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> INTERPRETATION OF GALENA LEAD ISOTOPES FROM THE STEWART-ISKUT AREA\* (1030, P; 104A, B, G)

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*KEYWORDS:* Galena lead isotope, lead fingerprint, deposit age, deposit origin, Jurassic, Hazelton Group, Tertiary, plutons, Stewart, Iskut, Stikine Terrane.

## INTRODUCTION

The Stewart-Iskut area has had the most exploration activity in the Canadian Cordillera for the last decade. Consequently, this paper examines all available galena lead isotope data related to this area. These data are from LEAD-TABLE, a dBaseIV file of about 2000 deposits in British Columbia, Yukon Territory and adjacent Northwest Territories (Godwin *et al.*, 1988).

Table 2-9-1 has 197 galena lead isotope analyses from 60 mineral occurrences. This represents less than 10 per cent of the almost 800 showings in the study area, as listed in MINFILE, the mineral inventory database of the British Columbia Ministry of Energy, Mines and Petroleum Resources. The importance of the Stewart-Iskut area is emphasized by the observation that it contains about eight per cent of the total mineral occurrence inventory of the province.

This paper shows how galena lead isotope fingerprints can be used to date deposits in the Stewart-Iskut area (Figure 2-9-1). The isotope data in Table 2-9-1 define two clusters of points (Figures 2-9-2 and 2-9-3). One represents Jurassic gold-silver-copper-zinc-lead mineralization that is cogenetic with the Hazelton Group and associated plutons. The second cluster identifies Tertiary silver-zinclead±molybdenum showings that are related to plutons. Historically, the Jurassic deposits have been of more economic significance than the Tertiary showings. So, galena lead isotopes provide a simple, effective method for evaluating the economic potential of newly discovered or poorly exposed showings.

## **GENERAL GEOLOGY**

Most of the Stewart-Iskut area is within the Stikine Terrane of the Intermontane Belt. The western edge of the area probably includes portions of the Wrangell Terrane of the Insular Belt. All rocks of the region have been intruded by Eocene plutons and dikes of the Coast plutonic complex. The following description of the general geology is confined to Stikinia because it contains most of the occurrences examined here. Stikine Terrane in the study area consists mainly of Mesozoic Hazelton Group that rests on rarely exposed Paleozoic "basement". Triassic to Early Jurassic strata of the Hazelton Group represent an evolving volcanic arc. This arc consists of a lower mafic volcanic complex that evolved to a thick andesite package which grades upward into dacites of the Mount Dilworth Formation. The Early Jurassic Texas Creek plutonic suite, characterized by potassium-feldspar megacrystic granodiorite, is cogenetic with Hazelton Group volcanics. In the Middle Jurassic the volcanic arc foundered and was covered by a thick succession of turbidites. In the mid-Cretaceous the entire area was regionally metamorphosed to lower greenschist facies.

## LEAD FINGERPRINTS

The lead fingerprints (Figures 2-9-2, and 3) divide all but 10 per cent of the showings examined into two groups. Table 2-9-2 shows that 37 of the showings are Jurassic, 24 are Tertiary, and 5 are not clearly defined. Table 2-9-4 summarizes the galena lead isotope ratios for the two clusters.

### DISCUSSION

The regional mid-Cretaceous metamorphism makes dating of Triassic to Jurassic mineralization by simple radiogenic isotopes (potassium-argon or rubiduim-strontium) impossible. Galena lead isotopes, however, are not reset by thermal events alone. This emphasizes one of the advantages of the analyses presented here. In addition, at \$300 an analysis, the method is relatively inexpensive.

Jurassic and Tertiary clusters of galena lead isotope ratios in the Stewart area were first recognized by Godwin *et al.* (1980). In 1986 Alldrick submitted a suite of samples from ten deposits on eight properties from the same area. The results of this work, reported in Alldrick *et al.* (1987), were so definitive that additional samples were collected from as many showings in the Stewart-Iskut area as possible. A preliminary interpretation of resulting data was presented by Alldrick *et al.* (1990).

The clusters clearly define two separate, relatively shortlived metallogenic events. An Early Jurassic and a Tertiary interpretation for these events is consistent with stratigraphic information and other radiogenic dates. Brief

<sup>\*</sup> This project is a contribution to the Canada/British Columbia Mineral Development Agreement.



Figure 2-9-1. Location of analyses and deposits in Tables 2-9-1 and 2-9-2. Stewart-Iskut area, northwestern British Columbia.

·	TABLE 2-9-1		
GALENA LEAD ISOTOPE ANALYSES FOR '	THE STEWART – ISKUT	AREA, NORTHWESTERN	{ B.C.
(1030&	P AND 104A, B&G)		

Lab Number	Deposit Name	Analyst	<sup>206</sup> Pb/ <sup>204</sup> Pb	<sup>207</sup> Pb/ <sup>204</sup> Pb	<sup>208</sup> Pb/204Pb	<sup>207</sup> Pb/ <sup>206</sup> Pb	<sup>208</sup> Pb/206Pb	Date
NTS: 103O							·	
50055-001A1	JARVIS	86GA	19.164	15.607	38.579	0.81439	2.0131	R
50055-001A2	IARVIS	87GA	19.114	15.642	38.555	0.81835	2.0171	R
50055-002A1	IARVIS	86GA	19.158	15.625	38.616	0.81556	2.0156	R
50055-002A2	IARVIS	86GA	19.180	15 643	38 695	0.81561	2 0175	R
50055-003A	IARVIS	86GA	19.174	15.635	38.656	0.81545	2.0161	R
NTS: 103P				1010000				
30062 001 4	WILBY	8864	19.031	15 644	38 788	0.82202	2 0381	_
30062-001A		2007	18.040	15 507	38 361	0.82202	2.0301	-
20062-00101		07F1 90DI	10.249	15.504	20 254	0.82.310	2.0240	•
20062-00162	WILDI	0961	10.9.01	15.590	20.220	0.62290	2.0240	-
30062-002A1	WILBY	8921	18,976	15.614	38.412	0.82285	2.024.3	-
30062-002A2	WILBY	8991	18.959	15.000	38.371	0.82284	2,0239	-
30492-001A	PROSPER-IDAHO	84GA	19.130	15.627	38.644	0.81687	2.0201	R
30492-002A	PROSPER-IDAHO	84GA	19.116	15.624	38.616	0.81732	2.0201	R
30492-003A1	PROSPER-IDAHO	84GA	19.114	15.610	38.589	0.81667	2,0189	R
30492-003A2	PROSPER-IDAHO	84GA	19.122	15.619	38.614	0.81677	2.0193	R
30555-00141	RED POINT	84G A	18 814	15.608	38 394	0.82956	2 0407	T
30555-001A7	RED POINT	8564	18.874	15.612	38 377	0.82930	2.0407	1
50555-001A2	REDFOINT	6.5GA	10.024	15.012	36.327	0.82940	2.0414	J
30556-001A	NORTH STAR	84GA	18.874	15.623	38.482	0.82775	2.0389	J
30556-002A	NORTH STAR	79GA	18.856	15.610	38.287	0.82785	2.0305	1
30556-002B	NORTH STAR	87GA	18.885	15.636	38.532	0.82796	2.0404	J
30556-003A	NORTH STAR	90PI	18.889	15.630	38.519	0.82744	2.0392	ł
30556-003B	NORTH STAR	90PI	18.886	15.626	38.503	0.82742	2.0388	J
30557-001A	TORBRIT	79RY	18 844	15 580	38 295	0.82679	2 (1322	_
30557-001B	TORBRIT	87GA	18 869	15 609	38 4 38	0.82725	2 0371	T
30557-0034	TORBRIT	85GA	18.875	15.625	38 485	0 82778	2.0389	ĩ
30557-0954	TORBRIT	7987	18 018	15.642	38 546	0.82683	2.0307	Ť
30557-005B	TOPRDIT	87G A	19.002	15.620	38 524	0.82681	2.0375	J
30557 502	TORBRIT	6707	10.566	16.082	30.573	0.82081	2.0001	5
30517-0014	DUTU & CDANC	700 V	19.500	15.620	27.575	0.82174	2.0225	Ð
30717-0017	KOTH & TRAIL		17.2,71	1,5,627	20.712	0.01270	2.01.00	
30718-001A	KITSAULT	86GA	19.098	15.627	38.671	0.81826	2.0249	R
30718-002A	KITSAULT	79RY	19.203	15.637	38.893	0.81430	2.0254	R
30718-002B	KITSAULT	86GA	19.088	15.617	38.640	0.81817	2.0243	R
30765-001A	BAYVIEW	79RY	18.501	15.592	38.213	0.84276	2.0655	-
30765-002A	BAYVIEW	86GA	19.153	15.616	38.608	0.81532	2.0158	R
30765-003A	BAYVIEW	86GA	19.151	15.623	38.633	0.81582	2.0173	R
30765-004A	BAYVIEW	86GA	19.152	15.622	38.633	0.81570	2.0171	R
30766-001A1	SILVERADO	86GA	19 162	15.650	38 731	0.81669	2 0212	R
30766-001A2	SILVERADO	86GA	19.148	15.631	38.656	0.81634	2.0188	R
30766-00241	SILVERADO	8664	19.167	15.645	38 713	0.81623	2.0103	P
30766-00242	SILVERADO	86GA	19.156	15.630	38.672	0.81505	2.0197	R D
30707-002/12	DOLLY VADDEN	200 1	19.1.00	15.050	20.072	0.01.77.5	2.0166	ĸ
20771-0017	DOLLY VARDEN	79K i 70DV	18.948	15.075	38.779	0.82710	2.0400	-
20771-002A	DOLLY VARDEN	/9K I	10.000	15.629	20.422	0.82842	2.0371	1
20771-003A	DOLLI VARDEN	85GA	18.802	15.012	38.432	0.82814	2,0397	ļ
30771-004A	DOLLY VARDEN	85GA	18.898	15.624	38.519	0.82675	2.0383	j
30773-001A	ESPERANZA	79RY	18.791	15.617	38.620	0.83109	2.0552	9
30773-001B	ESPERANZA	87GA	19.072	15.635	38.643	0.81979	2.0262	R
30776-1364	ROBIN	70PV	18 012	15.688	38 784	0.82053	2.0508	
30776-136R	ROBIN	860 A	18 008	15.672	28 522	0.82622	2,0500	- T
30776 136C	ROBIN	87GA	18 503	15.641	37 766	0.82022	2.0377	J
		OTOA	10.020	10.041	57.700	0.04442	2,0309	-
30777-001A	HIDDEN CK	79RY	18.489	15.590	38,380	0.84320	2.0758	-
30777-001B	HIDDEN CK	87GA	19.310	15.866	39.245	0.82164	2.0324	-
30777-001C	HIDDEN CK	87GA	19,211	15.765	39.193	0.82061	2.0401	-
30785-001A	MASTODON	79RY	18.758	15.654	38,546	0.83452	2 0549	I
30785-001B	MASTODON	8664	18 793	15.682	38 578	0.83446	2.0578	,
30785-0010	MASTODON	8764	18 806	15.602	38 622	0.83443	2.0.526	,
actor of the		U/UA	10.000	15.074	00.022	0.00440	2.00.07	,
30798-198A	BELLEVUE	79RY	18.858	15.671	38.503	0.83100	2.0417	-
30798-198B	BELLEVUE	87GA	18.818	15.603	38.415	0.82915	2.0414	J
30904-001A	WOLF	85GA	18.859	15.613	38.464	0.82789	2.0396	J
30993-001A	KIT	90P1	18.902	15.624	38.520	0.82656	2.0379	J

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# TABLE 2-9-1 --- Continued GALENA LEAD ISOTOPE ANALYSES FOR THE STEWART - ISKUT AREA, NORTHWESTERN B.C. (1030&P AND 104A, B&G)

3099-001AL         SUMNIT         9091         18.882         15.01         38.400         0.82073         2.0169         J           9094-001BJ         SUMNIT         9091         18.808         15.641         38.574         0.82713         2.0092         J           3102-001A         F.AND D         9091         18.875         15.611         38.467         0.82509         2.0373         J           3102-001A         COPPERFIELD         9091         18.864         15.618         38.465         0.82509         2.0170         R           3035-001A1         KMP         9091         19.159         15.628         38.455         0.8150         2.0170         R           3035-001A2         KMP         9091         19.177         15.628         38.455         0.8150         2.0170         R           3035-001A2         KMP         9091         19.159         15.628         38.570         0.8152         2.0177         R           3035-001A2         KMP         9091         19.159         15.628         38.657         0.8152         2.0168         R           3035-001A3         SUPRISECK         87GA         19.152         18.619         0.8152         2.0177 <td< th=""><th>Lab Number</th><th>Deposit Name</th><th>Analyst</th><th><sup>206</sup>Pb/<sup>204</sup>Pb</th><th><sup>207</sup>Pb/204Pb</th><th><sup>208</sup>Pb/<sup>204</sup>Pb</th><th><sup>207</sup>Pb/206Pb</th><th>208РЪ/206РЪ</th><th>Date</th></td<>	Lab Number	Deposit Name	Analyst	<sup>206</sup> Pb/ <sup>204</sup> Pb	<sup>207</sup> Pb/204Pb	<sup>208</sup> Pb/ <sup>204</sup> Pb	<sup>207</sup> Pb/206Pb	208РЪ/206РЪ	Date
30994-001A2         SUMMIT         90F1         18,009         15,644         35,374         0.82712         2.0400         J           30994-001B2         SUMMIT         90P1         18,878         15,611         38,475         0.82500         2.0377         J           3102-001A         COPPERFIELD         90P1         18,878         15,618         38,455         0.82500         2.0373         J           3102-001A         COPPERFIELD         90P1         19,159         15,628         38,451         0.81543         2.0158         R           30455-001A3         KNIP         90P1         19,159         15,628         38,643         0.81543         2.0158         R           30616-001A         SPIDER         80GA         19,085         15,669         38,550         0.81543         2.0122         R           30616-001A         SURPRISE CK         87,0A         19,157         15,641         38,670         0.81648         2.0182         R           30616-001A         GRACY         90P1         19,157         15,645         38,673         0.81648         2.0184         R           30616-001A         GRACY         90P1         19,157         15,645         38,673	30994-001A1	SUMMIT	90PI	18.882	15.610	38.460	0.82673	2.0369	
3099-40181         SUMMIT         90P1         18.868         15.661         38.475         0.8279         2.0992         1           3102-601A         E AND D         90P1         18.820         15.618         38.454         0.82693         2.0173         1           3102-601A         COPPERFIELD         90P1         18.8464         5.618         38.4543         0.82793         2.0170         R           3055-001A2         KNIP         90P1         19.137         15.605         38.576         0.81572         2.0176         R           30455-001A3         KNIP         90P1         19.157         15.625         38.643         0.81572         2.0166         R           30455-001A3         SURPRISE CK         87GA         19.157         15.615         38.6473         0.81642         2.0177         R           3029-002A         SURPRISE CK         87GA         19.145         15.659         38.641         0.81642         2.0188         R           30301-001A         GRACY         90P1         19.157         15.615         38.673         0.81644         2.0184         R           30301-002A         GRACY         90P1         19.188         15.642         38.671         0.8	30994-001A2	SUMMIT	90PI	18,909	15.644	38.574	0.82733	2.0400	J
30994-001B2         SUMMIT         90P1         18,878         15,611         38,447         0.82903         2,0377         J           3102-001A         COPPERFIELD         90P1         18,864         15,618         38,445         0.82500         2,0373         J           3102-001A         KNIP         90P1         19,159         15,628         38,445         0.82501         2,0170         R           30453-001A3         KNIP         90P1         19,181         15,646         38,701         0.81543         2,0177         R           3055-002A         KNIP         90P1         19,181         15,646         38,701         0.81543         2,0177         R           3061-001A         SURRVISE CK         87GA         19,045         15,661         38,659         0.81543         2,0177         R           3061-001A         GRACY         90P1         19,17         15,613         36,673         0.81641         20182         R           3051-001B         GRACY         90P1         19,19         15,624         36,676         0.81641         20184         R           3051-0022C         GRACY         90P1         19,189         15,644         38,849         0.81616	30994-001B1	SUMMIT	90PI	18.868	15,606	38.475	0.82712	2.0392	J
31022-001A         F. AND D         90PT         18.207         15.628         38.455         0.82503         2.0373         J           31022-001A         COPPERFIELD         90PT         18.8641         15.618         38.465         0.82703         2.00170         R           30455-001A2         KNIP         90PT         19.137         15.605         38.576         0.81572         2.0178         R           30455-001A2         KNIP         90PT         19.181         15.646         38.591         0.81572         2.0166         R           3064-001A         SUPRISE CK         87GA         19.015         15.601         38.590         0.81528         2.0077         R           3072-001A         SURPRISE CK         87GA         19.125         15.611         38.590         0.81648         2.0182         R           30761-001A         GRACY         90PT         19.157         15.635         38.673         0.81648         2.0182         R           30761-001A         GRACY         90PT         19.123         15.635         38.673         0.81648         2.0184         R           30761-002E         GRACY         90PT         19.124         15.657         38.673         0.	30994-001B2	SUMMIT	90PI	18.878	15.611	38.467	0.82693	2.0377	J
3102-001A         COPPERFIELD         90PI         18.864         15.618         38.465         0.82793         2.0391         1           30455-001A1         KNIP         90PI         19.159         15.628         38.643         0.81543         2.0170         R           30455-001A3         KNIP         90PI         19.131         15.646         38.701         0.81543         2.0158         R           30616-001A         SPIDER         86GA         19.085         15.640         38.650         0.81758         2.0120         R           30616-001A         SPIDER         86GA         19.085         15.640         38.651         0.81648         2.0182         R           30516-001A         GRACY         90PI         19.144         15.653         38.673         0.81618         2.0184         R           30516-001A         GRACY         90PI         19.185         15.642         38.746         0.81618         2.0177         R           30516-001A         GRACY         90PI         19.185         15.642         38.746         0.81618         2.0187         R           30516-001A         GRACY         90PI         19.186         15.654         38.746         0.81512	31026-001A	E AND D	90PI	18.920	15.628	38.545	0.82600	2.0373	J
NTS. 104A       UNITS. 104A         30455-001A2       KNIP       90P1       19.137       15.605       38.576       0.81570       2.0170       R         30455-001A2       KNIP       90P1       19.181       15.605       38.576       0.81570       2.0177       R         30455-001A2       KNIP       90P1       19.181       15.605       38.590       0.81782       2.0166       R         30292-002A       SUPPERE       86GA       19.065       15.601       38.589       0.81642       2.0177       R         30292-002A       SUPPERE       87GA       19.125       15.611       38.589       0.81642       2.0177       R         30292-002A       SUPPERE       87GA       19.144       15.635       38.671       0.81642       2.0182       R         30361-001B       GRACY       90P1       19.149       15.635       38.671       0.81642       2.0184       R         30361-002B       GRACY       90P1       19.188       15.642       38.743       0.81640       2.0180       R         30361-002C       GRACY       90P1       19.188       15.642       38.743       0.81590       2.0177       R       30364022       2.0180<	31027-001A	COPPERFIELD	90PI	18.864	15.618	38,465	0.82793	2.0391	J
3055-001A1         KNIP         90P1         19,159         15,628         38,843         0,0157         2,0170         R           3055-001A3         KNIP         90P1         19,181         15,646         38,701         0,81542         2,0177         R           3055-001A         KNIP         90P1         19,181         15,646         38,701         0,81552         2,0177         R           3061-001A         SUDPRISE CK         87GA         19,125         15,611         38,839         0,81628         2,0177         R           3029-001A         SUPRISE CK         87GA         19,145         15,657         38,637         0,8164         2,0184         R           3056-001B         GRACY         90P1         19,157         15,657         38,659         0,81618         2,0184         R           3056-002B         GRACY         90P1         19,132         15,657         38,670         0,81618         2,0184         R           3056-002B         GRACY         90P1         19,138         15,643         38,676         0,81618         2,0184         R           3056-002B         GRACY         90P1         19,186         15,654         38,717         0,81501 <t< td=""><td>NTS: 104A</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	NTS: 104A								
3435-301A2         KNIP         90P1         19.13         15.605         38.376         0.81322         2.0177         R           30455-001A3         KNIP         90P1         19.139         15.625         38.635         0.01372         2.0166         R           30455-001A3         SUPPER         86GA         19.085         15.609         38.590         0.81788         2.0220         R           3022-4001A         SUPPEISE CK         87GA         19.144         15.630         38.637         0.81644         2.0177         R           30361-001A         GRACY         90P1         19.157         15.635         38.651         0.81616         2.0188         R           30361-001B         GRACY         90P1         19.149         15.623         38.651         0.81616         2.0188         R           30361-0022         GRACY         90P1         19.188         15.642         38.724         0.81508         2.0177         R           30361-0022         GRACY         90P1         19.188         15.643         38.871         0.81508         2.0180         R           30361-0022         GRACY         90P1         19.188         15.643         38.712         0.81508	30455-001A1	KNIP	90PI	19.159	15.628	38.643	0.81570	2.0170	R
J015-3001A3         KNIP         90P1         19,181         15,646         38,701         09,1572         20,177         R           3061-6001A         SPIDER         86GA         19,085         15,609         38,530         0,1157         20,166         R           3029-2001A         SURPRISE CK         87GA         19,145         15,630         38,637         0,81644         20,172         R           3029-2001A         SURPRISE CK         87GA         19,145         15,635         38,6473         0,81644         20,182         R           3051-1001B         GRACY         90P1         19,157         15,637         38,659         0,81614         20,184         R           3051-1001B         GRACY         90P1         19,138         15,647         38,659         0,81614         20,184         R           3051-1002A         GRACY         90P1         19,149         15,634         38,717         0,81504         20,177         R           3051-1002A         GRACY         90P1         19,149         15,634         38,749         0,81504         20,191         1           3051-002B         GRACY         90P1         19,148         15,634         38,749         0,81504 <td>30455-001A2</td> <td>KNIP</td> <td>90PI</td> <td>19.137</td> <td>15.605</td> <td>38.576</td> <td>0.81543</td> <td>2.0158</td> <td>R</td>	30455-001A2	KNIP	90PI	19.137	15.605	38.576	0.81543	2.0158	R
3432-402/4         KNIP         90P1         19.139         15.623         38.633         0.181751         2.0100         R           3092-4001A         SURPRISE CK         87GA         19.144         15.631         38.589         0.81758         2.0127         R           3092-4001A         SURPRISE CK         87GA         19.144         15.635         38.637         0.81642         2.0188         R           3056-1001A         GRACY         90P1         19.157         15.635         38.671         0.81616         2.0188         R           3051-001A         GRACY         90P1         19.158         15.642         38.774         0.81511         2.0184         R           3051-002B         GRACY         90P1         19.188         15.642         38.774         0.81561         2.0202         -           3051-002B         GRACY         90GO         19.218         15.674         38.499         0.82744         2.0411         J           3041-5001A         BIG MISSOURI         81RY         18.857         15.603         38.499         0.82744         2.0411         J           3041-500A         BIG MISSOURI         81RY         18.857         15.603         38.450	30455-001A3	KNIP	90PI	19.181	15.646	38.701	0.81572	2.0177	R
3010-001A         3F1DER         604A         19.08-3         15.089         38.590         0.811628         2.0177         R           3022-001A         SURPRISE CK         87GA         19.144         15.650         38.657         0.81164         2.01187         R           3025-001A         GRACY         90PI         19.157         15.655         38.657         0.81164         2.0188         R           30301-001B         GRACY         90PI         19.149         15.657         38.659         0.811616         2.0184         R           30301-002B         GRACY         90PI         19.188         15.642         38.742         0.81508         2.01077         R           30361-002B         GRACY         90PI         19.169         15.643         38.476         0.81506         2.0107         R           30361-002B         GRACY         90PI         19.186         15.643         38.717         0.81506         2.0401         J           30361-002B         GRACY         90PI         19.186         15.643         38.744         0.83764         2.0411         J           3031-5002A         GRACY         90PI         19.186         15.645         38.451         0.83726	30455-002A	KNIP ODDED	90PI	19.139	15.625	38.033	0.81557	2.0166	ĸ
302-4001A         SUCPRISE CK         570A         19.12.1         15.011         35.39         0.0102         20.17         R           NTS: [048]	30010-001A	SPIDER	80GA	19.085	15.609	38.390	0.81/88	2.0220	ĸ
NTS: 104B         NUME	30929-001A 30929-002A	SURPRISE CK	87GA	19,123	15.630	38.637	0.81644	2.0177	R
State         State <th< td=""><td>NTS 104B</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	NTS 104B								
3031 4001B         GRACY         90PT         10 149         15 629         38 651         0.03161         20181         R           3031 4002A2         GRACY         90PI         19 132         15 637         38 659         0.81 521         2.0181         R           3036 4002A2         GRACY         90PI         19 138         15 642         38 676         0.81 501         2.0020         -           3036 4002B         GRACY         90PI         19 188         15 643         38 676         0.81 506         2.0180         R           3041-5001A         BIG MISSOURI         81RY         18.857         15 603         38 489         0.82744         2.0411         J           3041-500A         BIG MISSOURI         81RY         18.857         15 603         38 489         0.82744         2.0403         J           3041-602A         BIG MISSOURI         81RY         18.857         15 6045         38 512         0.83258         2.0482         J           3041-500A         BIG MISSOURI         81RY         18.801         15 615         38 456         0.82270         2.0433         J           3041-500A         BIG MISSOURI         84GA         18.824         15 611         38 455 <td>30361-001A</td> <td>GRACY</td> <td>9001</td> <td>19 157</td> <td>15 635</td> <td>38 673</td> <td>0.81616</td> <td>2.0188</td> <td>P</td>	30361-001A	GRACY	9001	19 157	15 635	38 673	0.81616	2.0188	P
3036-002A1         GRACY         90P1         19.132         15.637         38.659         0.81729         2.0206         R           3036-1002A2         GRACY         90P1         19.186         15.642         38.734         0.81508         2.0177         R           3036-1002A2         GRACY         90P1         19.186         15.643         38.747         0.81506         2.0180         R           3041-5002A         BIG MISSOURI         81RY         18.857         15.643         38.474         0.82966         2.0403         J           30415-003A         BIG MISSOURI         81RY         18.837         15.643         38.474         0.82966         2.0403         J           30415-003A         BIG MISSOURI         81RY         18.803         15.645         38.530         0.83291         2.0617         J           30415-005A         BIG MISSOURI         81RY         18.803         15.645         38.456         0.82970         2.0420         J           30415-005A         BIG MISSOURI         84GA         18.824         15.610         38.456         0.82927         2.0420         J           30415-005A         BIG MISSOURI         84GA         18.824         15.610         38	30361-001R	GRACY	90PI	19.149	15.629	38.651	0.81618	2.0186	R
3036-002A2         GRACY         90P1         19.188         15.642         38.724         0.81521         2.0181         R           3036-002B1         GRACY         90P1         19.186         15.624         38.876         0.81561         2.0002         R           3036-002B2         GRACY         90P1         19.186         15.638         38.717         0.81506         2.0180         R           30415-001A         BIG MISSOURI         81RY         18.837         15.643         38.489         0.82744         2.0411         J           30415-001A         BIG MISSOURI         81RY         18.837         15.643         38.435         0.83258         2.0442         J           30415-005A         BIG MISSOURI         81RY         18.830         15.642         38.435         0.82291         2.0417         J           30415-005A         BIG MISSOURI         84GA         18.823         15.615         38.455         0.82970         2.0433         J           30415-005A         BIG MISSOURI         84GA         18.823         15.617         38.458         0.82970         2.0430         J           30415-005A         BIG MISSOURI         84GA         18.823         15.615         38.4	30361-002A1	GRACY	90PI	19.132	15.637	38.659	0.81729	2.0206	R
30361-002B1         GRACY         90P1         19.169         15.624         38.676         0.81508         2.0177         R           30361-002C         GRACY         90P1         19.218         15.674         38.824         0.81561         2.0022         -           30361-002C         GRACY         90P1         19.186         15.638         38.474         0.82566         2.0403         J           30415-002A         BIG MISSOURI         81RY         18.837         15.643         38.474         0.82766         2.0403         J           30415-002A         BIG MISSOURI         81RY         18.803         15.655         38.535         0.83258         2.0482         J           30415-005A         BIG MISSOURI         84GA         18.820         15.615         38.456         0.82927         2.0423         J           30415-005A         BIG MISSOURI         84GA         18.822         15.610         38.457         0.82928         2.04130         J           30415-005A         BIG MISSOURI         84GA         18.824         15.610         38.456         0.82924         2.0430         J           30415-005A         BIG MISSOURI         84GA         18.824         15.610         38	30361-002A2	GRACY	90PI	19.188	15,642	38.724	0.81521	2.0181	R
30361-002E         GRACY         90F0         19.18         15.674         38.84         0.81561         2.0202         -           30415-001A         BIG MISSOURI         81RY         19.857         15.603         38.489         0.81506         2.0180         R           30415-001A         BIG MISSOURI         81RY         18.857         15.603         38.489         0.82744         2.0411         J           30415-003A         BIG MISSOURI         81RY         18.857         15.6043         38.474         0.82066         2.0490         J           30415-007A         BIG MISSOURI         81RY         18.816         15.642         38.535         0.83032         2.0482         J           30415-007A         BIG MISSOURI         84GA         18.820         15.615         38.455         0.82907         2.0433         J           30415-007A         BIG MISSOURI         84GA         18.824         15.610         38.453         0.82904         2.0430         J           30415-007A         BIG MISSOURI         84GA         18.824         15.611         38.451         0.82904         2.0414         J           30415-007B         BIG MISSOURI         7GA         18.822         15.813	30361-002B1	GRACY	90PI	19,169	15.624	38.676	0.81508	2.0177	R
30361-002C         GRACY         90Pl         19.186         15.638         38.717         0.81506         2.0180         R           30415-002A         BIG MISSOURI         81RY         18.857         15.643         38.474         0.82266         2.0411         J           30415-002A         BIG MISSOURI         81RY         18.857         15.645         38.474         0.82266         2.04403         J           30415-003A         BIG MISSOURI         81RY         18.816         15.642         38.530         0.83258         2.0482         J           30415-005A         BIG MISSOURI         84GA         18.823         15.615         38.456         0.82297         2.0430         J           30415-006A         BIG MISSOURI         84GA         18.822         15.611         38.458         0.82928         2.0430         J           30415-008A         BIG MISSOURI         84GA         18.822         15.611         38.454         0.82982         2.0430         J           30415-00A         BIG MISSOURI         87GA         18.827         15.615         38.464         0.82945         2.0430         J           30415-01A         BIG MISSOURI         87GA         18.827         15.616	30361-002B2	GRACY	90GO	19.218	15.674	38.824	0.81561	2.0202	-
30415-001A       BIG MISSOURI       81RY       18,857       15,603       38,489       0,82744       2.0411       J         30415-003A       BIG MISSOURI       81RY       18,857       15,603       38,454       0,82966       2.0400       J         30415-003A       BIG MISSOURI       81RY       18,803       15,655       38,512       0,83258       2.0482       J         30415-005A       BIG MISSOURI       81RY       18,803       15,655       38,455       0,82970       2.0433       J         30415-005A       BIG MISSOURI       84GA       18,824       15,610       38,485       0,82928       2.0430       J         30415-007A       BIG MISSOURI       84GA       18,824       15,610       38,485       0,82928       2.0430       J         30415-008A       BIG MISSOURI       84GA       18,824       15,615       38,450       0,82942       2.0444       J         30415-010A       BIG MISSOURI       70RY       18,175       15,515       38,450       0,82945       2.0430       J         30415-013A       BIG MISSOURI       70RY       18,175       15,615       38,454       0,82945       2.0430       J         30415-013A	30361-002C	GRACY	90P1	19.186	15.638	38.717	0.81506	2.0180	R
30415-002A         BIG MISSOURI         81RY         18.87         15.645         38.474         0.82966         2.0403         J           30415-003A         BIG MISSOURI         81RY         18.803         15.655         38.512         0.83258         2.0482         J           30415-005A         BIG MISSOURI         81RY         18.803         15.655         38.512         0.832970         2.0433         J           30415-005A         BIG MISSOURI         84GA         18.820         15.615         38.456         0.82927         2.0420         J           30415-006A         BIG MISSOURI         84GA         18.822         15.611         38.453         0.82939         2.0430         J           30415-008A2         BIG MISSOURI         86GA         18.822         15.615         38.450         0.82904         2.0430         J           30415-008A         BIG MISSOURI         87GA         18.827         15.515         38.454         0.82904         2.0435         J           30415-01A         BIG MISSOURI         79RY         18.753         15.616         38.464         0.82945         2.0430         J           30415-013A         BIG MISSOURI         79RY         18.733         15.616<	30415-001A	BIG MISSOURI	81RY	18.857	15.603	38.489	0.82744	2.0411	J
30415.003A         BIG MISSOURI         81RY         18.16         15.624         38.353         0.83036         2.0480         J           30415.006A         BIG MISSOURI         81RY         18.70         15.642         38.512         0.83258         2.0482         J           30415.006A         BIG MISSOURI         81RY         18.70         15.642         38.510         0.83291         2.0413         J           30415.006A         BIG MISSOURI         84GA         18.823         15.610         38.435         0.82927         2.0420         J           30415.008A1         BIG MISSOURI         84GA         18.823         15.615         38.458         0.82928         2.0430         J           30415.008A2         BIG MISSOURI         84GA         18.824         15.515         38.450         0.82942         2.0440         J           30415.010A         BIG MISSOURI         79RY         18.175         15.515         38.450         0.82949         2.0435         J           30415.013A         BIG MISSOURI         79RY         18.753         15.617         38.474         0.82949         2.0435         J           30415.013B         BIG MISSOURI         79RY         18.754         15.613 </td <td>30415-002A</td> <td>BIG MISSOURI</td> <td>81RY</td> <td>18.857</td> <td>15.645</td> <td>38.474</td> <td>0.82966</td> <td>2.0403</td> <td>J</td>	30415-002A	BIG MISSOURI	81RY	18.857	15.645	38.474	0.82966	2.0403	J
30415-004A         BIG MISSOURI         81RY         18.803         15.655         38.512         0.83258         2.0482         J           30415-005A         BIG MISSOURI         84GA         18.820         15.615         38.456         0.82970         2.0433         J           30415-005A1         BIG MISSOURI         84GA         18.823         15.609         38.435         0.82927         2.0420         J           30415-008A1         BIG MISSOURI         84GA         18.824         15.610         38.458         0.82928         2.0430         J           30415-008A2         BIG MISSOURI         84GA         18.821         15.519         38.450         0.82904         2.0414         J           30415-009A         BIG MISSOURI         87GA         18.827         15.615         38.450         0.82904         2.0414         J           30415-01A         BIG MISSOURI         70GA         18.827         15.616         38.464         0.82949         2.0435         J           30415-013A         BIG MISSOURI         87GA         18.827         15.616         38.464         0.81636         2.0181         R           30415-013A         BIG MISSOURI         87GA         18.734         15.61	30415-003A	BIG MISSOURI	81RY	18.816	15.624	38.535	0.83036	2.0480	1
30415.005A         BIG MISSOURI         NIRY         18.780         15.642         38.530         0.83291         2.0517         J           30415.006A         BIG MISSOURI         84GA         18.820         15.615         38.455         0.82927         2.0430         J           30415.006A1         BIG MISSOURI         84GA         18.823         15.610         38.458         0.82928         2.0430         J           30415.008A2         BIG MISSOURI         84GA         18.822         15.611         38.455         0.82928         2.0430         J           30415.008A2         BIG MISSOURI         84GA         18.822         15.611         38.450         0.82928         2.0430         J           30415.001A         BIG MISSOURI         70RY         18.8175         15.521         37.634         0.82946         2.0435         J           30415.012A         BIG MISSOURI         87GA         18.828         15.617         38.474         0.82949         2.0435         J           30415.013A         BIG MISSOURI         70RY         18.753         15.634         38.017         0.83368         2.0827         J           30414.001A1         GLOBE         90PI         19.133         15.622 <td>30415-004A</td> <td>BIG MISSOURI</td> <td>81RY</td> <td>18.803</td> <td>15.655</td> <td>38.512</td> <td>0.83258</td> <td>2.0482</td> <td>J</td>	30415-004A	BIG MISSOURI	81RY	18.803	15.655	38.512	0.83258	2.0482	J
30415-006A         BIG         MISSOURI         84GA         18.820         15.615         38.456         0.82970         2.0433         J           30415-007A         BIG         MISSOURI         84GA         18.823         15.609         38.435         0.82927         2.0430         J           30415-008A1         BIG         MISSOURI         84GA         18.824         15.610         38.435         0.82928         2.0430         J           30415-009A         BIG         MISSOURI         87GA         18.835         15.615         38.450         0.82904         2.04414         J           30415-009A         BIG         MISSOURI         87GA         18.835         15.615         38.450         0.82945         2.0430         J           30415-01A         BIG         MISSOURI         87GA         18.827         15.616         38.464         0.81656         2.0433         J           30415-01A         BIG         MISSOURI         87GA         18.827         15.617         38.474         0.82949         2.0435         J           30415-01A         BLO         MISSOURI         87GA         18.734         15.612         38.900         0.83333         2.0813         J <td>30415-005A</td> <td>BIG MISSOURI</td> <td>81<b>R</b>Y</td> <td>18.780</td> <td>15,642</td> <td>38.530</td> <td>0.83291</td> <td>2.0517</td> <td>l</td>	30415-005A	BIG MISSOURI	81 <b>R</b> Y	18.780	15,642	38.530	0.83291	2.0517	l
30415-007A       BIG MISSOURI       84GA       18.823       15.609       38.435       0.82927       2.0420       J         30415-008A2       BIG MISSOURI       84GA       18.822       15.610       38.435       0.82939       2.0430       J         30415-008A2       BIG MISSOURI       86GA       18.812       15.512       38.4373       0.82982       2.0399       J         30415-009B       BIG MISSOURI       87GA       18.835       15.615       38.4450       0.82904       2.0414       J         30415-01A       BIG MISSOURI       79RY       18.175       15.521       37.634       0.82945       2.0430       J         30415-01A       BIG MISSOURI       87GA       18.828       15.617       38.474       0.82945       2.0433       J         30415-013A       BIG MISSOURI       87GA       18.734       15.612       38.990       0.83333       2.0813       J         30415-013A       BIG MISSOURI       90PI       19.133       15.627       38.624       0.81677       2.0187       R         30441-001A3       GLOBE       90PI       19.133       15.627       38.624       0.81677       2.0362       J         30445-001A       BRUC	30415-006A	BIG MISSOURI	84GA	18.820	15.615	38.456	0.82970	2.0433	J
3041-5008A1         BIG MISSOURI         84GA         18.824         15.610         38.458         0.82928         2.0430         J           30415-008A2         BIG MISSOURI         86GA         18.812         15.511         38.453         0.82939         2.0430         J           30415-008A         BIG MISSOURI         87GA         18.835         15.615         38.450         0.82904         2.0414         J           30415-010A         BIG MISSOURI         79RY         18.175         15.521         37.634         0.82904         2.0430         J           30415-01A         BIG MISSOURI         79RY         18.753         15.617         38.454         0.82949         2.0433         J           30415-013A         BIG MISSOURI         87GA         18.734         15.612         38.614         0.83333         2.0813         J           30415-013A         BIG MISSOURI         87GA         18.734         15.612         38.614         0.81656         2.0181         R           3041-001A1         GLOBE         90PI         19.133         15.624         38.614         0.81650         2.0201         R           30441-001A2         GLOBE         90PI         19.133         15.627	30415-007A	BIG MISSOURI	84GA	18.823	15.609	38.435	0.82927	2.0420	J
30415-008A2         BIG MISSOURI         840A         18.822         15.011         38.433         0.32939         2.0430         1           30415-009B         BIG MISSOURI         87GA         18.835         15.512         38.373         0.82882         2.0399         J           30415-00A         BIG MISSOURI         77K         18.175         15.521         37.614         0.82945         2.0430         J           30415-01A         BIG MISSOURI         87GA         18.827         15.616         38.464         0.82945         2.0430         J           30415-01A         BIG MISSOURI         87GA         18.827         15.616         38.474         0.82949         2.0435         J           30415-013A         BIG MISSOURI         77KA         18.828         15.634         39.057         0.83368         2.0827         J           30441-001A2         GLOBE         90P1         19.133         15.624         38.614         0.81677         2.0187         R           30441-001A3         GLOBE         90P1         19.133         15.627         38.624         0.81677         2.0187         R           30445-001A         RUCE GLACIER         90P1         18.828         15.569 <t< td=""><td>30415-008A1</td><td>BIG MISSOURI</td><td>84GA</td><td>18.824</td><td>15.610</td><td>38.458</td><td>0.82928</td><td>2.0430</td><td>J</td></t<>	30415-008A1	BIG MISSOURI	84GA	18.824	15.610	38.458	0.82928	2.0430	J
3041-5009A         BIG MISSOURI         806A         18.812         15.392         38.353         0.82802         2.00994         2.0414         J           30415-009B         BIG MISSOURI         79RY         18.175         15.5615         38.450         0.82904         2.0414         J           30415-010A         BIG MISSOURI         87GA         18.827         15.616         38.464         0.82945         2.0430         J           30415-012A         BIG MISSOURI         87GA         18.828         15.617         38.474         0.82949         2.0435         J           30415-013A         BIG MISSOURI         87GA         18.734         15.612         38.990         0.83333         2.0813         J           30441-001A1         GLOBE         90P1         19.133         15.624         38.614         0.81656         2.0181         R           30441-001A2         GLOBE         90P1         19.133         15.627         38.624         0.81677         2.0362         J           30445-001A         RUCE GLACIER         90P1         18.847         15.609         38.433         0.82820         2.0392         J           30445-001A         KERR 15         90GO         18.801 <t< td=""><td>30415-008A2</td><td>BIG MISSOURI</td><td>840A</td><td>18.822</td><td>15.011</td><td>38.433</td><td>0.82939</td><td>2,0430</td><td>1</td></t<>	30415-008A2	BIG MISSOURI	840A	18.822	15.011	38.433	0.82939	2,0430	1
3041-5007b         b13 bitsouri         50A         15.013         35.45.0         0.82904         2.0017         -           30415-010A         BIG MISSOURI         7RA         18.827         15.5121         37.634         0.853948         2.0077         -           30415-01A         BIG MISSOURI         87GA         18.827         15.616         38.474         0.82945         2.0430         J           30415-013A         BIG MISSOURI         79RY         18.753         15.634         39.057         0.83368         2.0827         J           30415-013A         BIG MISSOURI         87GA         18.753         15.632         38.614         0.81656         2.0181         R           30441-001A2         GLOBE         90P1         19.133         15.622         38.656         0.81650         2.0201         R           30441-001A3         GLOBE         90P1         19.133         15.627         38.624         0.81677         2.0187         R           30445-001A         BRUCE GLACIER         90P1         18.828         15.589         38.33         0.82797         2.0362         J           30459-001A         KERR 15         90GO         18.801         15.613         38.427	20412-009A	BIG MISSOURI	87CA	10.014	15.592	29 450	0.62662	2.0399	J
Diff         Diff <thdiff< th="">         Diff         Diff         <thd< td=""><td>30415-0104</td><td>BIG MISSOURI</td><td>TURV</td><td>18 175</td><td>15.015</td><td>37 634</td><td>0.82308</td><td>2.0414</td><td>J</td></thd<></thdiff<>	30415-0104	BIG MISSOURI	TURV	18 175	15.015	37 634	0.82308	2.0414	J
Solita         Dia Missouri         STGA         18.828         15.617         38.474         0.82949         2.0435         J           30415-013A         BIG MISSOURI         79RY         18.753         15.617         38.474         0.82949         2.0433         J           30415-013B         BIG MISSOURI         87GA         18.734         15.612         38.990         0.83333         2.0813         J           30415-01A         GLOBE         90PI         19.133         15.622         38.644         0.81656         2.0187         R           30441-001A1         GLOBE         90PI         19.133         15.627         38.624         0.81677         2.0187         R           30441-001A3         GLOBE         90PI         18.828         15.589         38.338         0.82209         2.0392         J           30459-001A         KER 15         90CO         18.804         15.609         38.433         0.82820         2.0392         J           30459-001A         SCOTTIE GOLD         84GA         18.804         15.608         38.426         0.83007         2.0435         J           30494-001A         SILBAK PREMIER         79RY         18.825         15.577         38.357	30415-010A	BIG MISSOURI	87GA	18 877	15.521	38 464	0.83945	2.0707	ī
30415-013A         BIG MISSOURI         79RY         18.753         15.634         39.057         0.83368         2.0827         J           30415-013B         BIG MISSOURI         87GA         18.734         15.612         38.990         0.83333         2.0813         J           30415-013B         BIG MISSOURI         87GA         18.734         15.612         38.990         0.83333         2.0813         J           3041-001A1         GLOBE         90PI         19.135         15.624         38.614         0.81656         2.0181         R           30441-001A3         GLOBE         90PI         19.133         15.627         38.624         0.81677         2.0362         J           30445-001A         BRUCE GLACIER         90PI         18.828         15.589         38.338         0.82797         2.0362         J           30453-001A         COLAGH         90PI         18.847         15.609         38.433         0.82820         2.0392         J           30494-001A         SILBAK PREMIER         79RY         18.804         15.608         38.426         0.83007         2.0435         J           30494-002A         SILBAK PREMIER         79RY         18.849         15.632         <	30415-012A	BIG MISSOURI	87GA	18.828	15.617	38.474	0.82949	2.0435	J
30415-013B         BIG MISSOURI         87GA         18.734         15.612         38.990         0.83333         2.0813         J           30441-001A1         GLOBE         90PI         19.133         15.624         38.614         0.81656         2.0181         R           30441-001A2         GLOBE         90PI         19.135         15.627         38.624         0.81677         2.0187         R           30446-001A         BRUCE GLACIER         90PI         18.828         15.589         38.338         0.82797         2.0362         J           30459-001A         KERR 15         90GO         18.801         15.613         38.427         0.83042         2.0439         J           30494-001A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82746         2.0376         -           30494-003A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82970         2.0453         J           30494-003A         SILBAK PREMIER         79RY         18.839         15.632         38.475         0.82977         2.0453         J           30494-003A         SILBAK PREMIER         79RY         18.839         15.632	30415-013A	BIG MISSOURI	79RY	18.753	15.634	39.057	0.83368	2.0827	Ĵ
30441-001A1         GLOBE         90PI         19.133         15.624         38.614         0.81656         2.0181         R           30441-001A2         GLOBE         90PI         19.135         15.632         38.656         0.81690         2.0201         R           30441-001A3         GLOBE         90PI         19.133         15.627         38.624         0.81677         2.0187         R           30446-001A         BRUCE GLACIER         90PI         18.828         15.589         38.338         0.82797         2.0362         J           30459-001A         KERR 15         90GO         18.801         15.613         38.427         0.83042         2.0439         J           30493-001A         SCOTTIE GOLD         84GA         18.804         15.608         38.426         0.83007         2.0435         J           30494-001A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82746         2.0376         -           30494-002A         SILBAK PREMIER         79RY         18.839         15.632         38.475         0.82977         2.0423         J           30494-004A         SILBAK PREMIER         79RY         18.833         15.611 <td< td=""><td>30415-013B</td><td>BIG MISSOURI</td><td>87GA</td><td>18.734</td><td>15.612</td><td>38.990</td><td>0.83333</td><td>2.0813</td><td>J</td></td<>	30415-013B	BIG MISSOURI	87GA	18.734	15.612	38.990	0.83333	2.0813	J
30441-001A2         GLOBE         90PI         19.135         15.632         38.656         0.81690         2.0201         R           30441-001A3         GLOBE         90PI         19.133         15.627         38.624         0.81677         2.0187         R           30446-001A         BRUCE GLACIER         90PI         18.828         15.589         38.338         0.82797         2.0362         J           30453-001A         COLAGH         90PI         18.847         15.609         38.433         0.82820         2.0439         J           30459-001A         KERR 15         90GO         18.801         15.613         38.426         0.83007         2.0435         J           30494-001A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82746         2.0376         -           30494-002A         SILBAK PREMIER         79RY         18.849         15.639         38.451         0.82970         2.0453         J           30494-003A         SILBAK PREMIER         79RY         18.833         15.611         38.494         0.83093         2.0512         J           30494-004A         SILBAK PREMIER         87GA         18.833         15.611         <	30441-001A1	GLOBE	90PI	19,133	15.624	38.614	0.81656	2.0181	R
30441-001A3         GLOBE         90PI         19.133         15.627         38.624         0.81677         2.0187         R           30446-001A         BRUCE GLACIER         90PI         18.828         15.589         38.338         0.82797         2.0362         J           30453-001A         COLAGH         90PI         18.847         15.609         38.433         0.82820         2.0392         J           30459-001A         KERR 15         90GO         18.801         15.613         38.427         0.83042         2.0439         J           30493-001A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82746         2.0376         -           30494-002A         SILBAK PREMIER         79RY         18.829         15.632         38.455         0.82977         2.0423         J           30494-003A         SILBAK PREMIER         79RY         18.839         15.632         38.475         0.82977         2.0423         J           30494-004A         SILBAK PREMIER         79RY         18.839         15.632         38.494         0.83093         2.0512         J           30494-004A         SILBAK PREMIER         87GA         18.239         15.578	30441-001A2	GLOBE	90PI	19.135	15.632	38.656	0.81690	2.0201	R
30446-001A         BRUCE GLACIER         90PI         18.828         15.589         38.338         0.82797         2.0362         J           30453-001A         COLAGH         90PI         18.847         15.609         38.433         0.82820         2.0392         J           30459-001A         KERR 15         90GO         18.801         15.613         38.427         0.83042         2.0439         J           30493-001A         SCOTTIE GOLD         84GA         18.804         15.608         38.426         0.83007         2.0435         J           30494-001A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82746         2.0376         -           30494-002A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82970         2.0453         J           30494-004A         SILBAK PREMIER         79RY         18.829         15.632         38.475         0.82977         2.0423         J           30494-004B         SILBAK PREMIER         79RY         18.833         15.611         38.450         0.82891         2.0417         J           30494-005A         SILBAK PREMIER         87GA         18.251         15.738<	30441-001A3	GLOBE	90PI	19.133	15.627	38.624	0.81677	2.0187	R
30453-001A         COLAGH         90PI         18.847         15.609         38.433         0.82820         2.0392         J           30459-001A         KERR 15         90GO         18.801         15.613         38.427         0.83042         2.0439         J           30493-001A         SCOTTIE GOLD         84GA         18.804         15.608         38.426         0.83007         2.0435         J           30494-001A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82746         2.0376         -           30494-002A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82970         2.0453         J           30494-004A         SILBAK PREMIER         79RY         18.839         15.632         38.475         0.82977         2.0423         J           30494-004B         SILBAK PREMIER         70GA         18.833         15.611         38.450         0.82891         2.0417         J           30494-005A         SILBAK PREMIER         87GA         18.836         15.617         38.464         0.82907         2.0412         -           30494-005A         SILBAK PREMIER         87GA         18.836         15.617	30446-001A	BRUCE GLACIER	90PI	18,828	15.589	38.338	0.82797	2.0362	J
30459-001A         KERR 15         90GO         18.801         15.613         38.427         0.83042         2.0439         J           30493-001A         SCOTTIE GOLD         84GA         18.804         15.608         38.426         0.83007         2.0435         J           30494-001A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82746         2.0376         -           30494-002A         SILBAK PREMIER         79RY         18.849         15.639         38.551         0.82970         2.0453         J           30494-003A         SILBAK PREMIER         79RY         18.839         15.632         38.475         0.82977         2.0423         J           30494-004A         SILBAK PREMIER         79RY         18.767         15.594         38.494         0.83093         2.0512         J           30494-004B         SILBAK PREMIER         87GA         18.833         15.611         38.450         0.82891         2.0417         J           30494-005B         SILBAK PREMIER         87GA         19.210         15.738         39.201         0.81923         2.04406         -           30494-007A         SILBAK PREMIER         87GA         18.836         <	30453-001A	COLAGH	90PI	18.847	15.609	38,433	0.82820	2.0392	J
30493-001A         SCOTTIE GOLD         84GA         18.804         15.608         38.426         0.83007         2.0435         J           30494-001A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82746         2.0376         -           30494-002A         SILBAK PREMIER         79RY         18.849         15.639         38.551         0.82970         2.0453         J           30494-003A         SILBAK PREMIER         79RY         18.839         15.632         38.475         0.82977         2.0423         J           30494-004A         SILBAK PREMIER         79RY         18.767         15.594         38.494         0.83093         2.0512         J           30494-004B         SILBAK PREMIER         87GA         18.833         15.611         38.494         0.83093         2.0417         J           30494-005A         SILBAK PREMIER         87GA         18.833         15.611         38.450         0.82891         2.0412         -           30494-005A         SILBAK PREMIER         87GA         18.836         15.617         38.464         0.82907         2.0420         J           30494-007A         SILBAK PREMIER         87GA         18.836	30459-001A	KERR 15	90GO	18.801	15.613	38,427	0.83042	2.0439	J
30494-001A         SILBAK PREMIER         79RY         18.825         15.577         38.357         0.82746         2.0376         -           30494-002A         SILBAK PREMIER         79RY         18.849         15.639         38.551         0.82970         2.0453         J           30494-003A         SILBAK PREMIER         79RY         18.839         15.632         38.475         0.82977         2.0423         J           30494-004A         SILBAK PREMIER         79RY         18.839         15.632         38.475         0.82977         2.0423         J           30494-004A         SILBAK PREMIER         79RY         18.833         15.611         38.494         0.83093         2.0512         J           30494-005B         SILBAK PREMIER         87GA         18.833         15.611         38.450         0.82891         2.0417         J           30494-005B         SILBAK PREMIER         87GA         19.210         15.738         39.201         0.81923         2.0406         -           30494-007A         SILBAK PREMIER         87GA         18.836         15.617         38.464         0.82907         2.0420         J           30494-010A         SILBAK PREMIER         87GA         18.825	30493-001A	SCOTTIE GOLD	84GA	18.804	15.608	38.426	0.83007	2.0435	J
30494-002A       SILBAK PREMIER       79RY       18.849       15.639       38.551       0.82970       2.0453       J         30494-003A       SILBAK PREMIER       79RY       18.839       15.632       38.475       0.82977       2.0423       J         30494-004A       SILBAK PREMIER       79RY       18.767       15.594       38.494       0.83093       2.0512       J         30494-004B       SILBAK PREMIER       87GA       18.833       15.611       38.450       0.82891       2.0417       J         30494-005A       SILBAK PREMIER       87GA       19.229       15.758       38.251       0.81947       2.0412       -         30494-005B       SILBAK PREMIER       87GA       19.210       15.738       39.201       0.81923       2.0406       -         30494-007A       SILBAK PREMIER       87GA       18.836       15.617       38.464       0.82907       2.0420       J         30494-007A       SILBAK PREMIER       87GA       18.825       15.611       38.421       0.82915       2.0397       J         30494-010A       SILBAK PREMIER       87GA       18.838       15.612       38.421       0.82915       2.0397       J         30494-01	30494-001A	SILBAK PREMIER	79RY	18.825	15.577	38,357	0.82746	2.0376	-
30494-003A       SILBAK PREMIER       79RY       18.839       15.632       38.475       0.82977       2.0423       J         30494-004A       SILBAK PREMIER       79RY       18.767       15.594       38.494       0.83093       2.0512       J         30494-004B       SILBAK PREMIER       87GA       18.833       15.611       38.450       0.82891       2.0417       J         30494-005A       SILBAK PREMIER       86GA       19.229       15.758       38.251       0.81947       2.0412       -         30494-005B       SILBAK PREMIER       87GA       19.210       15.738       39.201       0.81923       2.0406       -         30494-007A       SILBAK PREMIER       87GA       18.836       15.617       38.464       0.82907       2.0420       J         30494-007A       SILBAK PREMIER       87GA       18.836       15.611       38.421       0.82915       2.0397       J         30494-010A       SILBAK PREMIER       87GA       18.838       15.612       38.322       0.82915       2.0397       J         30494-01A       SILBAK PREMIER       87GA       18.838       15.612       38.421       0.82871       2.0395       J         30494-01A	30494-002A	SILBAK PREMIER	79RY	18.849	15.639	38,551	0.82970	2.0453	J
30494-004A         SILBAK PREMIER         79RY         18.767         15.594         38.494         0.83093         2.0512         J           30494-004B         SILBAK PREMIER         87GA         18.833         15.611         38.450         0.82891         2.0417         J           30494-005A         SILBAK PREMIER         86GA         19.229         15.758         38.251         0.81947         2.0412         -           30494-005B         SILBAK PREMIER         87GA         19.210         15.738         39.201         0.81923         2.0406         -           30494-007A         SILBAK PREMIER         87GA         18.836         15.617         38.464         0.82907         2.0420         J           30494-007A         SILBAK PREMIER         87GA         18.825         15.611         38.421         0.82907         2.0420         J           30494-010A         SILBAK PREMIER         87GA         18.825         15.611         38.421         0.82907         2.0410         J           30494-010A         SILBAK PREMIER         87GA         18.838         15.612         38.321         0.82915         2.0397         J           30494-013A         SILBAK PREMIER         87GA         18.833	30494-003A	SILBAK PREMIER	79RY	18.839	15.632	38,475	0.82977	2.0423	J
30494-004B         SILBAK PREMIER         87GA         18.833         15.611         38.450         0.82891         2.0417         J           30494-005A         SILBAK PREMIER         86GA         19.229         15.758         38.251         0.81947         2.0412         -           30494-005B         SILBAK PREMIER         87GA         19.210         15.738         39.201         0.81923         2.0406         -           30494-005B         SILBAK PREMIER         87GA         19.210         15.738         39.201         0.81923         2.0406         -           30494-005A         SILBAK PREMIER         87GA         18.836         15.617         38.464         0.82907         2.0420         J           30494-010A         SILBAK PREMIER         87GA         18.825         15.611         38.421         0.82926         2.0410         J           30494-010A         SILBAK PREMIER         87GA         18.817         15.602         38.382         0.82915         2.0397         J           30494-011A         SILBAK PREMIER         87GA         18.838         15.612         38.421         0.82871         2.0395         J           30494-012A         SILBAK PREMIER         87GA         18.833	30494-004A	SILBAK PREMIER	79 <b>RY</b>	18.767	15,594	38,494	0.83093	2.0512	j
30494-005A       SILBAK PREMIER       86GA       19.229       15.758       38.251       0.81947       2.0412       -         30494-005B       SILBAK PREMIER       87GA       19.210       15.738       39.201       0.81923       2.0406       -         30494-005B       SILBAK PREMIER       87GA       18.836       15.617       38.464       0.82907       2.0420       J         30494-006A       SILBAK PREMIER       87GA       18.836       15.617       38.464       0.82907       2.0420       J         30494-010A       SILBAK PREMIER       87GA       18.825       15.611       38.421       0.82926       2.0410       J         30494-010A       SILBAK PREMIER       87GA       18.817       15.602       38.382       0.82915       2.0397       J         30494-011A       SILBAK PREMIER       87GA       18.838       15.612       38.421       0.82871       2.0395       J         30494-012A       SILBAK PREMIER       87GA       18.833       15.619       38.455       0.82901       2.0416       J         30494-013A       SILBAK PREMIER       87GA       18.833       15.618       38.450       0.82930       2.0416       J         30495-00	30494-004B	SILBAK PREMIER	87GA	18.833	15.611	38.450	0.82891	2.0417	J
30494-005B         SILBAK PREMIER         87GA         19.210         15.738         39.201         0.81923         2.0406         -           30494-006A         SILBAK PREMIER         87GA         18.836         15.617         38.464         0.82907         2.0420         J           30494-006A         SILBAK PREMIER         87GA         18.836         15.617         38.464         0.82907         2.0420         J           30494-010A         SILBAK PREMIER         84GA         18.825         15.611         38.421         0.82926         2.0410         J           30494-010A         SILBAK PREMIER         87GA         18.817         15.602         38.382         0.82915         2.0397         J           30494-011A         SILBAK PREMIER         87GA         18.838         15.612         38.421         0.82901         2.0416         J           30494-012A         SILBAK PREMIER         87GA         18.833         15.618         38.450         0.82930         2.0416         J           30494-013A         SILVER CONSOL         84GA         18.828         15.619         38.474         0.82954         2.0435         J           30495-001A         SILVER CONSOL         85GA         18.812	30494-005A	SILBAK PREMIER	86GA	19.229	15.758	38.251	0.81947	2.0412	-
30494-006A         SILBAK PREMIER         8/GA         18.836         15.617         38.464         0.82907         2.0420         J           30494-007A         SILBAK PREMIER         84GA         18.825         15.611         38.421         0.82926         2.0410         J           30494-010A         SILBAK PREMIER         87GA         18.817         15.602         38.382         0.82915         2.0397         J           30494-011A         SILBAK PREMIER         87GA         18.817         15.602         38.382         0.82915         2.0397         J           30494-012A         SILBAK PREMIER         87GA         18.838         15.612         38.421         0.82931         2.0395         J           30494-012A         SILBAK PREMIER         87GA         18.833         15.618         38.450         0.82930         2.0416         J           30495-001A         SILVER CONSOL         84GA         18.828         15.619         38.474         0.82954         2.0435         J           30495-001A         SILVER CONSOL         85GA         18.812         15.605         38.432         0.82957         2.0430         J           30629-001A         TAMI         85GA         18.857         1	30494-005B	SILBAK PREMIER	87GA	19.210	15.738	39.201	0.81923	2.0406	-
30494-007A         SILBAK PREMIER         84GA         18.825         15.611         38.421         0.82926         2.0410         J           30494-010A         SILBAK PREMIER         87GA         18.817         15.602         38.382         0.82915         2.0397         J           30494-011A         SILBAK PREMIER         87GA         18.817         15.602         38.382         0.82915         2.0397         J           30494-012A         SILBAK PREMIER         87GA         18.838         15.612         38.421         0.82871         2.0395         J           30494-012A         SILBAK PREMIER         87GA         18.831         15.619         38.450         0.82930         2.0416         J           30495-001A         SILVER CONSOL         84GA         18.828         15.619         38.474         0.82954         2.0435         J           30495-001A         SILVER CONSOL         85GA         18.812         15.605         38.432         0.82957         2.0430         J           30629-001A         TAMI         85GA         18.857         15.610         38.456         0.82781         2.0394         I	30494-006A	SILBAK PREMIER	8/GA	18.830	15.617	38.464	0.82907	2.0420	J
30494-010A         SILBAK FREMIER         6/GA         18.817         15.002         38.382         0.82915         2.0397         J           30494-011A         SILBAK PREMIER         87GA         18.838         15.612         38.421         0.82871         2.0395         J           30494-012A         SILBAK PREMIER         87GA         18.838         15.612         38.421         0.82871         2.0395         J           30494-012A         SILBAK PREMIER         87GA         18.841         15.619         38.465         0.82901         2.0416         J           30494-013A         SILBAK PREMIER         87GA         18.833         15.618         38.450         0.82930         2.0416         J           30495-001A         SILVER CONSOL         84GA         18.828         15.619         38.474         0.82954         2.0435         J           30495-001A         SILVER CONSOL         85GA         18.812         15.605         38.432         0.82957         2.0430         J           30629-001A         TAMI         85GA         18.857         15.610         38.456         0.82781         2.0394         I	20494-007A	SILDAK PKEMIEK	840A	18.823	13.011	38.421 20 202	0.82926	2.0410	J
300-27-011A         SILDAK FREMIER         0/GA         10.650         13.012         38.421         0.82671         2.0395         J           30494-012A         SILBAK PREMIER         87GA         18.841         15.619         38.465         0.82901         2.0416         J           30494-013A         SILBAK PREMIER         87GA         18.833         15.618         38.450         0.82930         2.0416         J           30495-001A         SILVER CONSOL         84GA         18.828         15.619         38.474         0.82954         2.0435         J           30495-001A         SILVER CONSOL         85GA         18.812         15.605         38.432         0.82957         2.0430         J           30629-001A         TAMI         85GA         18.857         15.610         38.456         0.82781         2.0394         I	30494-010A	SILDAN PREMIER	87CA	10.01/	15,002	38,384	0.82913	2.0397	J
30494-013A         SILBAK PREMIER         87GA         18.833         15.618         38.450         0.82901         2.0416         J           30495-001A         SILVER CONSOL         84GA         18.828         15.619         38.474         0.82954         2.0435         J           30495-001A         SILVER CONSOL         85GA         18.812         15.605         38.432         0.82957         2.0430         J           30629-001A         TAMI         85GA         18.857         15.610         38.456         0.82781         2.0394         I	30494-0116	SILDAN EKEMIEK	87CA	10.0.00	15.012	20,441	0.62671	2.0393	J
30495-001A         SILVER CONSOL         84GA         18.828         15.619         38.474         0.82954         2.0435         J           30495-001A         SILVER CONSOL         85GA         18.812         15.605         38.432         0.82957         2.0430         J           30629-001A         TAMI         85GA         18.857         15.610         38.456         0.82781         2.0394         I	30494-013A	SILBAK PREMIER	87GA	18.833	15,618	38,450	0.82930	2.0416	J
30495-001A         SILVER CONSOL         840A         18.820         15.019         58.474         0.82954         2.0455         J           30495-001A         SILVER CONSOL         85GA         18.812         15.605         38.432         0.82957         2.0430         J           30629-001A         TAMI         85GA         18.857         15.610         38.456         0.82781         2.0394         I	30495-001 4	SILVER CONSOL	846 4	18 938	15 610	28 474	0.82054	2 0425	u t
30629-001A TAMI 85GA 18.857 15.610 38.456 0.82781 2.0394 I	30495-001A	SILVER CONSOL	85GA	18.812	15.605	38,432	0.82957	2.0430	ر ۱
	30629-001A	TAMI	85GA	18.857	15.610	38,456	0.82781	2.0394	ĩ

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TABLE 2-9-1 Continued						
GALENA LEAD ISOTOPE ANALYSES FOR THE STEWART – ISKUT AREA, NORTHWESTERN B.C.						
(103O&P AND 104A, B&G)						

Lab Number	Deposit Name	Analyst	<sup>206</sup> Pb/ <sup>204</sup> Pb	<sup>207</sup> Pb/ <sup>204</sup> Pb	208Pb/204Pb	207Pb/206Pb	208РЪ/206РЪ	Date
30631-002A1	SNIPPAKER	85GA	19.146	15.616	38.584	0.81565	2.0152	R
30631-002A2	SNIPPAKER	85GA	19.155	15.624	38.614	0.81565	2.0159	R
30631-003A	SNIPPAKER	85GA	18.812	15.614	38.441	0.83001	2.0434	J
30631-004A1	SNIPPAKER	85GA	18.806	15.599	38.419	0.82944	2.0429	J
30631-004A2	INEL	87GA	18.823	15.610	38.424	0.82927	2.0413	J
30720-001A	PACKER FRACT	79RY	19.155	15.585	39.602	0.81363	2.0675	R
30720-001B	PACKER FRACT	87GA	19.177	15.629	38.661	0.81500	2.0160	R
30772-001A1	ESKAY CK	90PI	18.812	15.602	38.348	0.82938	2.0385	J
30772-001A2	ESKAY CK	90PI	18.801	15.597	38.344	0.82957	2.0395	J
30772-002A	ESKAY CK	90PI	18,810	15.598	38.335	0.82924	2.0380	J
30772-003A1	ESKAY CK	90PI	18.844	15.635	38.461	0.82968	2.0410	J
30772-003A2	ESKAY CK	90PI	18.835	15.624	38.445	0.82952	2.0411	J
30772-004A	ESKAY CK	90PI	18.817	15.603	38.351	0.82920	2.0381	J
30772-005A	ESKAY CK	90PI	18.806	15.594	38.309	0.82922	2.0371	J
30772-006A1	ESKAY CK	90GO	18.832	15.632	38.466	0.83008	2.0426	J
30772-006A2	ESKAY CK	90GO	18.838	15.626	38.432	0.82947	2.0401	J
30772-007A	ESKAY CK	90PI	18.826	15.613	38.385	0.82932	2.0389	J
30772-008A	ESKAY CK	90PI	18.821	15.605	38.349	0.82916	2.0376	J
30772-009A	ESKAY CK	90PI	18.823	15.609	38.371	0.82923	2.0385	J
30772-013A	ESKAY CK	90P1	18.856	15.660	38.541	0.83053	<b>2.044</b> 0	J
30772-013B	ESKAY CK	90PJ	18.820	15.608	38,366	0.82930	2.0385	J
30772-014A	ESKAY CK	90 <b>PI</b>	18.801	15.595	38.336	0.82951	2.0391	J
30775-001A	GRANDUC	86GA	19.099	15.614	38.561	0.81754	2.0190	R
30775-002A	GRANDUC	87GA	19.144	15.609	38.592	0.81532	2,0159	R
30775-003A	GRANDUC	79RY	18.722	15.600	38.428	0.83324	2.0526	-
30775-003B	GRANDUC	87GA	18.671	15.578	38.256	0.83438	2.0490	-
30775-005A	GRANDUC	88GA	19.085	15.602	38.532	0.81758	2.0190	R
30794-0014	τομ μαςκάν ι κ	79RV	18 773	15.600	38 330	0.83098	2.0418	I
30794-001A	TOM MACKAY LK	79RY	18 792	15.589	38 4 38	0.00000	2.0410	Ţ
30701-00211		0000	10.772	15.507	20, 202	0.02950	2.0151	
30794-003A	EMMA	9012	18.819	15.608	38.383	0.829.99	2.0396	J
30794-004A1	EMMA	90PI	18.815	15.605	38.370	0.82939	2.0393	J
30794-004A2	EMNIA	90P1	18.802	15.593	38.341	0.82930	2.0392	J
30797-001A	UNUK	79RY	18.861	15.629	38.373	0.82864	2.0345	Ĵ
30799-001A	MACKAY	90GO	18.816	15.601	38.339	0.82911	2.0376	J
30799-002A	MACKAY	90PI	18.820	15.606	38.348	0.82922	2.0376	J
30/99-003A	MACKAY	9091	18.811	15.596	38.319	0.82910	2.037	J
30813-001A	TWO BARREL	85GA	18.837	15.595	38.399	0.82788	2.0384	J
30814-001A	JOHNNY MT	85GA	18.848	15.605	38.427	0.82797	2.0388	J
30814-001B	JOHNNY MT	87GA	18.855	15.611	38.450	0.82796	2.0393	J
30814-002A1	JOHNNY MT	85GA	19.065	15.625	38.586	0.81956	2.0239	R
30814-002A2	JOHNNY MT	85GA	19.054	15.615	38.562	0.81952	2.0238	R
30814-003A	JOHNNY MT	90PI	18.842	15.591	38.403	0.82746	2.0381	J
30814-005A	JOHNNY MI	90PI	18.853	15.603	38.430	0,82762	2.0385	, ,
30889-001A	KEKK (NANCY)	85GA	18.779	15.599	38.327	0.83066	2.0410	j
30890-001A	SULPHURETS	85GA	18.809	15.626	38.477	0.83077	2.0457	J
30890-002A	SULPHURETS	86GA	18.809	15.608	38.430	0.82979	2.0431	J
30890-002B	SULPHURETS	87GA	18.822	15.617	38.452	0.82969	2.0429	J
30890-003A1	SULPHURETS	85GA	18.803	15.600	38.399	0.82965	2.0422	J
30890-003A2	SULPHURETS	86GA	18.804	15.598	38.388	0.829.52	2.0415	J
30890-004A	SULPHURETS	87GA	18.818	15.616	38.444	0.82986	2.0430	1
30890-005A	SULPHURETS	87GA	18.815	15.595	38.407	0.82835	2.041.3	j
30890-006A	SULPHURETS	88GA	19,196	15.668	38.842	0.81631	2.0234	R
30891-001A	KHYBER PASS	85GA	19.134	15.615	38.585	0.81610	2.0166	R
30891-002A1	KHYBER PASS	85GA	18.862	15.630	38.526	0.82862	2.0425	J
30891-002B	KHYBER PASS	87GA	18.846	15.611	38.470	0.82835	2.0413	J
30891-002A2	KHYBER PASS	85GA	18.842	15.611	38.448	0.82854	2.0405	J
30923-001A1	START	86GA	19.150	15.654	38.749	0.81747	2.0235	R
30923-001A2	START	86GA	19.132	15.629	38.642	0.81689	2.0193	R
30923-002A1	START	86GA	19.159	15.663	38.719	0.81755	2.0210	R
30923-002A2	START	86GA	19.134	15.641	38.683	0.81746	2.0218	R
30923-003A	START	86GA	19.114	15.621	38.629	0.81729	2.0210	R
30923-003B	START	86GA	19.121	15.628	38.643	0.81733	2.0210	R

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TABLE 2-9-1 — Continued						
GALENA LEAD ISOTOPE ANALYSES FOR THE STEWART - ISKUT AREA, NORTHWESTERN B.C.						
(1030&P AND 104A, B&G)						

Lab Number	Deposit Name	Analyst	<sup>206</sup> Pb/ <sup>204</sup> Pb	<sup>207</sup> Pb/ <sup>204</sup> Pb	<sup>208</sup> Pb/ <sup>204</sup> Pb	<sup>207</sup> Pb/ <sup>206</sup> Pb	<sup>208</sup> Pb/206Pb	Date
30939-001A 30939-002A	INDIAN INDIAN	84GA 84GA	19.150 19.159	15.625 15.621	38.665 38.650	0.81595 0.81537	2.0191 2.0174	R R
30989-001A	TRISH	90PI	18.838	15.588	38.370	0.82747	2.0368	J
30990-001A	TWIN CK	90PI	18.829	15.586	38.366	0.82779	2.0377	J
30991-001A	C-1	90PI	19.176	15.622	38.634	0.81466	2.0147	R
31002-001A 31002-002A 31002-003A	SNIP SNIP SNIP	90PI 90PI 90PI	18.847 18.809 18.865	15.606 15.598 15.611	38.429 38.393 38.450	0.82802 0.82931 0.82752	2.0390 2.0412 2.0382	J J J
31025-001A	CE ZONE	90 <b>PI</b>	18.819	15.624	38,465	0.83021	2.0439	J
50058-001A1 50058-001A2	RIVERSIDE RIVERSIDE	86GA 87GA	19.191 19.160	15.656 15.621	38.726 38.594	0.81578 0.81529	2.0179 2.0143	R R
NTS: 104G 30074-001A 30074-002A	PTARMIGAN PTARMIGAN	88GA 88GA	19.119 19.098	15.643 15.622	38.639 38.576	0.81829 0.81806	2.0210 2.0199	R R
30420-001A 30420-002A 30420-005A	BJ BJ BJ	82AN 82AN 82AN	18.718 18.741 19.291	15.545 15.448 15.702	38.183 37.985 38.987	0,83048 0,82429 0,81395	2.0399 2.0268 2.0210	- R
30421-002A	SHAFT CK	90PI	18.686	15.584	38.271	0.83399	2.0481	-
30558-001A1 30558-001A2	HORN SILVER HORN SILVER	85GA 85GA	18.846 18.858	15.590 15.598	38.364 38.393	0.82721 0.82712	2.0357 2.0359	J J

geological descriptions of hostrock and style of mineralization are in Table 2-9-2. An explanation of abbreviations in Tables 2-9-1 and 2-9-2 is in Table 2-9-3).

**Jurassic deposits** (Table 2-9-2) include: Eskay Creek, Premier, Scotty Gold, Kerr, Johnny Mountain. Snip and Dolly Varden. Eskay Creek is Early Jurassic on preliminary fossil evidence (P.L. Smith, personal communication, 1990). The Premier, Scotty Gold, Kerr and Johnny Mountain deposits are closely associated with granodiorites of the Texas Creek plutonic suite. This has been dated throughout the study area as Early Jurassic (U-Pb from zircon: Brown, 1987). The Dolly Varden and Snip deposits have the same lead and therefore are also Early Jurassic.

The Early Jurassic produced a wide variety of deposit types. First, they are precious metal rich, but most have associated copper, lead and zinc. Classification of deposits is varied and includes: mesothermal gold veins at Snip and Johnny Mountain, porphyry copper-gold systems at Kerr, epithermal gold-silver and base metal deposits at Sulphurets and Premier, and volcanogenic (Donnelly, 1976; Devlin, 1987) precious metal rich deposits at Eskay Creek (gold rich) and Dolly Varden (silver rich). Overall metal association is gold and silver with copper, lead and zinc (Table 2-9-4).

**Tertiary deposits** (Table 2-9-2) include Indian, Prosperity-Idaho and Kitsault. These represent the two main deposit types associated with this Eocene metallogenic event. Indian and Prosperity-Idaho are representative of silver-lead-zinc-rich mesothermal veins. These are abundant throughout the study area, but are generally smaller than these examples. Kitsault, dated as Eocene (K-Ar: Carter, 1982), is a porphyry molybdenum deposit with potentially recoverable silver. Thus, the overall metal association is silver and lead with zinc and, sometimes, molybdenum (Table 2-9-4).

**Deposits with both Jurassic and Tertiary lead** in Table 2-9-2 are Snippaker, Sulphurets, BJ and Granduc. In all cases the area of these deposits contains Tertiary veins as well as mineralization that is apparently older. This emphasizes the strong overprint by Tertiary intrusions associated with the Coast plutonic complex throughout the study area.

**Undefined deposits** in Table 2-9-2 are BJ, Granduc, Hidden Creek, Shaft Creek and Wilby. In all cases, additional analyses are desirable. However, tentative ages are assigned in the table. The BJ deposit is hosted by Permian schist, and Granduc by Triassic basalt. As neither of these units are part of the Hazelton Group, their associated lead might reflect a different model of lead evolution. Shaft Creek lead plots at the lower, left-hand edge of the Jurassic cluster in Figures 2-9-2 and 3. Consequently, it is slightly anomalous given its Middle Jurassic age (Panteleyev, 1974). Wilby lead is more radiogenic than most deposits examined here. This deposit is stratabound. Markedly radiogenic lead can be characteristic of such deposits (Godwin *et al.*, 1982; 1988).

## CONCLUSIONS

Distinctions between the Jurassic and Tertiary galena lead isotope clusters in the Stewart-Iskut area are summarized in Table 2-9-4. Distinctive galena lead ratios conveniently discriminate Jurassic from Tertiary deposits. Historically, the Jurassic deposits are more significant because they tend to be larger and richer in precious metals – especially gold. Deposits with lead isotope ratios that are outside the welldefined Jurassic and Tertiary clusters need more analyses. Some of them formed from lead with a different source.



Figure 2-9-2. Lead-lead plots of galena lead isotopes from mineral deposits in the Stewart-Iskut area. The data plot in two clusters. Circles represent Early Jurassic, gold-silver and base metal mineralization that is coeval with the Hazelton Group. Triangles represent Tertiary, silver-lead-zine $\pm$ molybdenum deposits generated by granitic intrusions. Dots represent analyses that cannot be assigned or are of poor quality. See also Figure 2-9-3.

Galena lead isotope analysis is a powerful tool for evaluation of mineral showings in the Stewart-Iskut area. The method enables definition of the age and precious metal potential for poorly exposed or newly discovered mineral showings. It therefore allows exploration priorities to be set up for occurrences on a regional, district or local property scale. Application of this scheme should lead to improved success in mine discovery. It allows efforts to be focused on the potentially most productive showings under investigation. Time is a particularly precious commodity during the short field seasons in northwestern British Columbia.

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#### TABLE 2-9-2 ALPHABETICAL LISTING OF DEPOSITS CLASSIFIED BY DATE AND DESCRIBED BY LOCATION, HOST AGE AND DEPOSIT TYPE (1030&P AND 104A, B&G)

Dep No	. Deposit Name	NTS-MINFILE	Lat N	Long W	Host	Туре	Date
Jurassi	" Deposits						
30798	Bellevue	103P-NW139	55.54	129.28	JM	?	J
30415	Big Missouri	104B-SE092	56.12	130.02	、Ε	?	J
30446	Bruce GLC	104B-NE072	£6.60	130.35	JE	V	J
31025	CE Zone	104B-NW	56.63	131.07	?	V.	ļ
31027	Copperfield	10.5P-NW185	20.07	129.51	JE	L	J
30435	Cotagn Dolly Varden	104B-NE252 103P-NW188	55.68	100.04		L I	J
31026	E and D	103P-NW183	15.66	129.51	1	2	Í
30794	Emma	104B-NE008	56.63	130.45	JE	Ĺ	j
30772	Eskay Ck	104B-NE008	56.64	130.44	M	Ĺ	J
30558	Horn Silver	104G-SW059	57.17	131.52	I	V	J
30631	Inel	104B-NE113	56.62	131.95	T-J	N.	J
30814	Johnny Ml	104B-NW107	56.62	131.07	I-J TE	- V - N	J
20880	Kerr (Nanesa)	104B-SE278	36.43	130.20	JE IE	v I	1
30993	Kit (Nancy)	103P-NW239	15 75	129.47	I.	I	, I
30891	Khyber Pass	104B-NW138	56,60	130.97	JE	v	Ĵ
30799	Mackay	104B-NE008	56.62	130.47	JE	L	J
30785	Mastodon	103P_NW020	35.59	129.76	?	2	J
30556	North Star	103P-NW189	.55.68	129.50	JE	L	Ĵ
30555	Red Point	103P-NW196	55.70	129.52	JE	V	j
30776	Robin South Cold	103P-NW208	33.73	129.52	IC IC	V V	1
30495	Stottle Oold Silbal Premier	104D-SE074 104B.SE054	56.05	130.12	1E JE	v	1
30495	Silver Consol	104B-SE095	56.11	130.02	JE	v	Ĵ
30631	Snippaker	104B-NE113	\$6.62	131.95	Ţ-J	- Ý	Ĵ
31002	Snip	104B-NW250	56.67	131.10	JE	V	ļ
30994	Summit	103P-NW172	55.75	129.50	JLM	V	J
30890	Sulphurets	104B-SE022	56.47	130.20	JE	V	J
30629	Tami Tami	104B-NET16	56.58	130,79	JE	V	J
30794	Tom Mackay LK	104B-NE008 103D NW101	20.02	100.40	1E JE	L	1
30989	Trish	104B-NW (07	56.63	129.01	T-1	v	į
30990	Twin Ck	104B-NW107	56.63	131.10	Ť-J	v.	Ĵ
30813	Two Barrel	104B-NW261	56.62	131.07	T-J	V	J
30797	Unuk	104B-SE018	56.41	130.49	T-J	?	J
30904	Wolf	103P-NW198	55.71	129.52	JE	V	l
Tertiary	Deposits						
30765	Bayview	103P-NW051	55.96	129.98	JE D	V V	R
30420	BJ C I	104G-SE070 104D NW262	56.62	121.09	۲ TI	V V	к u
30773	Esperanza	103P-SW126	55.49	120.49	IM	v	R
30441	Globe	104B-SE015	56.33	130.42	I-JE	v	R
30361	Gracy	104B-SE014	56.34	130.45	T-JE	V	R
30775	Grandue	104B-SE021	56.22	130.35	TL	V	R
30939	Indian	104B-SE031	56.08	130.03	JE	V	R
30814	Jarvis Johnny Mr	1030-NE 1040 NW107	56.63	130.07	JE T I	- V - V	к D
30891	Khyber Pass	104B-NW138	56.60	130.97	IF	Ň	R
30718	Kitsanh	103P-SW120	55.42	129.42	R	#	R
30455	Knip	104A-SW095	56.40	129.99	JE	v	R
30720	Packer Fract	104B-SE	56.11	130.02	JE	V	R
30492	Prosper-Idaho	103P-NW089	55.91	129.94	3	V	R
30074	Ptarmigan	104G-SW053	57.15	131.27	Ť	V	R
20717	Riverside	104B-SE075	56.00	130.07	JE	N N	R
30766	Kuth & Franc	103P-INW002 103P-INW088	00.96 55.00	129.69	3	Ň	R D
30631	Snippaker	104B-NE113	56.62	129.90	т <u>-</u> 1	Ň	R
30616	Spider	104A-SW010	56.13	129.99	JE	v	R
30923	Start	104B-SW051	56.08	130.01	JE	V	R
30890	Sulphurets	104B-SE022	56.47	130.20	JE	V	R
30929	Surprise Ck	104A-SW002	56.18	129.55	J	v	R
Undefin 20420	ed Deposits	1010 05070	67.10	120.05	~	17	I.)
30420	BJ Granduc	104G-SE070 104R-SE021	56.22	130.95	ץ דו	V V	17 T9
30777	Hidden Ck	103P-SW071	55.43	120.85	T	• •	R
30421	Shaft Ck	104G-SE015	57.33	131.01	j	#	12
30062	Wilby	103P-NW006	55.97	129.57	l	В	<b>R</b> ?



Figure 2-9-3. Lead-lead plot of galena lead isotopes as defined in Figure 2-9-2. However, different ratios are plotted. This plot minimizes effects of <sup>204</sup>Pb error.

TABLE 2-9-3 CODES USED IN TABLES 2-0-1 AND 2-0-2

Date and Host		Туре			
(Deposit Date and H	(Deposit Type)				
R = Tertiary		V = Vein			
J = Jurassic	<ul> <li>= Undefined</li> </ul>	L = Volcanogenic			
T = Triassic	E = Early	B = Stratabound			
P = Permian	M = Middle	# = Porphyry			
? = Unknown	L = Late	? = Unknown			
Analyst					

(Analyst or Reference)

60-90 = Year of Analysis or reference

- GA = Gabites<sup>1</sup>
- $GO = Godwin^2$
- PI = Pickering<sup>2</sup>
- RU = Russell and Farquhar, 1960<sup>3</sup>
- $RY = Ryan^3$

<sup>1</sup> GA analyses have been normalized to the Broken Hill Standard sample UBCBHS1 with accepted values (absolute error) from Richards (1981) of:  $2^{206}\text{Pb}/2^{04}\text{Pb} = 16.004$  (0.006),  $2^{07}\text{Pb}/2^{04}\text{Pb} = 15.390$  (0.007),  $2^{08}\text{Pb}/2^{04}\text{Pb} = 35.651$  (0.017),  $2^{07}\text{Pb}/2^{06}\text{Pb} = 0.96163$  (0.00057), and  $2^{08}\text{Pb}/2^{06}\text{Pb} = 2.2276$  (0.0014). Sample preparation and analytical techniques are described in Godwin *et al.* (1988).

<sup>2</sup> GO & PI analyses have been normalized to the National Bureau of Standard sample NBS981 with accepted values (absolute error) of:  $2^{00}$ Pb/ $2^{04}$ Pb=16.937 (0.001),  $2^{07}$ Pb/ $2^{04}$ Pb=15.493 (0.001),  $2^{08}$ Pb/ $2^{04}$ Pb=36.705 (0.004),  $2^{07}$ Pb/ $2^{06}$ Pb=0.91470 (0.0003), and  $2^{08}$ Pb/ $2^{06}$ Pb=2.1671 (0.0001). Sample preparation and analytical techniques are described in Godwin *et al.* (1988).

<sup>3</sup> These analyses are older and sometimes less accurate. See Godwin et al. (1988) for normalization factors.

#### TABLE 2-9-4 SUMMARY FOR THE TWO CLUSTERS OF GALENA LEAD ISOTOPE RATIOS, STEWART-ISKUT AREA (1030&P AND 104A, B&G)

Cogenesis	Age	Metals	286Рb/ 204Рb	<sup>207</sup> Рb/ <sup>204</sup> Рb	<sup>208</sup> РЬ/ <sup>204</sup> РЬ	207Рb/ 206Рb	208Pb/ 206Pb
Hazelton Group	Jurassic	Au-Ag-Cu-Zn-Pb	18.82	15.61	38.41	0.8290	2.040
Plutons	Tertiary	Ag-Pb-Zn±Mo	19.15	15.64	38.68	0.8150	2.018

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## NOTES