposed yet more stringent limits for BWCAW receptors in our DEIS Comments (WL DEIS Comments, p. 2), WaterLegacy would support the application of the noise limits proposed by the USFS for

BWCAW receptors limiting noise to 30 decibels 50 percent of the time (L50) and to 35 decibels 10 percent of the time (L10) be added to the restrictions in Alternative 5.

The marginal cost of adding BWCAW receptor restrictions to Alternative 5 would be minimal, and permittees would have the flexibility of modifying the noise mitigation at drilling sites and/or modifying the location of drilling sites, as they would if Alternative 4 were selected without the additional protections of Alternative 5. As stated above, any of the noise mitigation alternatives separately or in combination, represent a small portion of drilling costs far outweighed by the profit to mining companies resulting from hardrock mineral discovery.

From a local perspective, the proposed prospecting activities "have a negligible cumulative effect on the analysis area economy." (FEIS, p. 231) However, as reflected in the Forest Plan, "local-scale social and economic vitality" depends on "promoting and/or protecting area cultural values, traditional employment, recreation opportunities, historical landscape features, commodity related natural resources, and aesthetic qualities of the forest. (Forest Plan, O-SE-1, p. 2-37). Since prospecting activities have intensified in the Birch Lake area, where the 29 additional permits are proposed, WaterLegacy has heard from residents, business owners and campers that the noise from drilling has been disruptive to their activities, their quality of life and their private property rights, including business and property values.

The USFS has an obligation to select the alternative that provides all practicable means to avoid and minimize environmental harms consistent with the FEIS factual record. The USFS mission, the Forest Plan and technical considerations support selection of Alternative 5, with the additional restriction on noise measured at BWCAW receptors contained in Alternative 4. Stipulations requiring these mitigations would protect solitude, recreation, wildlife, soils and water, private property rights and quality of life in the local economy as well as the congressional intent in designating the BWCAW.

CONCLUSION

Based on the foregoing discussion, the Exhibits to this appeal, applicable law and the evidentiary record in these proceedings, WaterLegacy requests the following relief:

1) That the stipulation in the ROD protecting groundwater within 500 feet of existing wells from brackish intrusions (WAT-9) be replaced by WaterLegacy's proposed stipulation protecting all groundwater from such intrusions as follows:

WAT-10: Operator shall test all boreholes for chlorides. If borehole chlorides exceed 250 mg/L, operator shall conduct a test of conductivity to determine if the hole is water-bearing and test sump chloride levels. If chloride levels exceed 250 mg/L in a water-bearing hole, the hole shall be permanently abandoned, with casing to the next impermeable layer, and a report provided to the USFS. If chloride levels in a sump exceed 250 mg/L, operator shall pump out and contain sump fluids in an impermeable facility.

2) That the stipulation RV-3 required in the ROD be augmented by FEIS stipulations RV-1 and RV-2 (FEIS, p. 56) to implement Alternative 5 and avoid and minimize environmental impacts consistent with the evidentiary record and applicable law:

RV-1: For all locations, reduce sound levels emitted from drilling rigs to 70 dBA at 20 feet from the drill rig. This may be accomplished with techniques such as installing baffling around the engine, using drill rigs that emit lower sound levels, or other measures that may be identified during implementation.
RV-2: Allow drilling only from November 1 to April 30 for any location.
RV-3: Reduce sound levels emitted by drilling reaching receptors: to an L50 level of 30 dBA and an L10 level of 35 dBA at the boundary of the BWCAW. This may be accomplished with measures such as installing baffling around the engine, adjusting the location of drilling, or other measures that may be identified during implementation.

WaterLegacy respectfully requests that these changes be made on appeal consistent with applicable law and the exploration for minerals in an environmental sound manner.

JUST CHANGE LAW OFFICES DATED: July 16, 2012

Paula Goodman Maccabee
1961 Selby Avenue
St. Paul, MN 55104
Atty. ID No: 129550
ph: 651-646-8890
fax: 651-646-5754
cell: 651-775-7128
pmaccabee@justchangelaw.com
Counsel for Appellant WaterLegacy