

State of Minnesota
DEPARTMENT OF NATURAL RESOURCES
Division of Minerals

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Subject: *Virginia OHV Recreation Area*
Minerals Ownership & Mining Issues

I. RESOURCE DESCRIPTION

The proposed Virginia OHVRA lies over that portion of the Biwabik Iron Formation geologically referred to as the "Virginia Horn". The western 1/3 of the area has a history of extensive mining activity, both underground and open pit. Mining of natural ores began in this area in 1893 at the Minnewas Mine (SW portion of the site) and continued until 1976. The nearby Rouchleau Annex was subsequently mined until 1986. As a result, the western half of the site is composed of 'auxiliary mining lands' which contain surface and waste rock dumps and lean ore stockpiles. The eastern half of the site is relatively unaffected by mining or other development.

The Virginia OHV Site is bordered on the west by the City of Virginia and the Missabe Mountain, Minnewas, Sauntry and Rouchleau open mine pits. To the south is the St. Louis County Maintenance Facility and State Highway 135. The site is bordered on the east by Ispat Inland Mining Company's main haul road leading to the (active) Laurentian Mine. To the north lies Ispat Inland's Minorca Pit and taconite pelletizing plant. Both the haul road and pelletizing plant are active and operational 24 hours/day.

In the center of the Virginia Site lies a sizable exclusion area (Section 10) which currently serves as St. Louis County's Regional Landfill and waste disposal facility. A paved haul road connects this 920-acre facility with highway 135 near the southwest corner of the site.

II. DISCUSSION

Mining Operations

Open pit mining operations south of the Laurentian Divide resulted in the removal and disposal of large quantities of overburden and waste rock. This overburden, or 'mine strippings' are glacial materials excavated by 'steam-shovel' methods from above the

iron-bearing deposits of the Rouchleau, Missabe Mountain and Sauntry mines beginning in the early 1920's.

Materials transported by rail to the other side of the Divide was dumped from open rail cars in Sections 3, 10 and 15. This produced linear embankments of imported glacial material. These initial linear piles trend from southwest to northeast, placing side by side dikes across the original topographic surface. Subsequent levels of material were dumped from rail cars entering from the north corner of Section 10, resulting in linear embankments tending east to west in the east half of Section 3, and northwest to southeast in the NE corner of Section 10. At least three levels of overburden were deposited atop the original dump materials.

Overburden material was primarily dumped in Sections 3 and 10. Waste rock was dumped primarily in Section 15, although some dumping occurred in Section 10. This material consists of a mix of glacial sediments mixed with Upper Cretaceous age siltstones, which also covered the ore formations. East of the mine dump are forested wetlands with surface waters draining towards the Pike River and its tributaries.

Mineland Reclamation

All mining in this area was conducted prior to implementation of Minnesota's Mineland Reclamation Rules (1980); consequently, no reclamation work was required. Pit walls are generally shear cliffs, and mine dump slopes remain very steep having been placed at the angle of repose. Much of the mined area has naturally revegetated. The Iron Range Resources and Rehabilitation Board (IRRRB) has sponsored various reclamation activities across approximately the western half of the site. Both the Regional Landfill and the proposed OHVRA also constitute innovative reclamation efforts on behalf of St. Louis County and by the City of Virginia.

III. RESOURCE MANAGEMENT OBJECTIVES

Minimize the impacts of off-highway vehicle use and related recreational development on private property, active mining sites and areas of high mineral potential.

IV. ISSUES AND CONCERNS

Site Conditions & Public Safety

Tailings areas that become devoid of vegetation (by OHV activity or other means) may become susceptible to dusting. The red stains from red ore tailings are very difficult to wash from clothing. Surface overburden dump slopes impacted by off-road vehicle use may also become susceptible to erosion and sedimentation.

Trail riding near pit margins is hazardous due to the shear pit walls and barbed wire. Additional concerns include soil slumping and subsidence from underground mines, abandoned shafts, and general instability of soils, slopes, surface stockpiles and pit embankments. The St. Louis County Mine Inspector's Office regulates fencing of the areas mine pits for public safety. Portions of the site (Section 14) may also lie within

Ispat Inland's blast radius, necessitating temporary evacuations during mine detonations.

Surface Rights & Mineral Ownership

According to the St. Louis County Auditor's office, principal surface and mineral owners include USX Corporation, Ispat Inland Mining Company, Gardner Management Services Inc., the State of Minnesota and St. Louis County. Three non-acquired private parcels totaling 70 acres are also located in Sections 11, 14 & 15 of T58N R17W. Until title research is completed, stockpile and mineral ownership remains undetermined. Some sort of lease, easement or land purchase will be required in order to secure surface use rights for these properties.

Portions of this site have also been leased by the State of Minnesota for non-ferrous mineral exploration and gravel mining. The State reserves the right to lease state-owned lands and mineral rights for exploration, prospecting, sampling, geophysics examination and exploratory drilling. The State of Minnesota has also historically sold waste rock and lean ore materials from state-owned stockpiles for road building and local construction projects. The State will continue this practice in concert with recreational activities on the Iron Range OHVRA.

Mineral Resources

Despite its mining history, this site still contains significant taconite reserves. Future mining can and will continue to occur in conjunction with recreational activity as stipulated in authorizing legislation. The largest taconite owners on the site include USX, the State of Minnesota and Gardner Management Inc. Ispat Inland Mining Co. may also be interested in expanding their current mining activity. Land and mineral owners have asked that recreational development plans not inhibit possible future mining activity. Consequently, limited development and very little infrastructure is proposed for this site. Although open-pit mining does not require large land areas, ancillary lands needed to support the mining operation require roughly three times the land area as does the mine pit itself.

Estimated Taconite Reserves

Within the boundary of the proposed OHV Recreation Area at Virginia lie an estimated 199,074,000 tons of non-state mineable taconite reserves capable of producing approximately 59,690,000 tons of pellets (based on 30% recovery by weight). Non-state mineral ownership is distributed as in **Table 1**. Both the State of Minnesota and private mineral owners wish to ensure that these taconite reserves remain available for potential future mining without encumbrance.

TABLE 1. Estimated Taconite Reserves – Virginia OHV Recreation Area

Company	Crude Taconite (tons)	Pellets (tons)	Recovery (% by weight)
USX	153,215,000	45,717,000	29.84%
Gardner	33,668,000	10,303,000	30.60%
Hartley Trust	12,191,000	3,670,000	30.65%
Subtotal (non-state)	199,074,000	59,690,000	29.98%
State	82,060,000	25,621,000	31.22%
Total	281,134,000	85,311,000	30.35%

Source: MN DNR, Division of Minerals, Hibbing, Aug. 2000.

Although the mining potential is uncertain, the potential revenues are very significant. Comparable taconite leases on state lands currently generate \$.50/crude taconite ton or \$1.70/pellet ton from mined state ores. Currently, there are no active mineral lease agreements for these reserves. Ispat Inland Mining Company, whose plant is located less than two miles away, had previously evaluated this reserve, but opted instead to mine the Laurentian Reserve just northeast of Gilbert. Inland has approximately 15 years remaining to complete mining of the Laurentian Pit. Once the Laurentian Pit is exhausted, portions of the Virginia Horn will again be examined for their taconite reserves. Any future decision to mine the so-called 'East Virginia Reserves' will depend upon a variety of factors, including taconite prices, pellet supply and demand, business plans, land and mineral ownership, and many, many other variables.

V. REFERENCES

- 1. Land ownership data from Vicki Hubred, DNR Minerals, St. Paul, 1999.*
- 2. Taconite estimates from Jim Sellner, DNR Minerals, Hibbing, 2000.*

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