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DATE: May 8, 1989

To: David Brace, Manager Acquisitions/Business Development
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From: David R. Shaddrick
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SUBJECT: THE SOUTHERN PART OF THE AURORA DISTRICT-AN EXECUTIVE SUMMARY

SUMMARY STATEMENT

The southern portion of the Aurora District includes the area encompassed by Middle Hill, Silver Hill and the Lab Claims, Fig. 1. The majority of the effort for this project was directed toward portions of Silver Hill and Middle Hill with only a rapid reconnaissance of the remainder of the area.

The critical points concerning the project area are as follows:

- Significant vein densities and thickness are exposed on Silver Hill and to a lesser extent on Middle Hill. No major veins were identified on the Lab claims.
- Ore grade gold mineralization is exposed at the surface in several places and anomalous gold occurs over much of the area.
- There is a good probability for the occurrence of mineable ores similar to those of the Humboldt/Prospectus system.
- Additional possibilities include the occurrence of larger "disseminated" ore bodies at major structural sites or in Borealis style hot springs vent systems.
- The land ownership is mixed and complexed by overlapping interests. It appears that much work has been done by Electra Northwest to consolidate the property.
- The locations of claims indicated on the base map seems to be in error by as much as 100' as indicated by claim corners found in the field.
- There is room for plant facilities and leach pads in the near vicinity.

If the project is pursued the following general program is recommended:

- Mapping at a scale of about 1"=200' with special emphasis on structure and alteration patterns. This work should include locating and mapping all accessible underground workings and where possible determining the shape and distribution of previously mined ore.

  The result should be a good three dimensional geologic picture which, when combined with sample data, will provide the basis for targeting potential ore bodies. This work will also provide the basis for assumptions concerning the relationship between ore mineralization and observable geologic features.

- Detailed sampling of most available outcrops and underground workings in conjunction with the geologic activities discussed above. Gold and silver should be the primary elements analyzed but an initial "scoping" study should be done to determine if there are any other elements with broader distribution and nearly 1 to 1 correlation to ore.

  The result of the sampling will be a good picture of the geometry and distribution of gold and silver as well as their relationship to observable geologic features.

If, as expected, the geological and analytical work results in a usable model which identifies those features that have a direct relationship to ore, and potential ore targets have evolved from the model, a drilling program should be carried out. The initial program should consist of between 15 and 20 reverse circulation holes in carefully selected areas with specific targets. The result of the drilling should be significant intercepts of ore grade material in a geologic setting conducive to the occurrence of a mineable ore body.

If the above criteria can not be met by the initial program serious thought should be given to abandoning the project.

INTRODUCTION

In May, 1989 David R. Shaddrick spent several days developing an executive summary for the Southern Aurora District. The project involved both field and office review, including limited reconnaissance mapping and sampling. The intent of the project was to provide an overview of the geologic, logistic and ownership framework of the area. The project was requested by David Brace, Manager Acquisitions/Business Development.

GEOLOGIC FRAMEWORK

The geology of Silver Hill and Middle Hill can be expected to be similar to that of the northern part of the Aurora district as described in Marla Osborne's thesis. No apparent, significant differences were observed during the field work for this project.

In very general terms the area consists of a series of variously altered andesitic volcanic rocks which have been complexly fractured and faulted over a broad time span. At about 10 to 11 million years before present a strong geothermal system generated numerous surface venting hot springs which deposited silica in most available openings and locally created episodic explosion breccias. At least one of the silicification events carried significant gold and silver resulting in the strong precious metal veins mined in the past and displayed in the photos included with this report, (Table 2).

The largest and most continuous vein in the area is the Esmeralda/Radical vein which was the first one discovered in the Aurora District. In addition to this very prominent vein there are many others which, although smaller, are also mineralized to an important extent. In some areas the fracturing or brecciation of the andesites was such that the veining creates vein swarms, (stringer zones), or stockworks. Some of this material is also mineralized.

The accuracy of the existing mapping, (Green, 1964, Hill, 1915), is reasonable for the scales at which it was done but is uniformly unsuitable for the development of ore body targeting in this mineral system.

MINERALIZATION

The quartz veins vary quite a bit in silicate mineralogy, texture and degree of banding. There is a good chance that detailed work will identify vein characteristics that are directly related to mineralization. The work done for this summary was too general to do more than hint at the possibilities. Some general comments can be made. First, there appears to be no correlation between the occurrence of iron oxides and mineralization-these are more likely a result of oxidation of ferro-magnesian minerals and/or syngenetic pyrite in the wall rock andesites. Careful study may identify specific iron oxides which have a subtle but direct relationship to ore. Second, The subtle banding observed is too fine grained to be identified without a microscope but there does appear to be some correlation between the banded vein material and gold mineralization. Finally, there seems to be a correlation between gold mineralization and intersecting structures similar to that identified by Tony Dorff at the Prospectus mine.

The sampling, (Figure 3, Table 1), demonstrates that ore grade gold mineralization occurs at the surface and that much of the project area is strongly anomalous in gold. More detailed work would have a high probability of identifying observable geologic features with a direct relationship to the occurrence of ore grade mineralization.

POTENTIAL

The mapping and particularly the sampling support Reamsbottom's view that the area has a strong probability of hosting significant ores. The potential for two target types is immediately apparent: First, the bonanza style mineralization similar to that currently being mined in the Humboldt/Prospectus vein and second, more widespread zones of stockworks, stringers and silicification of wall rocks related to broad structural intersections and possibly pre-mineral shear zones.

No areas on Silver Hill or Middle Hill appeared, at first glance, to be amenable to the occurrence of Borealis style hot springs mineralization. Some of the alteration observed on the Lab claims could represent the signature of this type of system but not enough time was spent to expand on the idea.

GENERAL COMMENTS

The following comments represent general impressions rather than documented fact:

- Structural intersections are clearly the primary focussing tool for ore body targeting in this area.
- The development of detailed structural data will be the key to the ore body model.
- Good geologic mapping is the essential first step to an exploration program.

The kind of program recommended here is to map in detail all surface and underground exposures, sample in detail over much of the mapped area and finally compile it all in three dimensions. This work will lead directly to an ore targeting model and drill targets should follow quite easily.

Areas to focus on include intersections as recommended by Reamsbottom and some of the areas of strong silicification that may represent unidentified intersection zones.

Silver Hill does appear to be the primary target because of the strong Esmeralda/Radical vein and the apparent major intersection near the boundary of the Radical and Bald eagle claims. However, The sample results from Middle Hill suggest that it, also, is a good target and the logistics seem a bit better in that the hill is broad and gentle and would be easy for both exploration and mining.

OWNERSHIP

The land ownership in the project area is complex, with many overlapping claims and multiple owners. A thorough land status study was not done for this project and information presented was derived from existing Canada Tungsten/Minerex data and field review. The basic land status is represented on the topographic map used as a base for figures 2 and 3 of this memo. Field review indicates that locations are incorrect by as much as 100' and the correct location of any specific claim can not be determined without a field survey. It is highly likely that the necessary surveying has been done and that the data exists in someone's files-somewhere.

The consolidation of the land control in the area is essential to the rational exploration and development of the mineral system. A large amount of work has been done by Electra Northwest but much work remains.

LOGISTICS AND PHYSICAL LAYOUT

The area is generally steep with occasional gentle slopes and a few valleys which might be suitable for plant and facilities. Mining and haulage would not be inordinately difficult in any of the areas of potential mineralization, (refer to the photos supplied with this report). The location of leach pads and other facilities will not be easy but neither are the problems insurmountable.

Access for exploration and drilling is excellent with the exception of the north end of "Radical ridge" where the slopes are very steep and developing drill pads would be very difficult.

TABLE 1: SAMPLE DESCRIPTIONS

0.01 oz/t = 343 ppb.

SAMPLE NO.	DESCRIPTION	GOLD (PPB)	SILVER (PPM)
A-1	Pile grab, (10 pound). Vuggy, crystalline vein quartz. Massive vein and stringers mixed with minor altered andesite. Locally abundant hematite.	64	6.5
A-2	Scattered chips from outcrop, (7 pound). Crystalline, locally vuggy, quartz stringers from 1/16" to 1/2" in bleached and slightly argillized andesite. Minor local goethite.	20	63.2
A-3	Scattered chips from outcrop, (7 pound). Vuggy, locally well banded, crystalline vein quartz with abundant 1/8" to 5" late opaline veinlets as subparallel swarms and stockworks. Minor Hematite.	10	14.0
A-4	Pile grab, (7 pound). Altered andesite-mostly argillization-with abundant fractures. Some with heavy goethite filling up to 1/4" wide. Local 1" to 5" crystalline quartz veins.	100	30.4
A-5	Scattered chips from outcrop, (7 pound). Vuggy, crystalline vein quartz with minor masses of opaline quartz. Abundant stringers and minor included altered andesite. Locally heavy goethite.	10	24.5
A-6	Scattered chips from outcrop, (10 pound). Altered andesite breccia-mostly silicified-with opaline quartz veinlets up to 1" wide.	20	24.6
A-7	Pile grab, (10 pound). From dump at radical shaft. Vuggy, locally banded crystalline vein quartz.	139	42.2
A-8	Pile grab, (7 pound). Mostly opaline and chalcedonic vein quartz with minor included altered andesite.	5260	48.5
A-9	Scattered chips from outcrop, (7 pound). Banded opaline, vuggy vein quartz with minor goethite.	72	30.8
A-10	Scattered chips from outcrop, (7 pound). Andesite breccia with abundant quartz stockwork and veinlets-approximately 1' to 3' from contact with Radical vein.	39	19.0
A-11	Pile grab, (7 pound). Mixed chalcedonic quartz and slightly silicified altered andesite. Moderate goethite staining and abundant black (MnO??) staining. Limonite filled fractures common with 1/2" to 3" spacing.	36	13.7

0.153 oz/t Au
1.41 oz/t Ag

686
3394
17,143

A-12	Pile grab, (7 pound). Mixed crystalline and chalcedonic, vuggy vein quartz and altered, silicified andesite. Abundant quartz stringers in andesite.	2431	48.4	0.071 oz/t Au 1.41 oz/t Ag
A-13	Pile grab, (7 pound). White, vuggy vein quartz with black bands and minor goethite. The black bands look like MnO but could be some kind of silver mineral.	606	18.2	0.017 oz/t Au 0.53 oz/t Ag
A-14	Pile grab, (7 pound). Mostly opaline, vuggy vein quartz. Many cross cutting late veinlets and mixed propylitically altered andesite. Summit Hill	1460	19.4	0.042 oz/t 0.56 oz/t Ag
A-15	Pile grab from bottom of old ore chute, (5 pound). Vuggy vein quartz with subtle goethite staining throughout as wide stringers (up to 3') in altered andesite(?). Summit Hill	4900	27.6	0.143 oz/t Au 0.81 oz/t Ag

All good samples are in Mrs. Winslow's claims

TABLE 2. PHOTO DESCRIPTIONS

1. Looking south from Radical ridge at Radical vein in foreground and Esmeralda vein (extension of Radical) in left middle ground. Snap claims in distance.

2. Looking northeast from Radical ridge at the southern side of the Summit claim and Middle Hill. Typical vein exposure.

3. Looking south from Cemetery Hill at the west slope of Silver Hill.

Missing Neg. Avail.

4. Looking north from south end of Radical/Esmeralda. Radical vein and crest to Silver Hill (Radical ridge).

5. Same view from a bit further south and higher-note curve in Radical Vein.

6. Stockwork breccia on Radical Ridge-at contact with vein. Sample A-10 from here.

Missing - Neg Avail.

7. Looking south from Radical ridge at Radical/Esmeralda vein

8. Looking northeast at Middle Hill and Summit claim from Radical ridge.

9. Looking south from Radical ridge at Radical vein at highest point on Silver Hill (Radical ridge).

10. Telephoto shot from Lucky Boy Summit looking south at Aurora District. Poor photo-guess I need lessons!

11. Looking north from Middle Hill (Summit claim) at Last Chance Hill and NGI drill rig.

12. Looking north from Middle Hill (Summit claim) at Last Chance Hill. Aurora Crater in middle ground and Wassuk Range on horizon.

13. Looking southwest at Radical/Esmeralda vein from Summit claim.

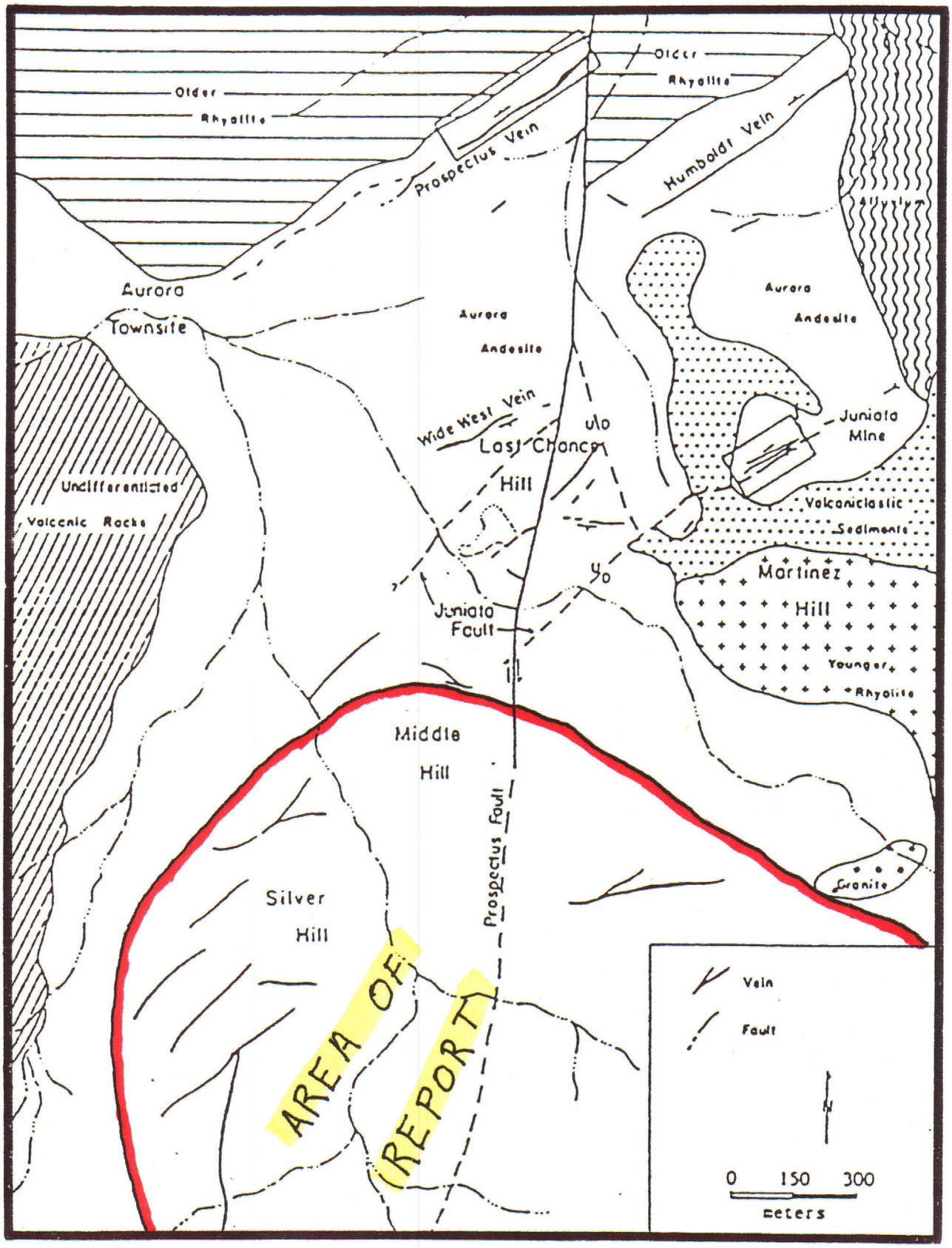
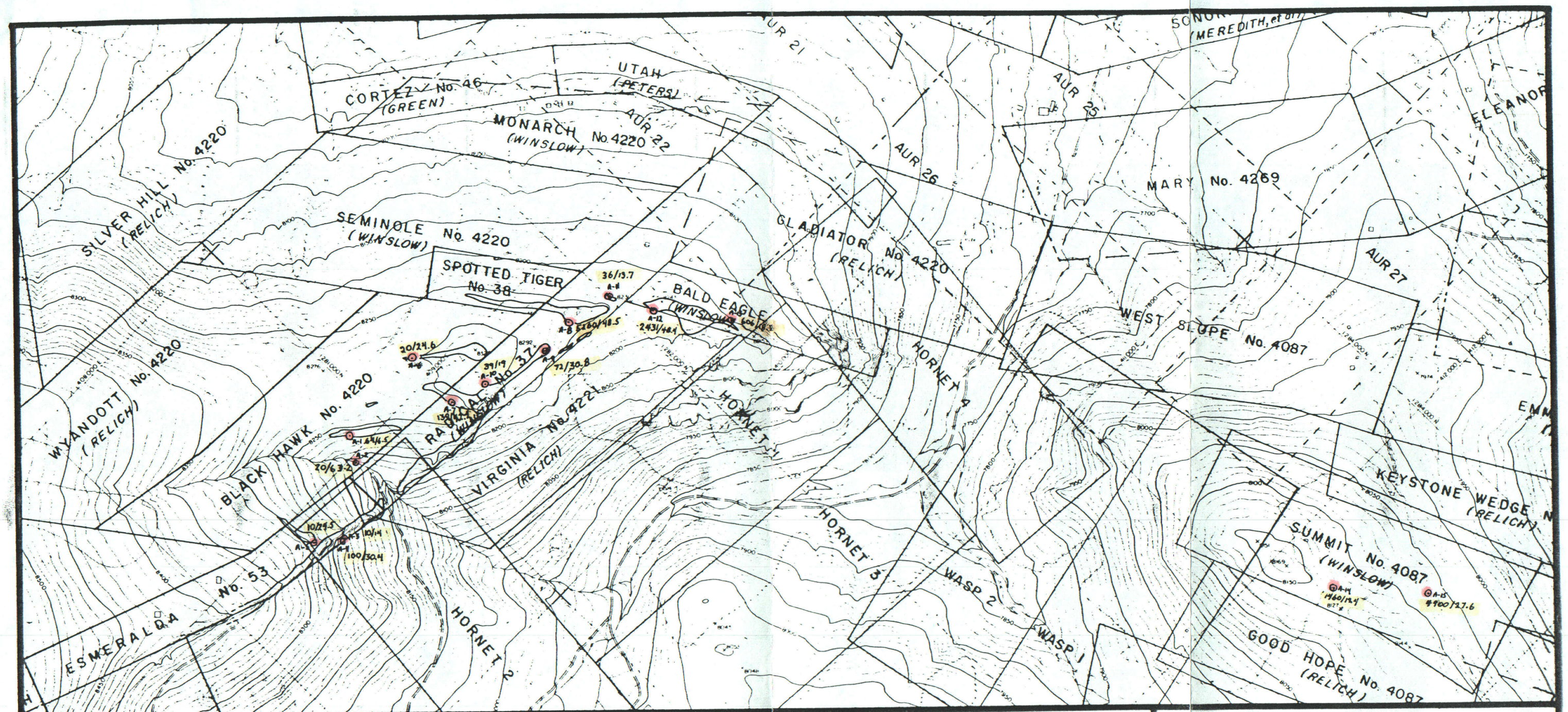


Figure 1. Location map of reconnaissance area



SAMPLE LOCATION: A-5 = NUMBER

5600/75.0=GOLD(PPB)/SILVER(PPM)

N

0 400 800

SCALE: 1"=400'

C.I.=10'

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AURORA PROJECT

RECONNAISSANCE OF THE SOUTHERN AURORA DISTRICT

SAMPLE MAP

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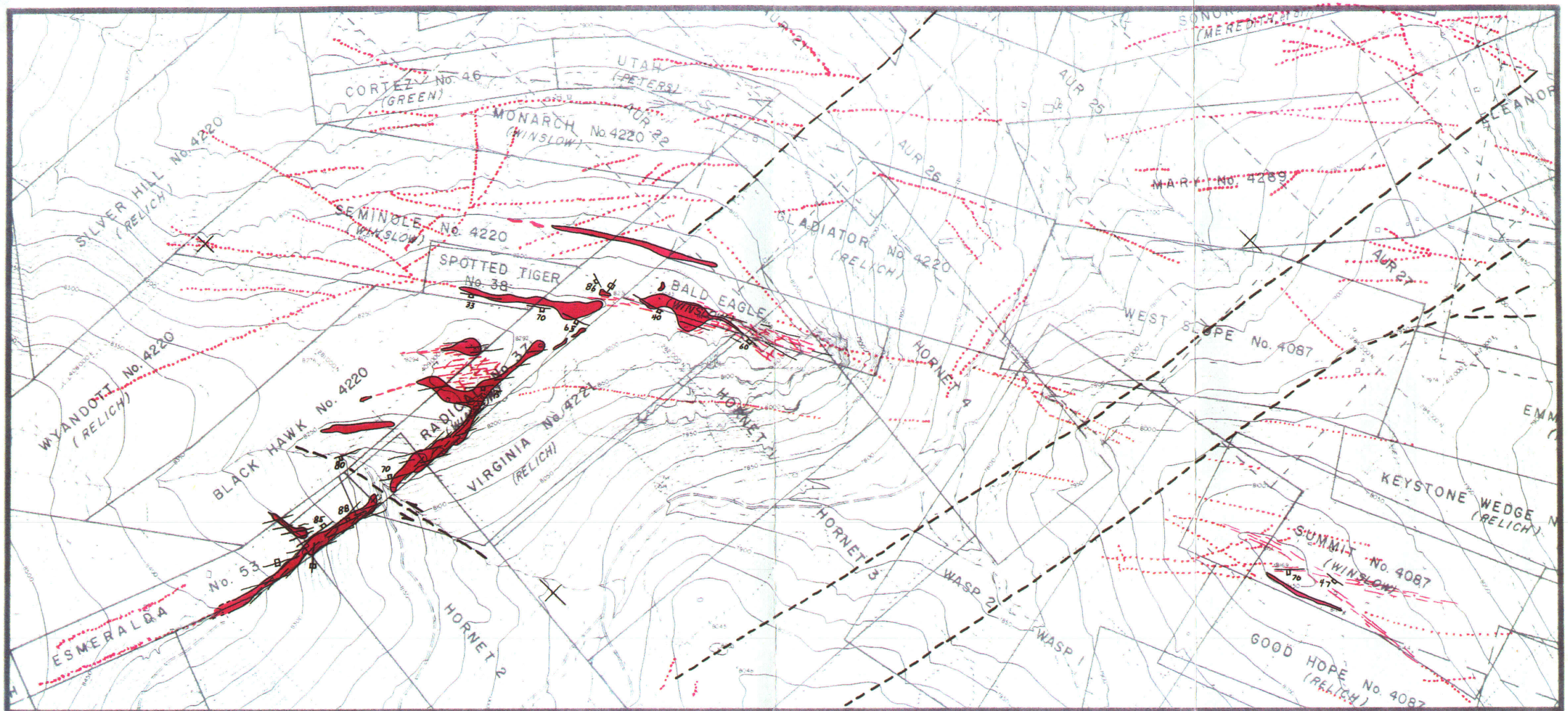
Date: 5/8/89 By: D. Shaddrick FIGURE: 3



MAPPED VEINS
VEINLETS & STRINGERS (CHARACTERIZED)
FRACTURE FOLIATION (CHARACTERIZED)
VEINS (ADAPTED FROM GREEN, 1964)
FAULT (INFERRED)
STRIKE & DIP OF VEIN OR FRACTURE
STRIKE OF VERTICAL FRACTURE OR VEIN
UNDIFFERENTIATED VOLCANIC ROCKS (VARIOUSLY ALTERED)

N

0 400 800

SCALE: 1"=400'
C.I.=10'

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AURORA PROJECT

RECONNAISSANCE OF THE SOUTHERN AURORA DISTRICT

SILVER HILL GEOLOGY

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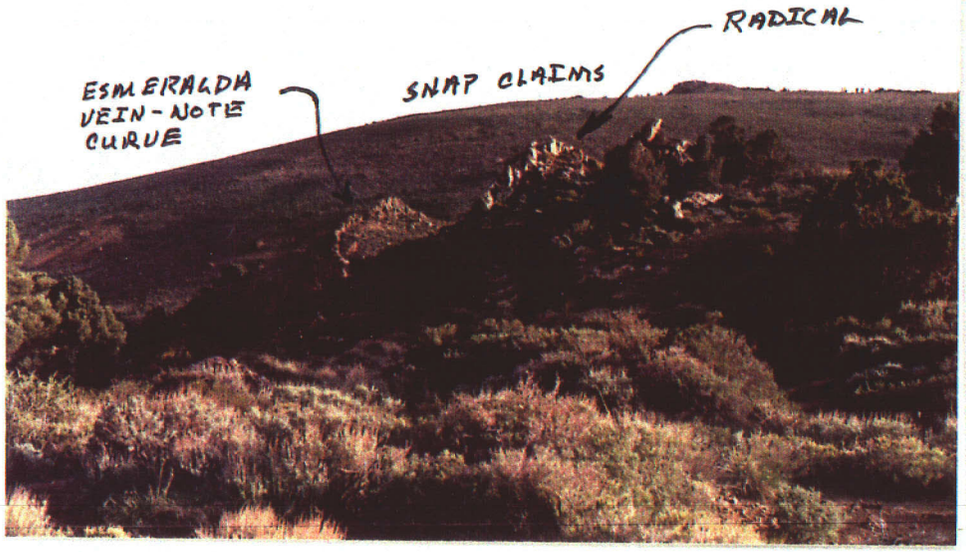
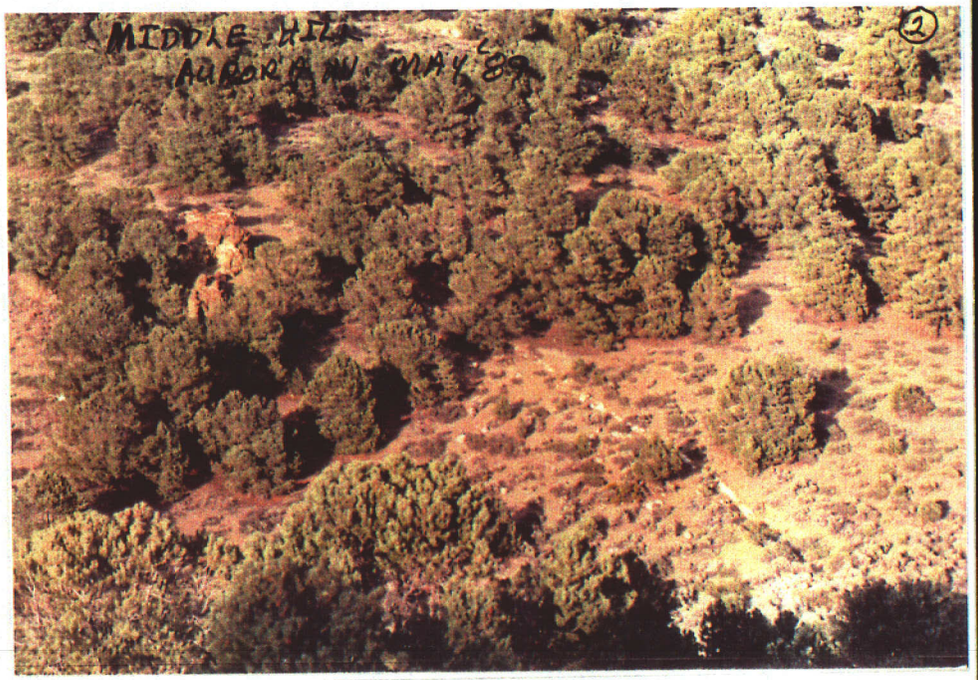
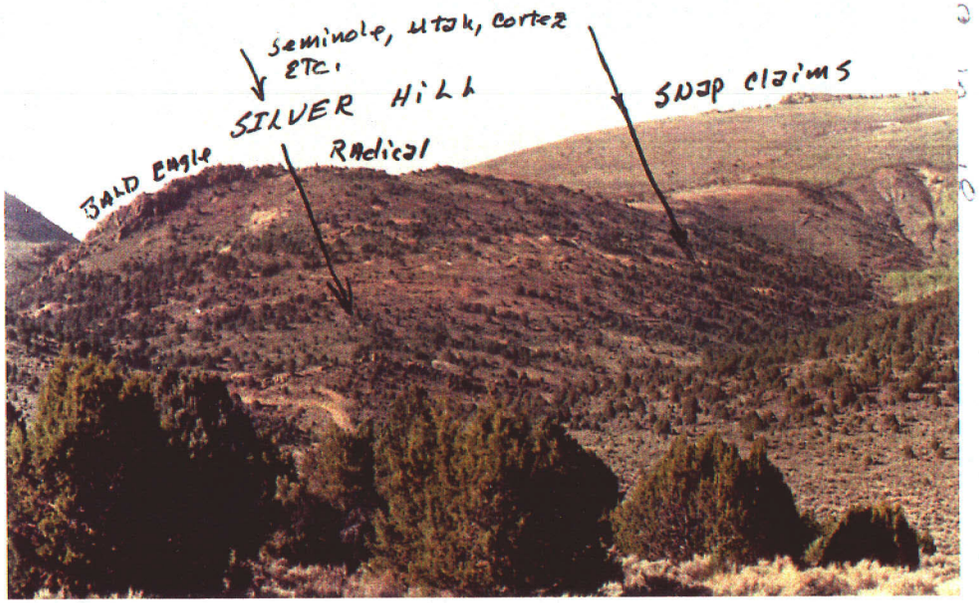
Date: 5/8/89 By: D. Shaddrick **FIGURE: 2**

Aurora, Nv. MAY, 1989 LOORING SOUTH ①





Aurora (south part) MAY 1989 ③



89-10-13

Aurora, NV., May '89 ⑧

radical vein

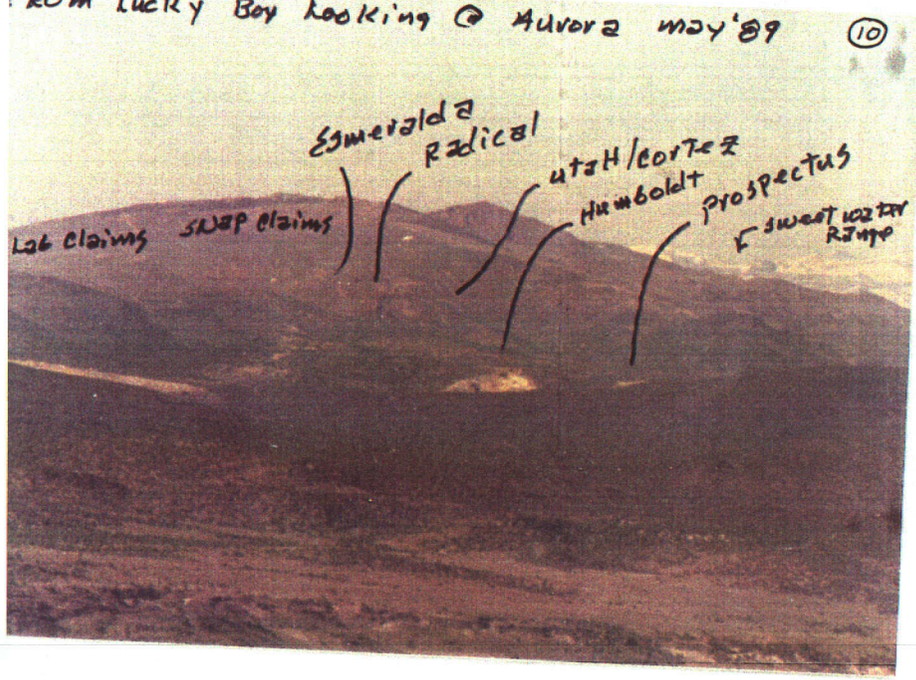
Aurora, NV., May 1989 ⑨

Aurora, MAY, 1989 ⑤

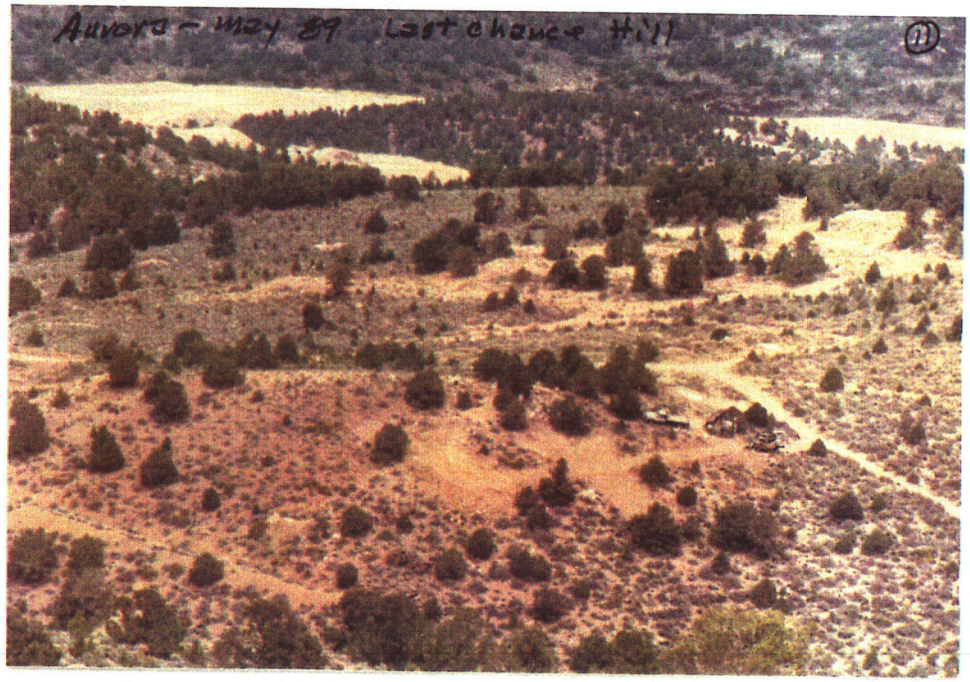
⑥

89-10-4

FROM Lucky Boy looking @ Aurora may '89 (10)



Aurora - May 89 Last chance Hill (11)



Aurora, May, '89 (12)

Aurora, May '89 (13)