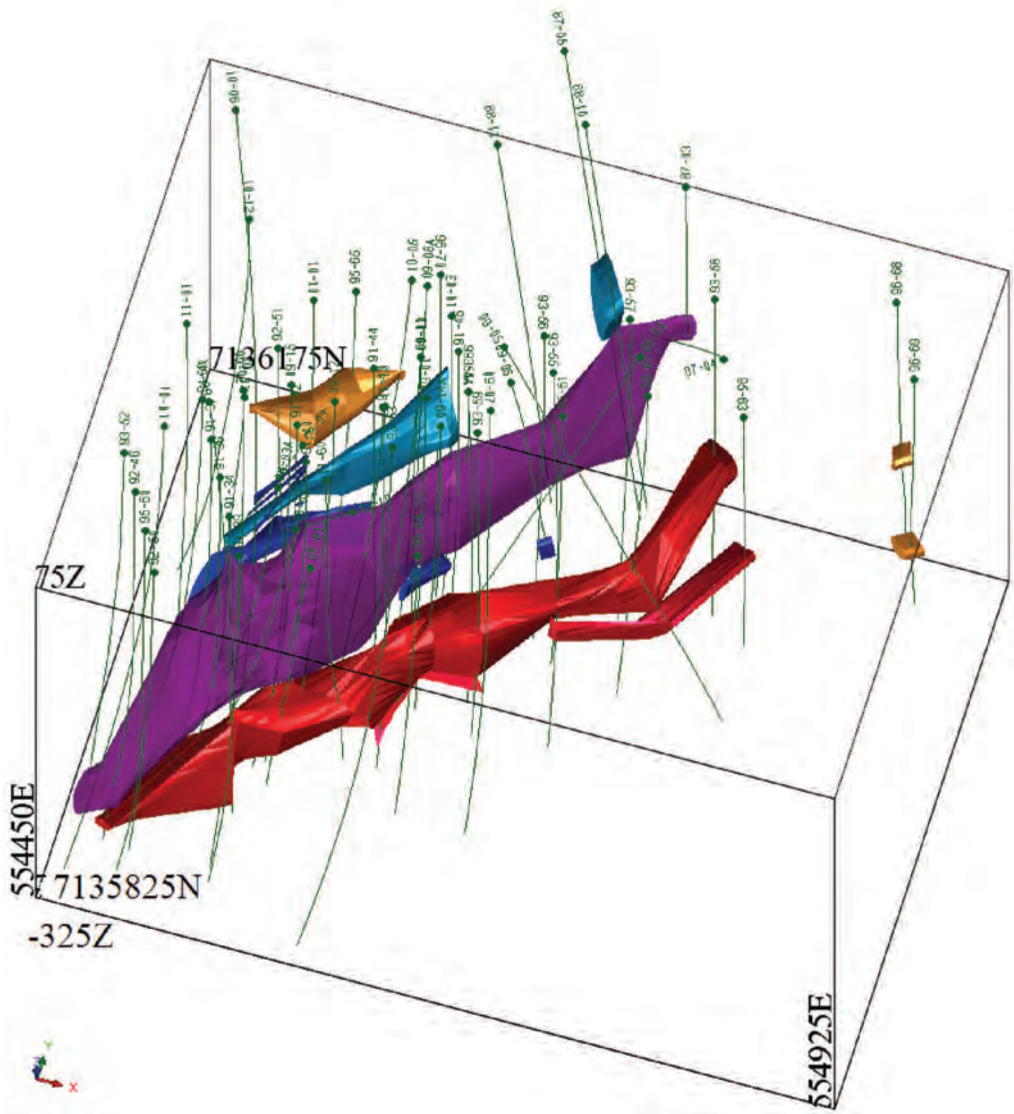

Projection: N/A
Creator: CDC
Date: 05/24/2011 Scale:
File:
Data Sources: *AREVA Resources Canada Inc.*

FIGURE 4.2-22
THREE DIMENSIONAL VIEW OF END GRID NORTH POD DEPOSIT

GEOLOGY AND HYDROGEOLOGY BASELINE

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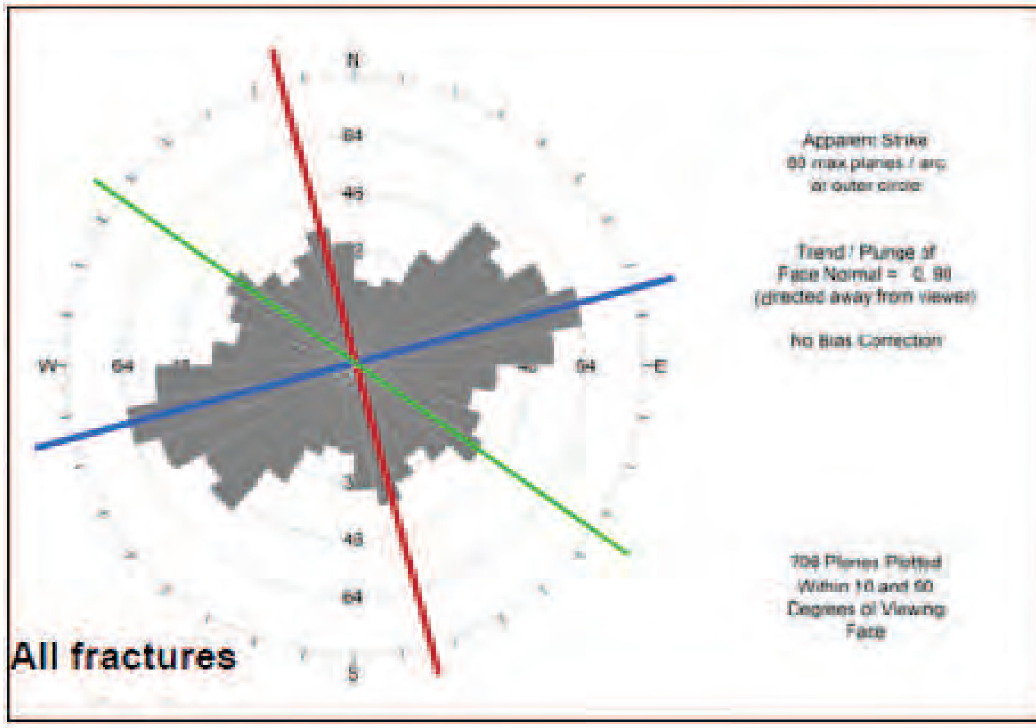

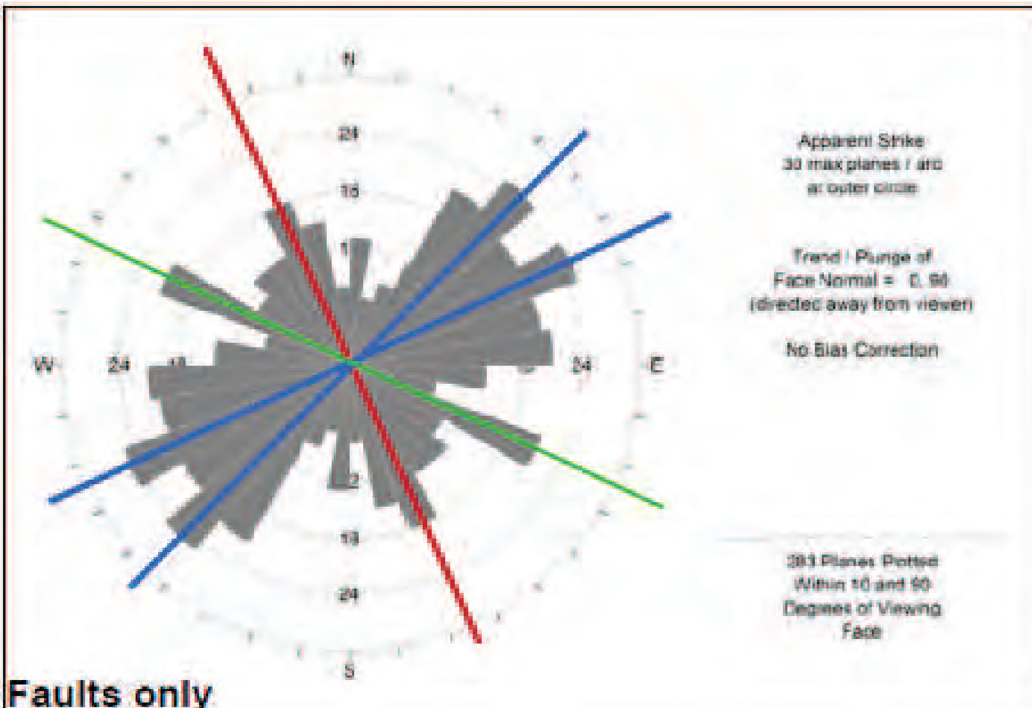

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Figure 4.2-23
End Grid North Pod Fractures and Faults Measurements

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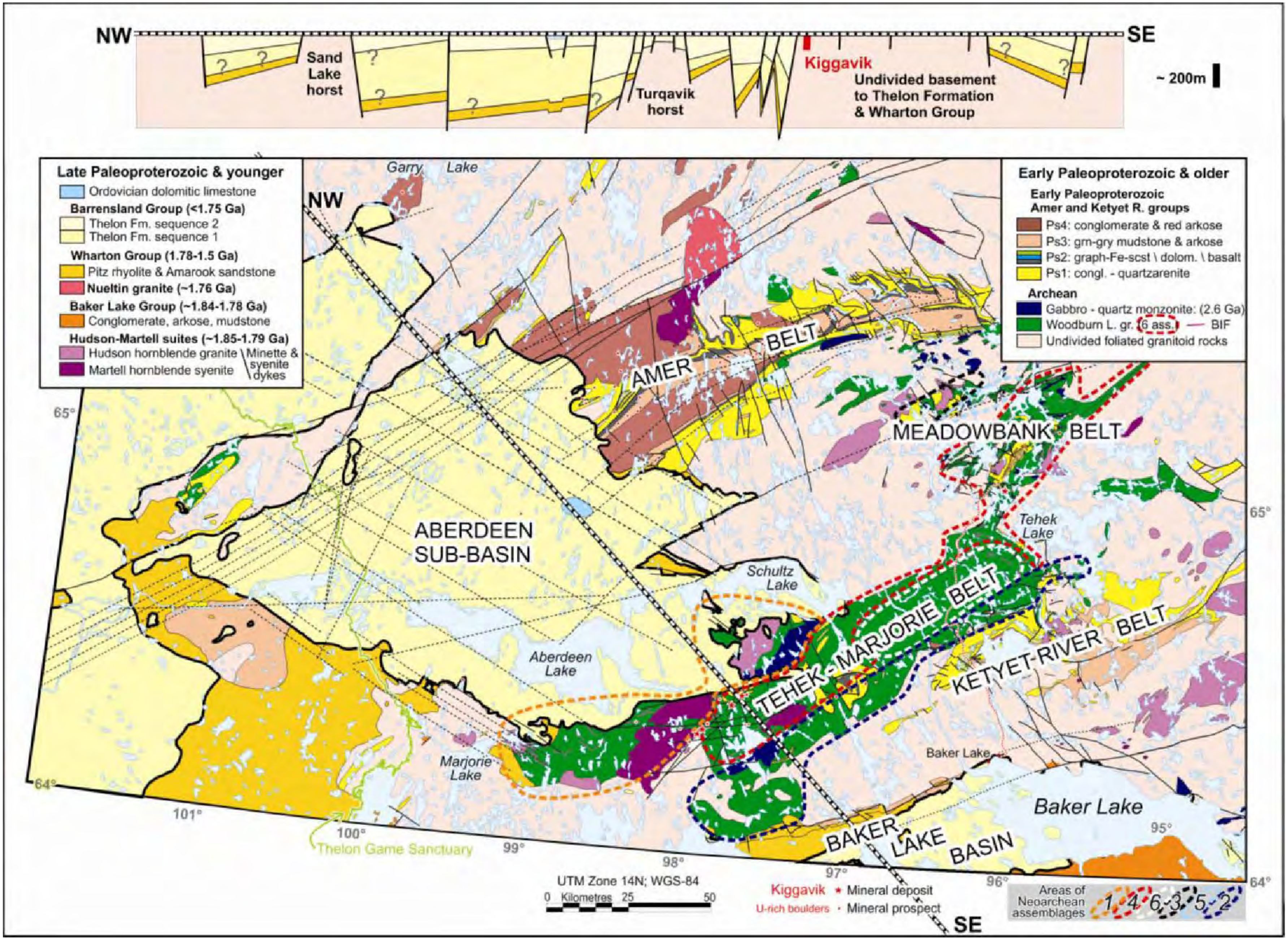
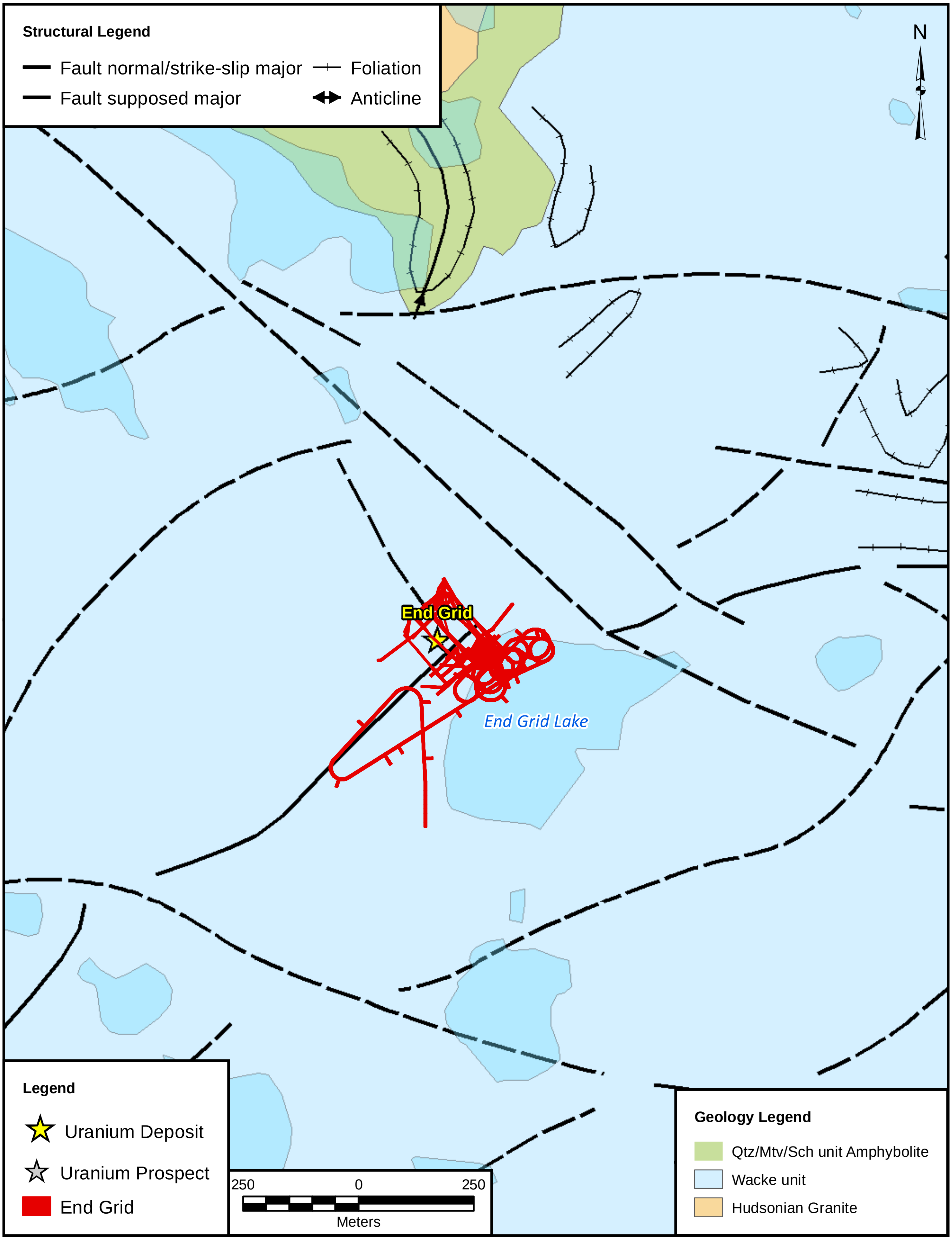


FIGURE 4.2-24
Regional Geologic Map and Cross-Section



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Compiled: C. Carter   Revised: TL
Date: 05/14/2014   Scale: 1:11,500
File: 1492-807
Data Sources: *Natural Resources Canada, Geobase®, Nation Topographic Database, AREVA Resources Canada Inc.*

FIGURE 4.2-25
END GRID MINE & GEOLOGY

ENVIRONMENTAL IMPACT STATEMENT
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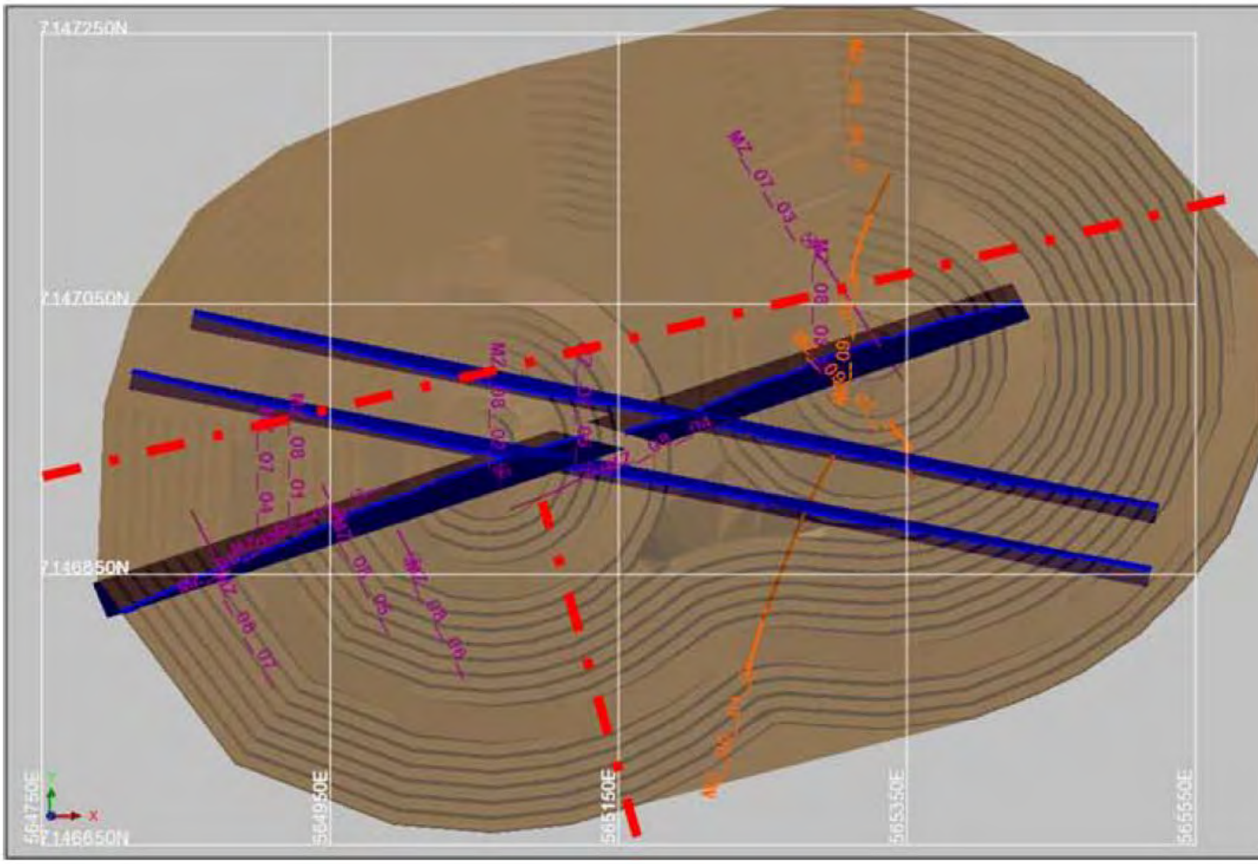
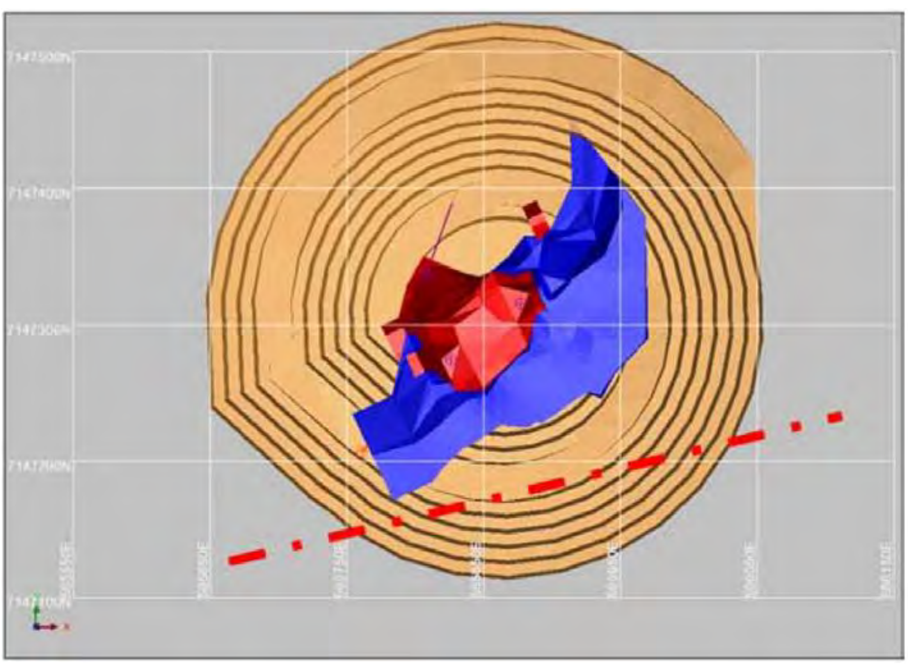


Main Zone Pit / Tailings Management Facility

Regional Fault Trends
Inferred Fault Trends



Center Zone Pit / Tailings Management Facility

Figure 4.2-26
Regional Fault Trends and Inferred Fault Outlines
(ref: Appendix 2V Attachment B Figure C2)

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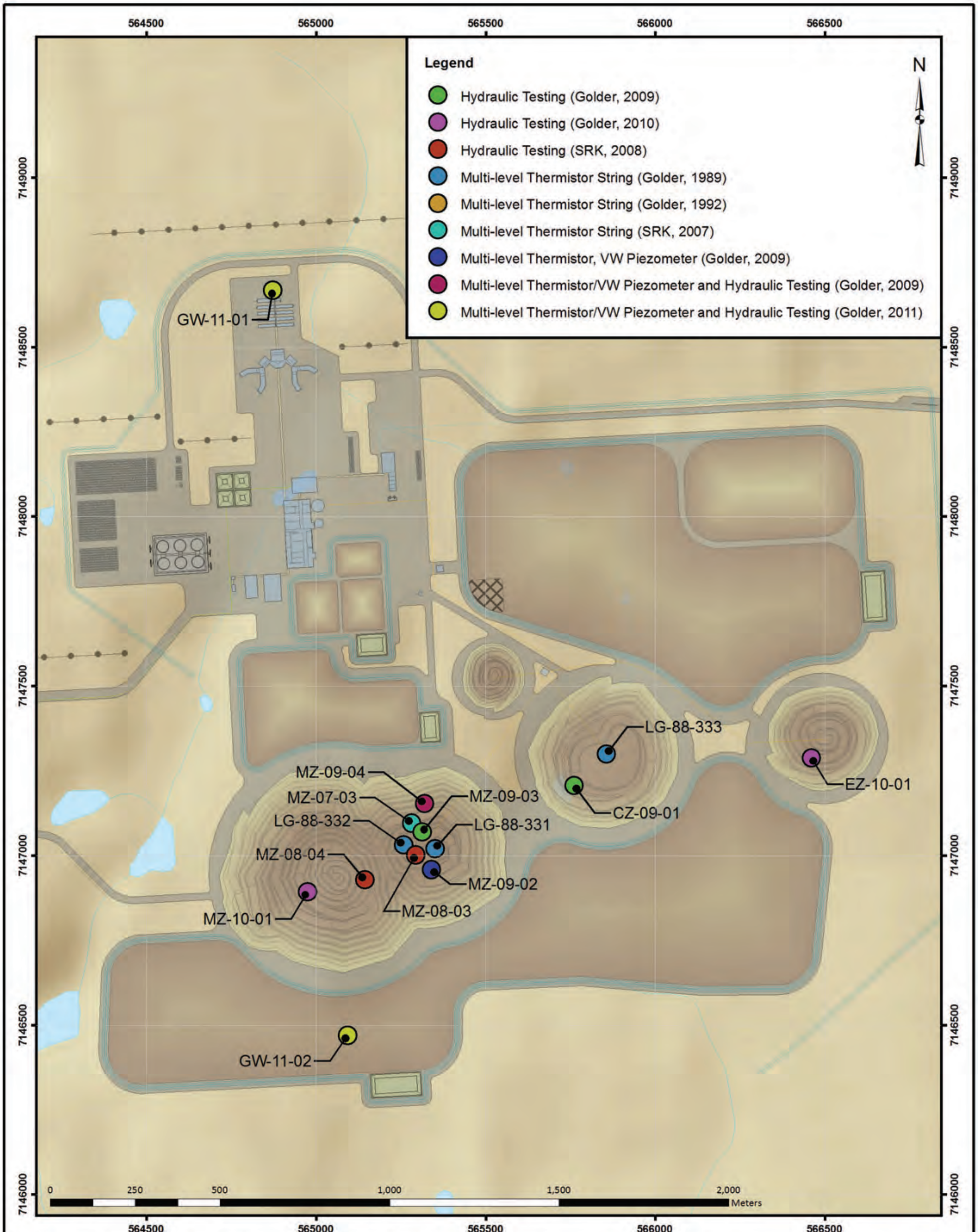

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File:
Data Sources: *Natural Resources Canada, Geobase®, Nation Topographic Database, AREVA Resources Canada Inc.*

FIGURE 5.1-1
THERMAL AND HYDRAULIC TESTING LOCATIONS
KIGGAVIK AREA

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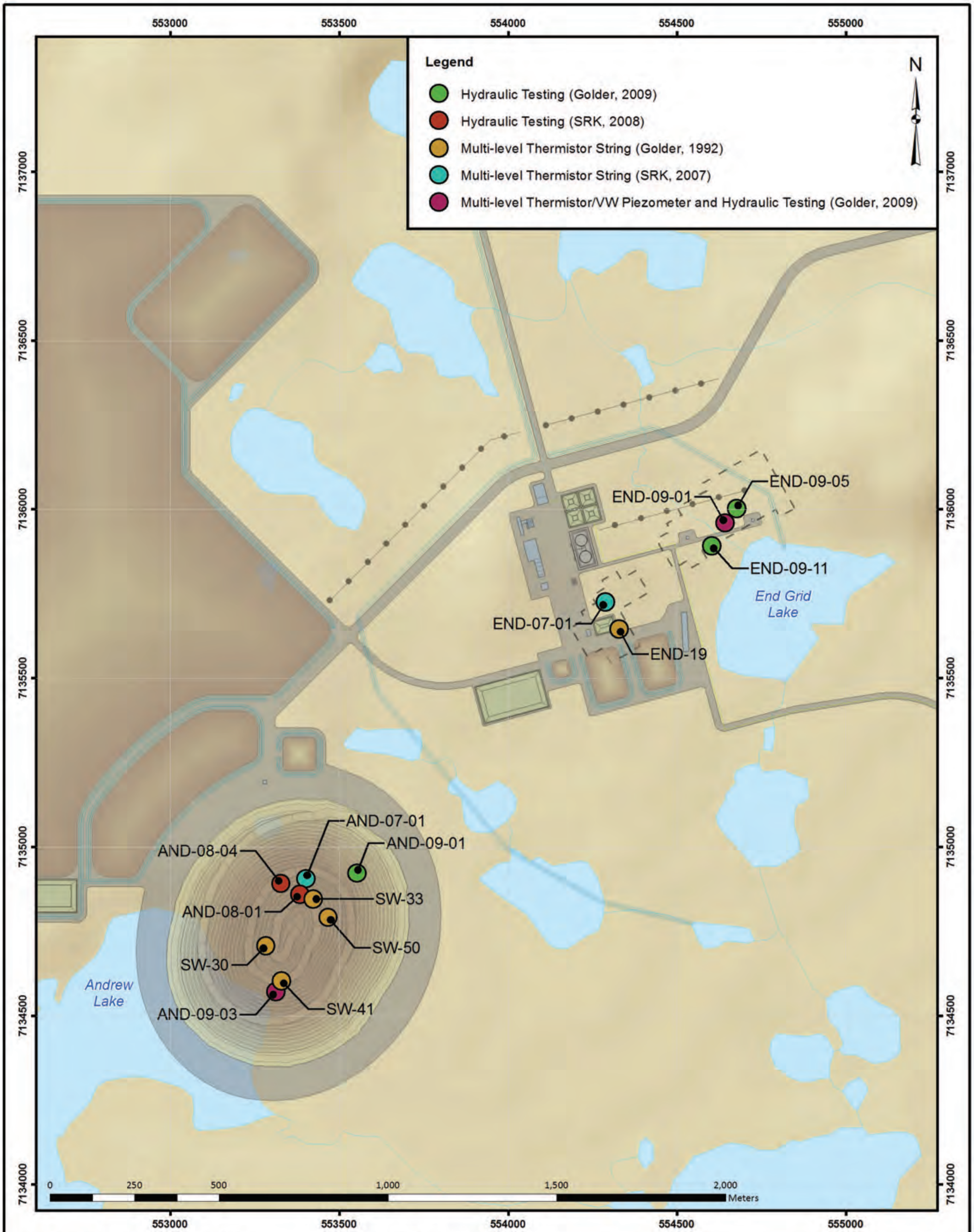

Projection: NAD 1983 UTM Zone 14N
Creator: CDC
Date: 10/06/2011 Scale: 1:15,000
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Data Sources: *Natural Resources Canada, Geobase®, Nation Topographic Database, AREVA Resources Canada Inc.*

FIGURE 5.1-2
THERMAL AND HYDRAULIC TESTING LOCATIONS
SISSONS AREA

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Projection: NAD 1983 UTM Zone 14N
Creator: CDC
Date: 10/06/2011 Scale: 1:15,000
File:
Data Sources: *Natural Resources Canada, Geobase®, Nation Topographic Database, AREVA Resources Canada Inc.*

FIGURE 5.1-3
ARTESIAN EXPLORATION BOREHOLES
BONG AREA

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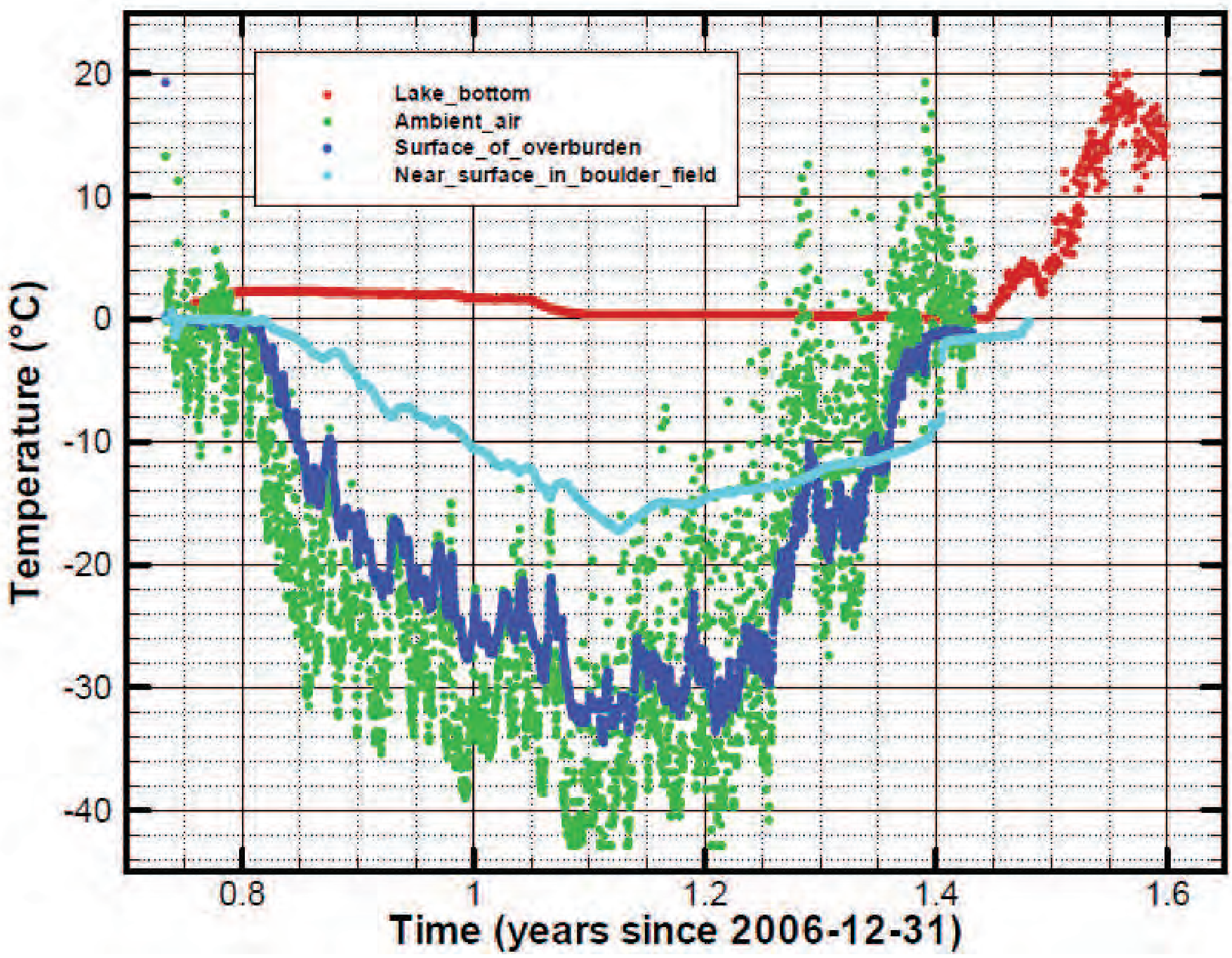

Figure 5.2-1
Temperature Data – Shallow Lake bottom, Ambient air, Surface overburden and Boulder field

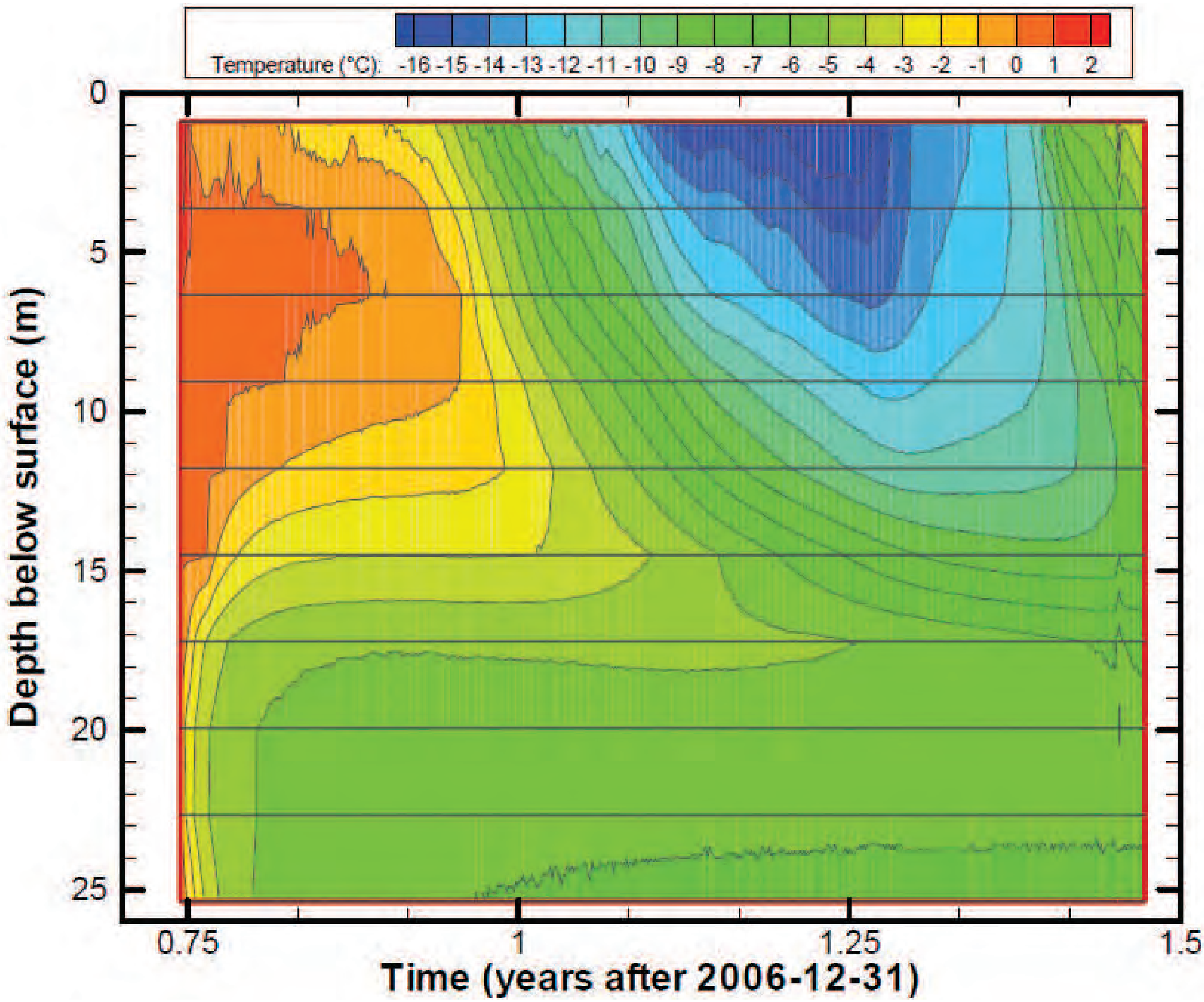

Figure 5.2-2
Ground temperature variation over time, Drillhole END07-01
End Grid

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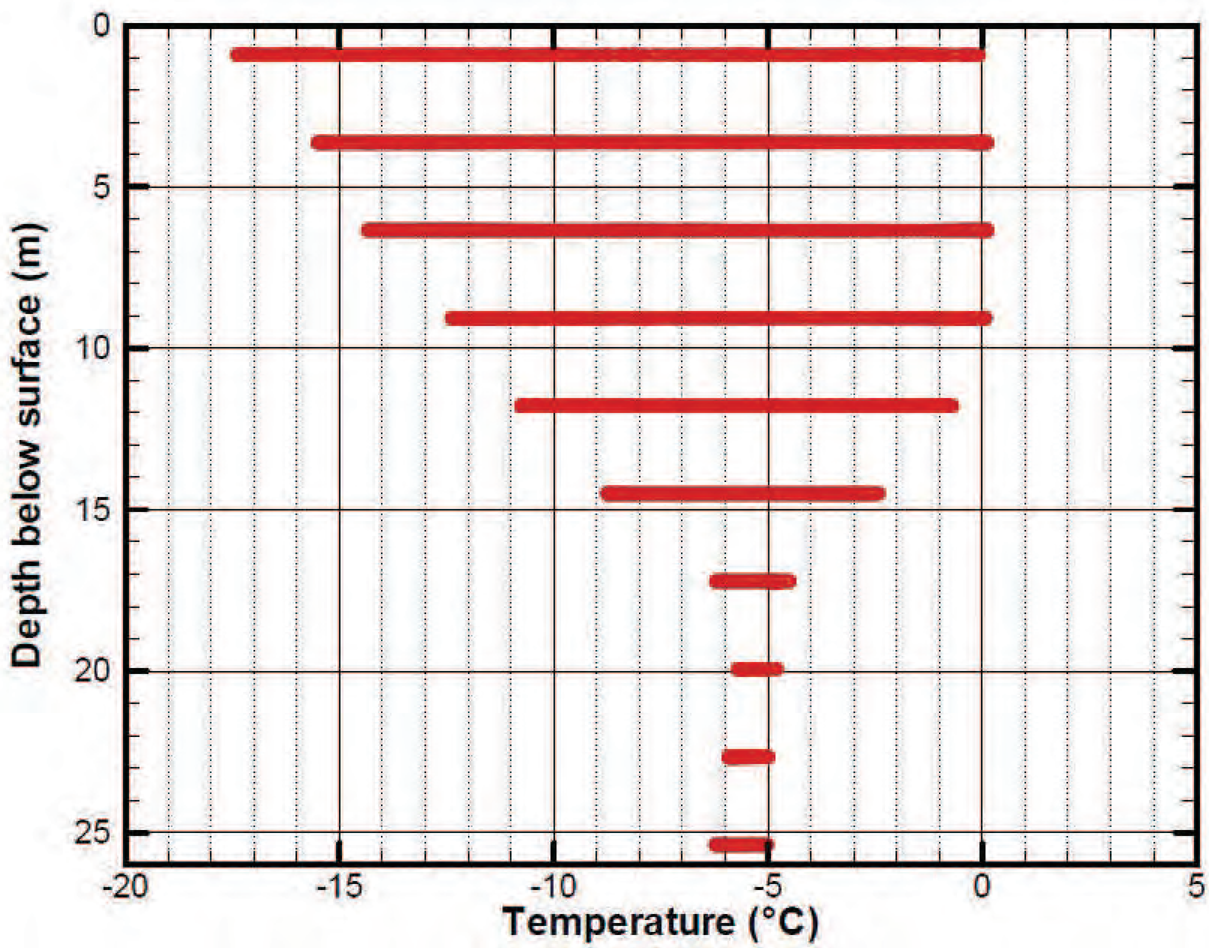

Figure 5.2-3
Ground temperature variation versus depth, Drillhole END07-01 End grid

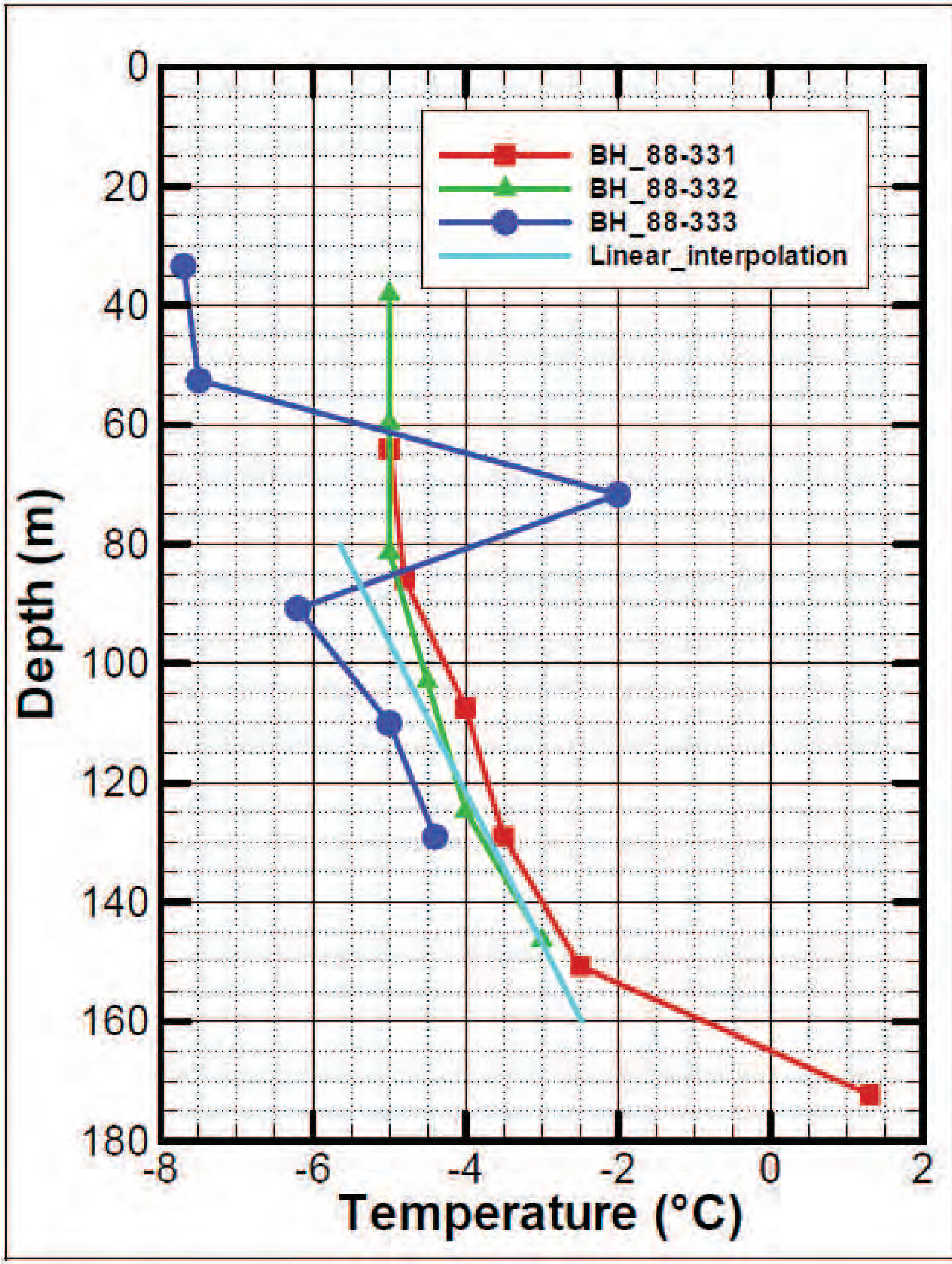

Figure 5.3-1
Permafrost temperature profiles with depth in the Kiggavik area
Historical data

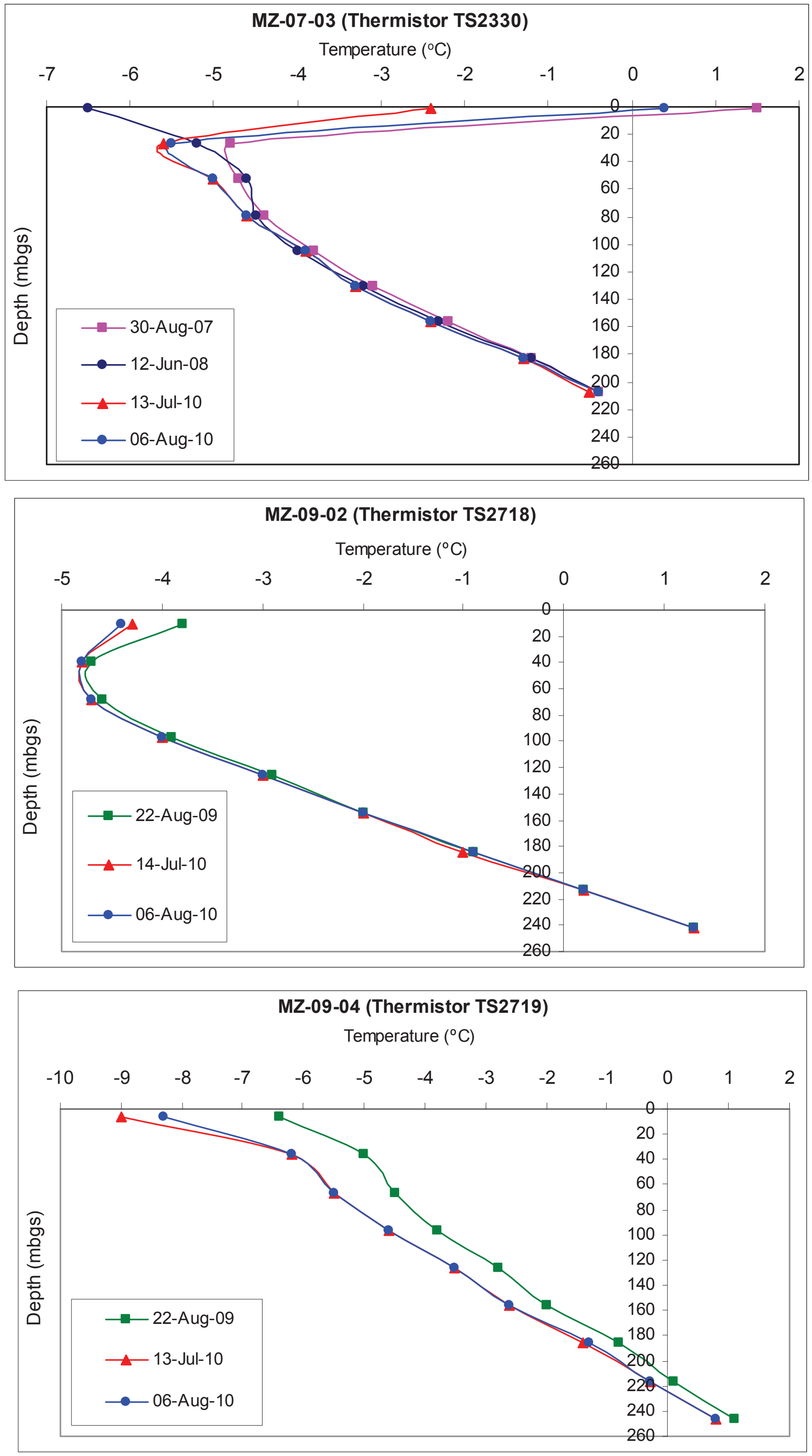

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Figure 5.3-2
Permafrost temperature profiles with depth in the Kiggavik area 2007 to 2010 data

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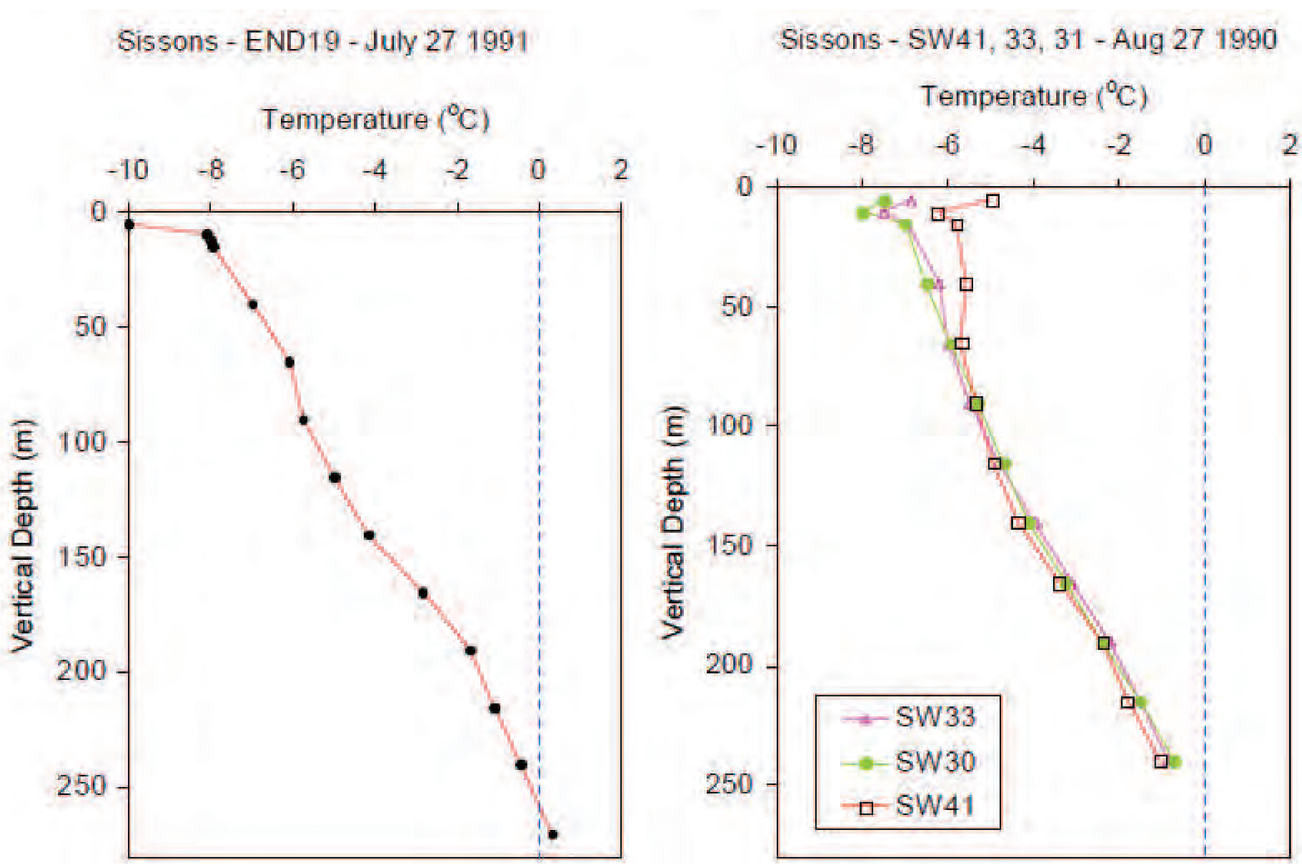
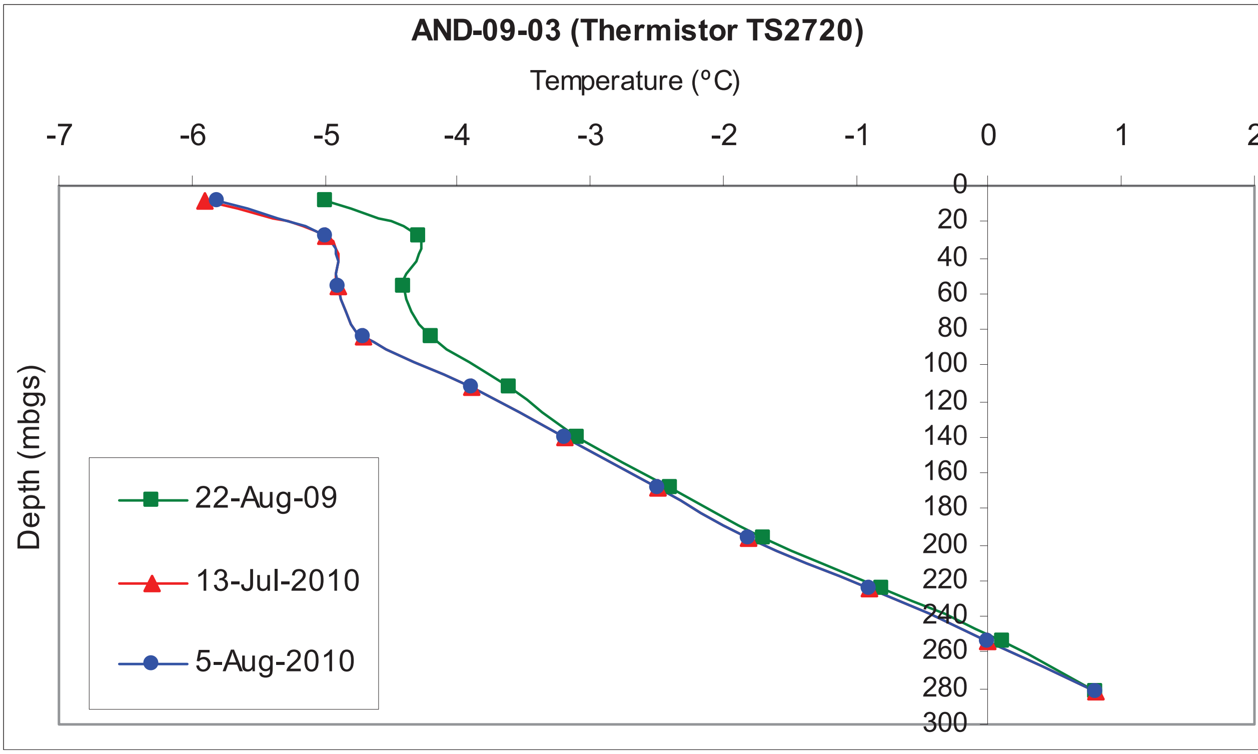


Figure 5.4-1
Permafrost temperature profiles with depth in the Sissons area
Historical data



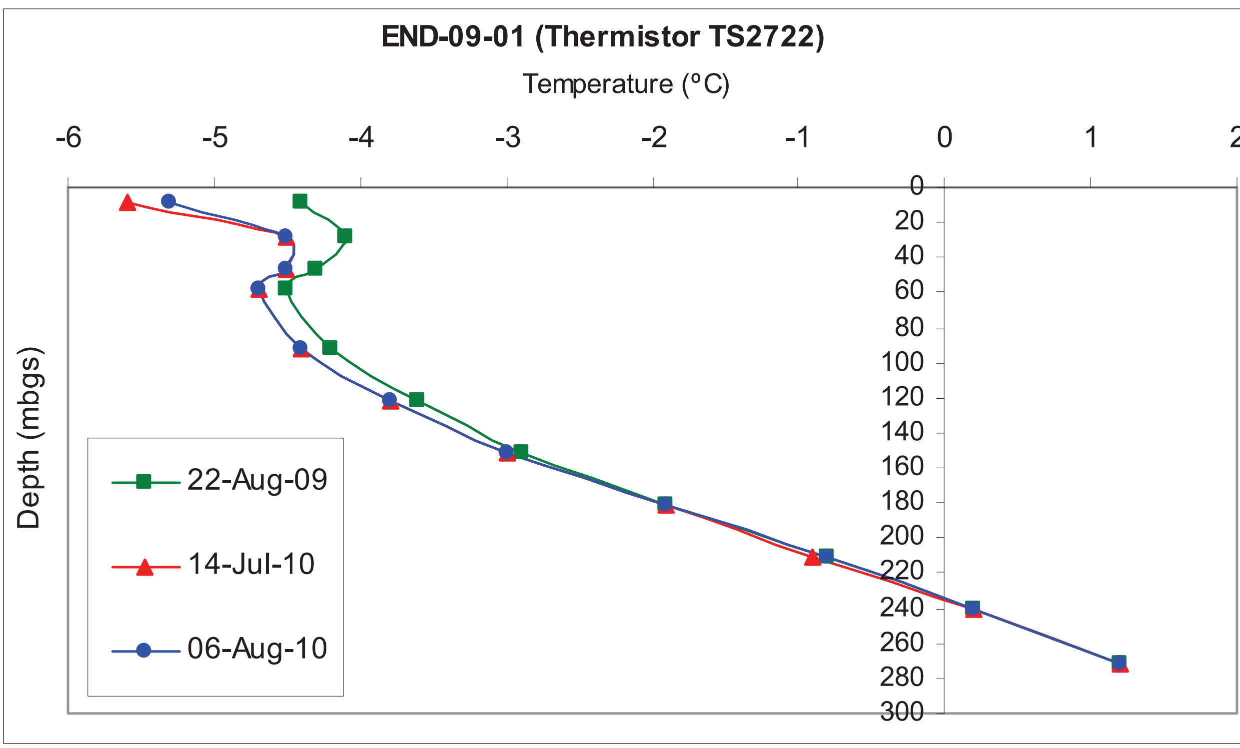


Figure 5.4-2
Permafrost temperature profiles with depth in the Sissons area 2007 to 2010 data

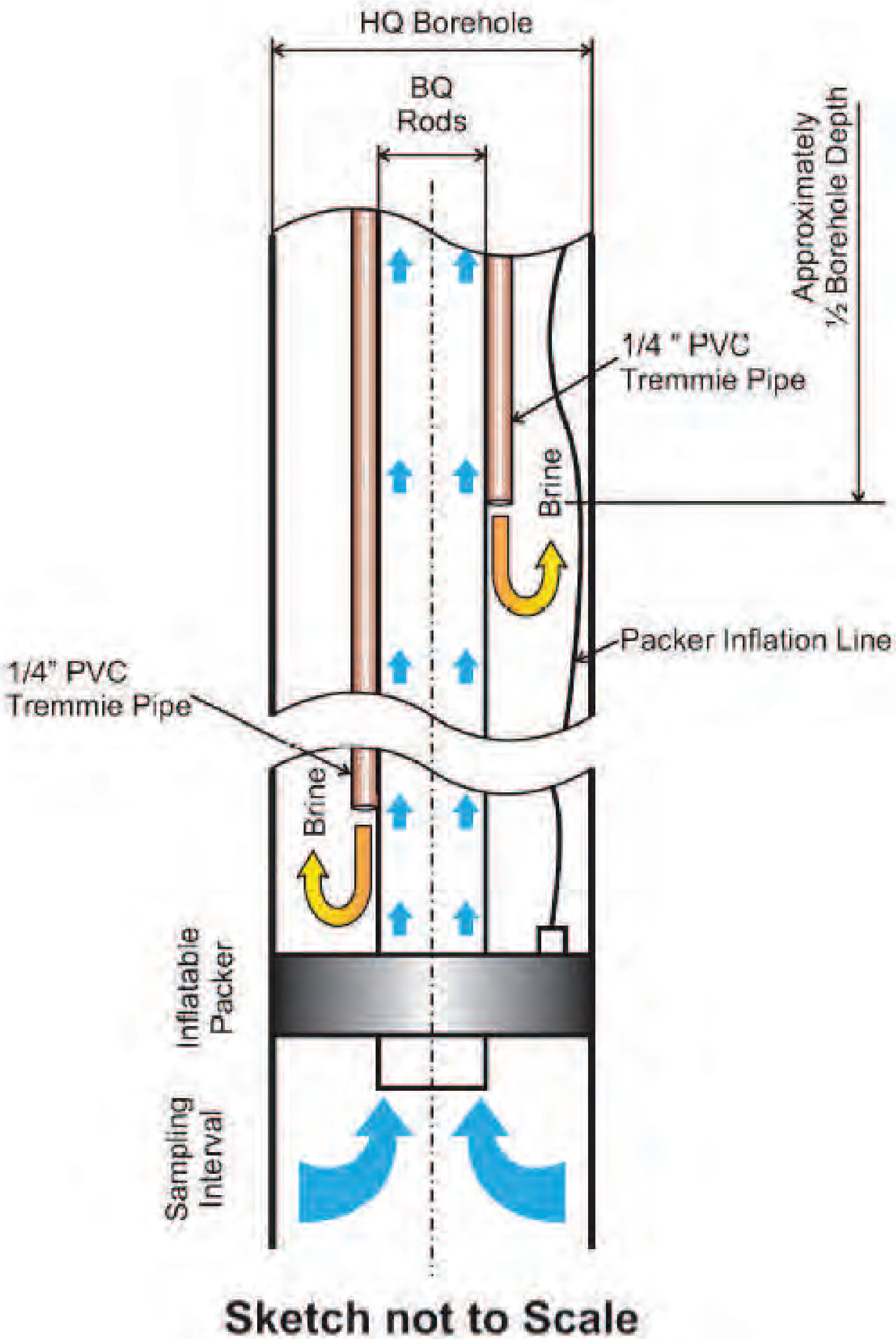
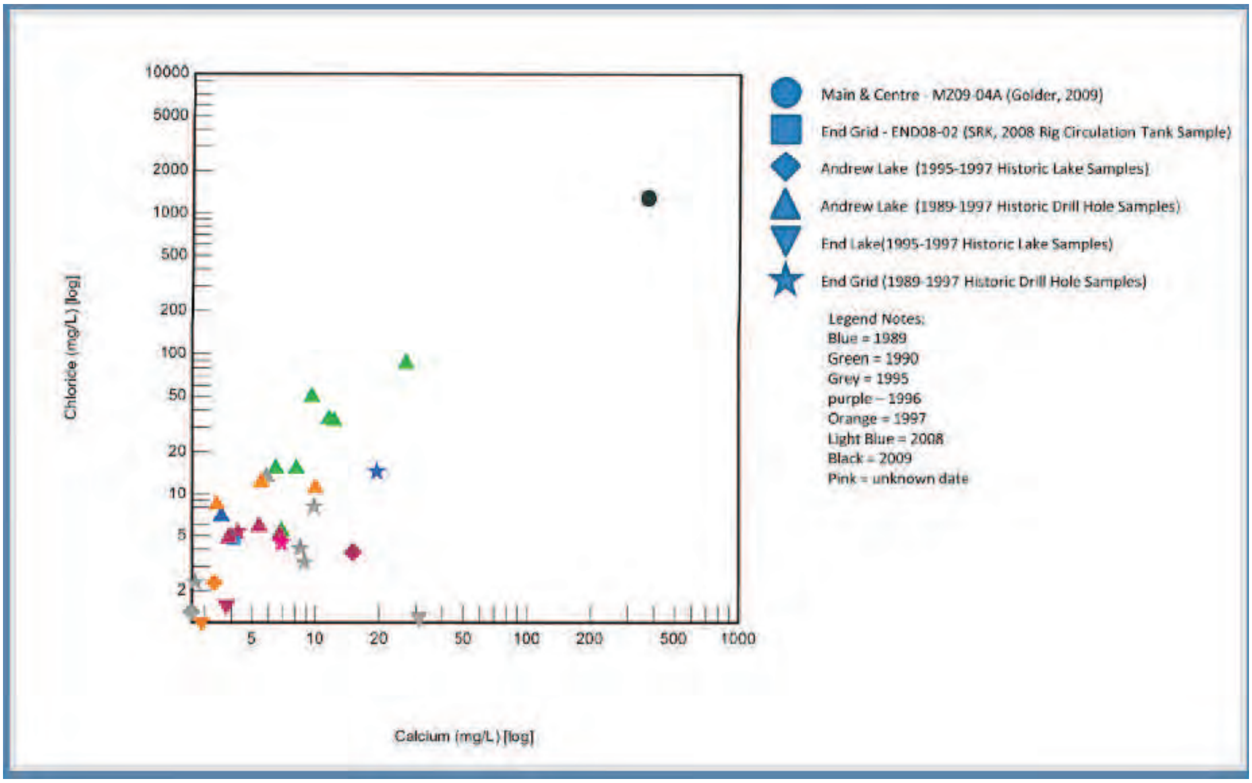


Figure 6.1-1
Groundwater sampling setup



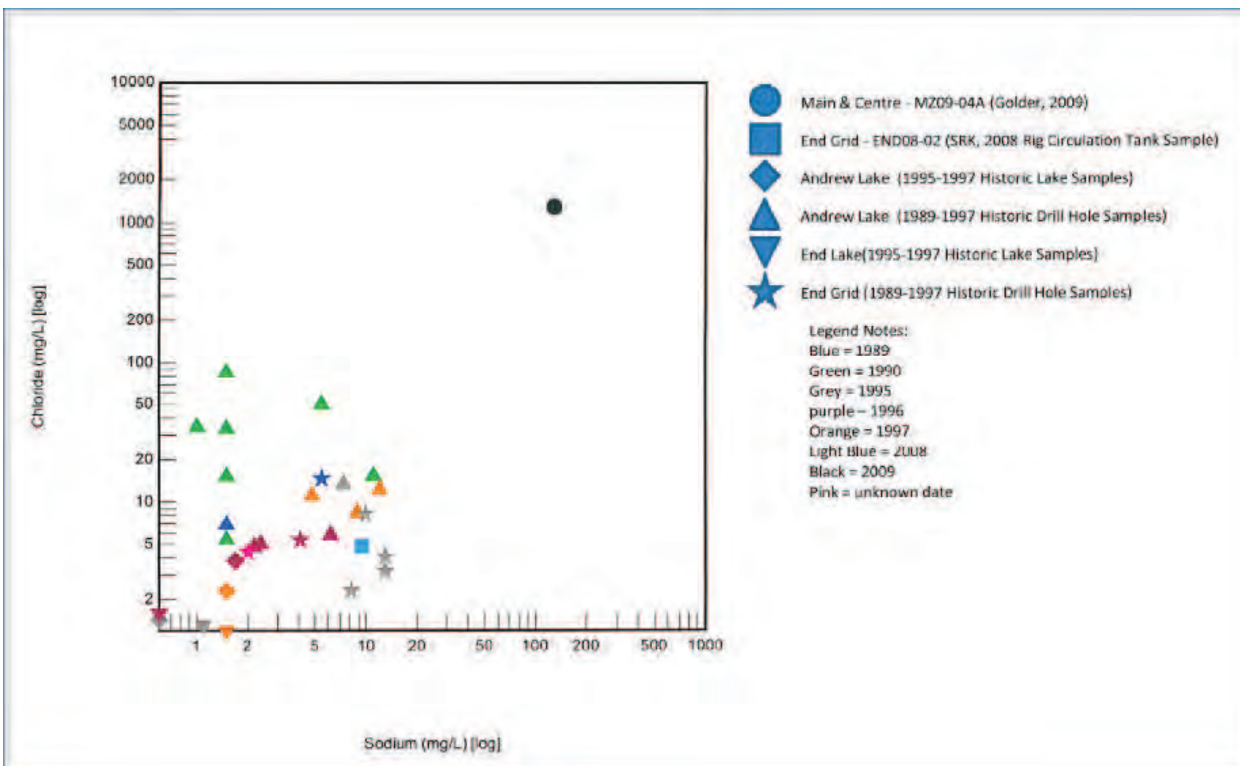
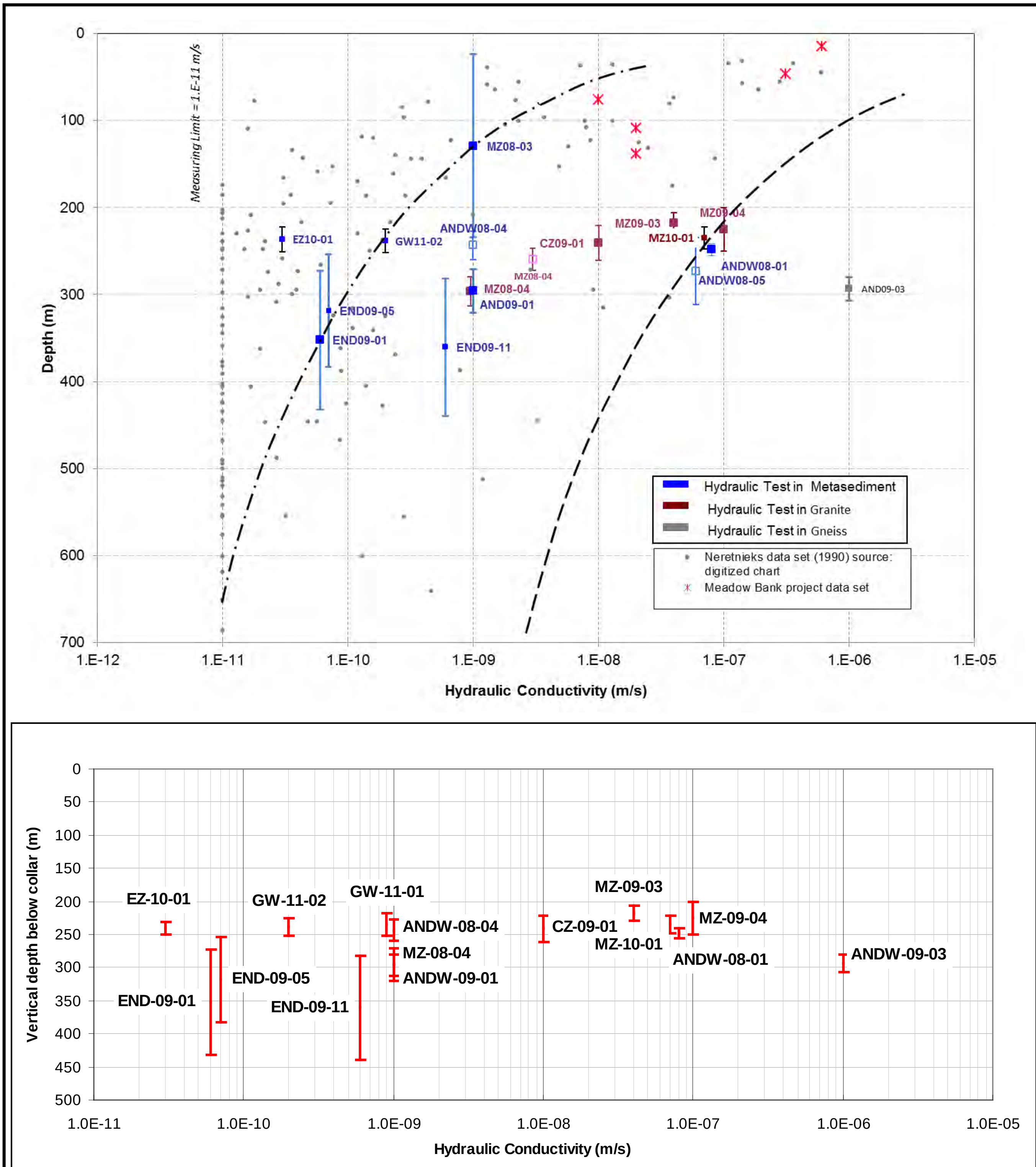


Figure 6.2-1
Groundwater Quality
Chloride vs Calcium and
Chloride vs Sodium



Technical Appendix 5B
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Figure 7.2-1
Compilation of single well pressure response tests results K(m/s) versus Depth (m)

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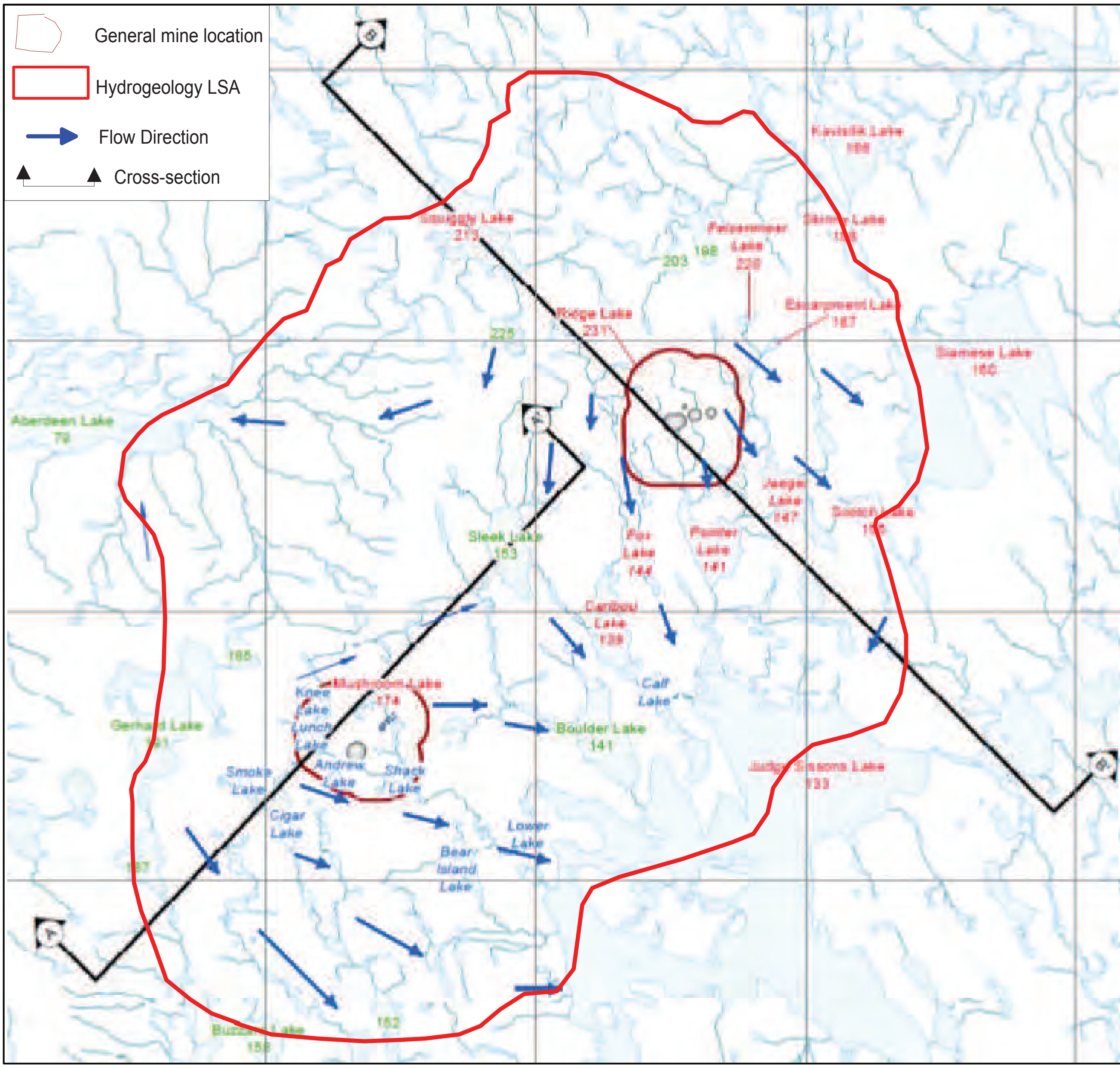

Technical Appendix 5B
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Figure 8.2-1
Groundwater flow directions

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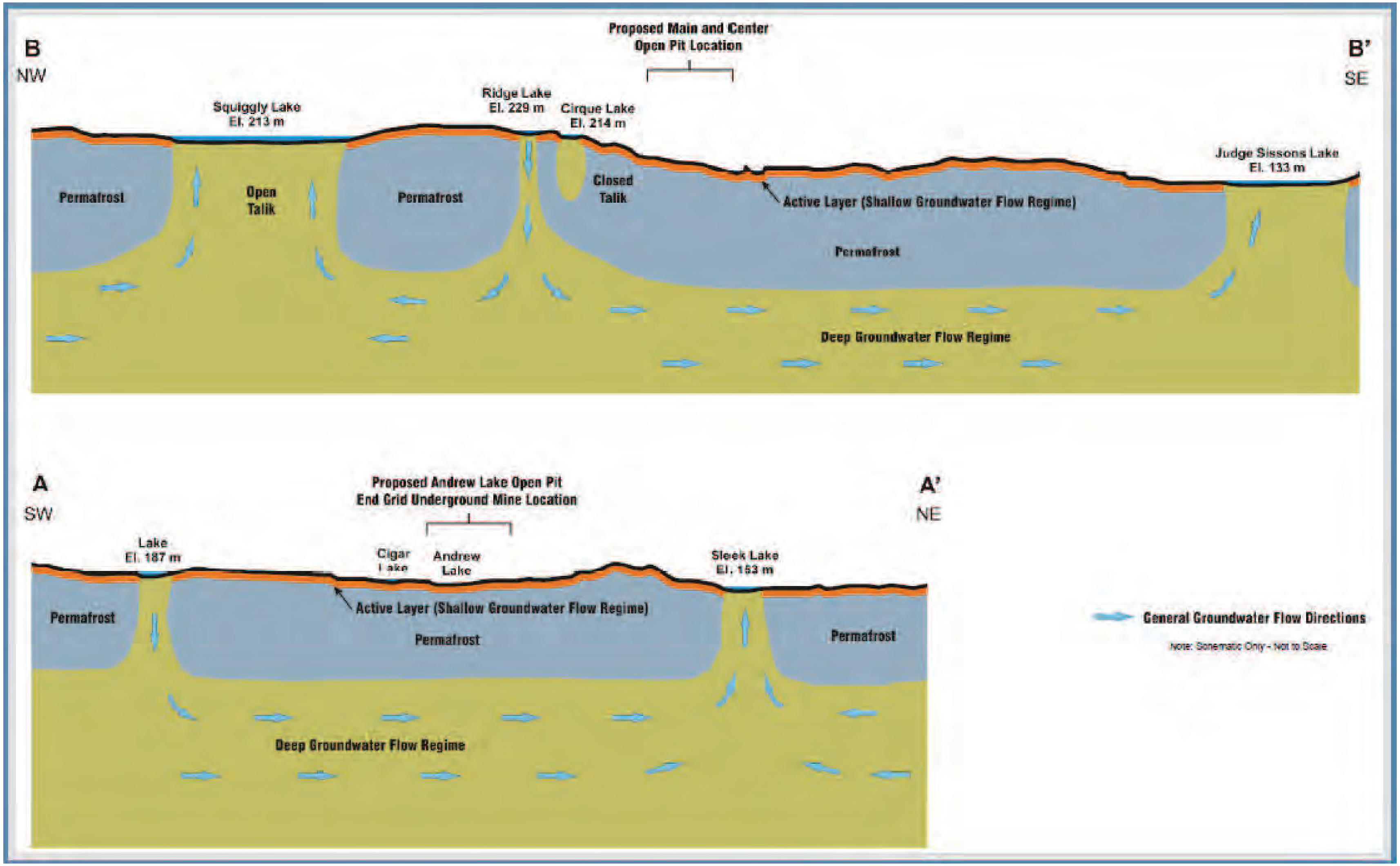

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Figure 8.2-2
Conceptual model of groundwater flow
Cross section view

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Attachment A Summary on Microtectonics Stations (after Baudemont, 1994, 1995 and 1996

Station 1-Andrew Lake Coreshack

Station 1 shows the greywacke series approximately 1.4 km west of Andrew Lake deposit. Rock is a fine grained gneiss with a quartz-felspar-biontite composition. Foliation shows a "regional" dip at 10-15° to the NNE. It is crosscut by a syenite dyke N80 to N110 (1.830 Ga). The dyke borders are angular with common right angle or bayonet-shaped opening. Both syenite and greywacke are crosscut by N65 trending quartz veins. 10m to the SW, a similar outcrop shows a well developed set of veins and silicified zones oriented N145-N150.

Station 2-SW of test 3 grid

Station 2 is a 300m traverse through an EW (N80) structure, 1 km SW of the Test 3 grid. A series of outcrops showed juxtaposed mylonites and zones of hermatized and silicified breccias. The area deserves more work in the future as it is comparable to other major EW fault zone such as the SSN fault.

Station 3-East of Buzzard Lake

Station 3 showed a layer of amphibolite which outcrops 2km east of Buzzard Lake. This formation which shows from 10% to 100% dark green amphibole is easily identified and represents the only real lithological bearing in the monotonous granitogneissic series which outcrops south of Andrew Lake.

Station 4-10-Mushroom Lake to SSN fault traverse

Station 4 to 10 are part of a traverse located in the Mushroom Lake area, 2km NW of the SSN. It shows imbricated Lone Gull granite (circa 1.9 Ga) and granitogneiss. Dip is 30°

NE. The granitogneiss series are in faulted contact with the fine grained greywackes to the south. Greywackes are strongly hermatized and show multiple quartz vein openings. Openings with quartz filling and hydraulic brecciation are coeval with a strike-slip tectonics. Subhorizontal slickensides were observed on a N130 trending fault plane. At the SSN main ridge the foliation shows a steep dip to the north. Large bands of quartz cemented hydraulic breccias were observed.

Station 11-Dina Lake

Dina Lake is located 2km south of Schultz Lake. A series of good outcrops give a complete picture of primary nappe tectonic (probably Kenoran). The area shows imbricated lithostructural units where metasediments (cover) and granitogneiss (basement) alternates. The main shallow dipping shear zones are located at the base of a massive orthoquartzite (metaconglomerate). The unit shows evidence of ductile shear deformation with increasing strain with non-cylindical sheath folding which is characteristic of shear deformation. Greywacke series is strongly affected by a purple hemaization probably due to post-Hudsonian paleoweathering.

Station 12-13

These two stations located in RD-7 showed similar horizontal tectonics at the base of the orthoquartzite series. Contact with the underlying banded iron formation (BIF) and graphitic schists was observed at two different locations. The BIF unit is affected by tight isoclinal folds trending N130, parallel to mullions in the overlying quartzites.

Station 14

Station 14 is located on the west shore of Andrew Lake. The outcrop shows the contact of the intrusive Lone Gull fluorite-rich granite (circa 1.9 Ga) with the granitogneissic unit. The contact is subparallel to the overlying gneiss dipping at 30° to the NE suggesting that the granitic body is not a dome but a “sheet” conformable to the regional shallow-dipping foliation.

Station 15

Station 15 is located 0.6 km north of the Andrew Lake deposit. The outcrop shows numerous quartz veins crosscutting a hematized and silicified possible granitogneiss. Bands of quartz cemented hydraulic breccias alternate with large quartz veins up to 40cm wide. As for the SSN fault, deformation is brittle and results from repetitive fracturing and opening events.

Station 16

Station 16 is located north of Siamese Lake. A 50m high hill offers good outcrop at the base of the Thelon Formation. A course conglomerate with large rounded boulders up to 70cm wide is overlying red siltstones. This poorly sorted high energy clastic formation could be the result of early tectonic events at the start of the sedimentation.

Station 17

Station 17 is a 1.5 km traverse in the orthoquarzites located south of the Thelon fault around Polar Bear Lake. The area shows common quartz vein and quartz cemented breccias striking N40 to N70. Conjugate minor faulting showing 15-30 cm displacement cross-cut the vein set. These resulted from a N120 compression event.

Station 18

Station 18 is located south of Judge Sissons Lake, in a hornblende-bearing schist unit of the Woodburn Group. This southern unit of WBG consists of common metavolcanics (amphibolite) and iron formation (BIF). The schist shows evidence of extensive intrafolial folding. A shear foliation with associated isoclinal folds develop at 10° to NW, crosscutting and transposing the primary foliation dipping at 40°.

Station 19

Station 19 is a 3 km traverse through the southern portion of the Schulz Lake sheet, just north of Pitz Lake. The area represents the western extension of the Baker Lake structure which appears as a regional mylonitic zone around the Inuit settlement. In this part of the area no extensive mylonitic deformation was identified although Archean rocks are partly overlain by sediments and volcanics of the Dubawnt Group.

To the north, a foliated granitogneiss with large K-felspar augen shows a shallow dipping foliation (probable Archean basement). Southward, a few outcrops exhibit mafic alkaline volcanic flows of the Christopher Island Formation (1.840 Ga) affected by a rough shistosity dipping at 58° to the South. The unit is affected by a very low grade metamorphism. The Christopher Island Formation is unconformably overlain by a clastic formation (Howling Wolf). The Howling Wolf Formation shows a 30m thick basal polygenic coarse breccia which contains anguar fragments of paleoweathered gneiss and quartzite. Clasts are of very promimal origin and resulted from nearby faulting. The rest of the unit consists of medium grained sandstones. The overlying rhyolite of the Pitz Formation is dated at 1.760 Ga. Both Howling Wolf and Pitz Formations are affected by N110 striking faults. Cumulative downfaulting to the north is in the order of 500m. Subvertical quartz cemented tectonic breccais were observed in the sandstones in vicinity of the faults.

Station 22

West side of Lone Gull granite (LGG). Rock consists of quartz-biotite± pyrite gneiss and more felsic paragneiss with intrusion of CI syenites and local LGG granitic apophyse. A series of strike slip faults, predominantly NE-SW dextral, exhibits an echelon quartz veining and local hematitic fine grained cherty filling.

Station 23

Station 23 is located on the large island located in the sough part of Judge Sissons Lake. It shows syntectonic intruding the BIF of the Woodburn Group. Granodiorite composition is plagioclase, hornblende and quartz. This intrusive was dated at 2.6 Ga and is part of a regional plutonic event at the end of the Archean. This station represents a key outcrop for the dating of the WBG.

Station 24

Station 24 is located at the south boundary of the Caribou-94 grid, 100m south of the SSN fault. It shows a polymict magmatic breccia intruding the greywackes of the Woodburn Group. Large 5-25cm rounded xeonliths of host rock (granitogneiss, greywackes) show a felspar-rich reaction rim. Matrix shows porphyroblastic biotite and phlogopite. Rock shows a rough fracture schistosity. It is part of CI volcanic event.

Station 31

Strike-slip movement along the 080° SSN fault induced tight conical vertical-axis folding in the fine grained metagreywackes of the Woodburn group. Axis is 045°, plunging at 78° to the NE. Asymmetric sigmoidal shape of the folds suggests left-lateral movement.

Station 32

Station 32 shows hydraulic breccia and extensive quartz vein development along a 125° trending structure. The main breccia zone is moderately dipping (40°) to the NW but common Subvertical quartz vein also occur. This fault is part of a set of dextral fault which cross-cut the SSN fault with an apparent displacement of up to 300m.

Station 33

Station 33 shows minor 1-5cm wide subvertical quart veins striking 125° and 140°. These veins cross-cut the major EW ones as well as the hydrothermal activity (D_{bbd2}-brittle hydrothermal deformation #2).

Station 34

Station 34 is located north of the Judge Sissons Lake and shows a segment of the SSN fault. It is trending 090° and shows common subparallel quartz veins and breccias.

Stations 35a and 35b

Structures at Fox are striking 050° -065° which is an unusual orientation in the rest of the property. Fault planes are dipping at 75° to the NW and show evidence of predominant pure strike-slip movement. They are associated with a well developed set of parallel quartz veins. 150° trending joints are found commonly.

Station 36 and 37

Evidence of at least 2 sets of faults (080°, 035°) associated with hydrothermal alteration have been observed at Mickey Mouse Lakes. Radiometric anomalies up to 2000 cps in strongly hematized granite (unfoliated, Lone Gull) seem to be associated with a major EW structure along which quartz cemented hydraulic breccais developed.

A second set of structure striking 160° possibly representing the second brittle-hydrothermal phase also shows extensive quartz flooding over a width of at least 20m. The fault is dipping at 85° to the ENE. Evidence of pure strike-slip movement (sense unidentified) was found on the fault plane.

Station 38

The undisturbed augengneiss shows a shallow dipping mylonitic foliation at 11-27° to the NW. The L-S tectonite shows a well marked stretching lineation at azimuth 320°E. C/S fabric and asymmetry of pressure shadow crystallization indicates a SE to NW vergence. 130-135° joints are strongly developed throughout the group of outcrop.

Station 39

A 15m wide massive quartz cemented breccia displays a predominant orientation at 085° and a network of 065°-075° subvertical quartz vein. This outcrop appears as a replica of the main regional fault located about 1 km south of it.

Station 40

The main 034° fault plane outcrops over a 15m strike length. It is dipping at 50° to the SE and shows various poorly preserved moderately dipping slickensides. A hydraulic breccia follows the structure as well as common subparallel quartz veins. A second set of minor quartz veinlets striking 333° cross-cuts the NNE structures.

Station 42

200m south of the hill, the augengneiss foliation is tilted at 252°, parallel to the regional fault. On top of the hill, foliation is at 267°/49. Common 5 to 30cm wide subvertical quartz vein opened in the strongly hematized gneiss unit. A minor set occurs at 143°/65. Sinistral S-shaped drag-folding of the veinlets occurs locally.

Station 43

Station 43 is located 800m south of Buzzard Lake. It is not included in the area of influence of the 080° E Buzzard fault. It is one of the best example of polyphase ductile deformation in the basement of the Woodburn group. It also shows evidence of a least two successive brittle events including a reactivation of a 160° trending fault.

F_1 folds are typically recumbent NW-SE folds showing a clear vergence to the SW. Common mullions occur because of competency contrast between felsic-rich and amphibole rich layers. Axis is at 330°/20 to 335°/20.

F_2 folds are 140° trending chevron folds possibly restricted to the vicinity of a 160° fault. They are strongly asymmetric. F_2 are refolding F_1 microfolds.

All ductile features are cross-cut by a first generation of 080°E trending minor faults and quartz veins probably related to the nearby Buzzard fault. Local apparent 0.1m sinistral displacement were observed along this set of brittle structures (ftdxmr on stereonet).

The last major event is illustrated by a 1m wide stockwork trending 160°. The quartz cemented breccia (bh on streonet) develops along the subvertical fault. It cross-cut all above mentioned structures. This event is probably related to the D_{bh2} described along the Sissons Fault and at Mickey Mouse Lake.

It is probable that the stockwork is shifted along a N42° E trending post-hydrothermal subvertical fault which outcrops on the west side of the creek. It would explain the fact that the N160 does not extend on the opposite wall across the river.

Station 44

Station 44 is located on the Buzzard fault, a replica of the Sissons fault located south of Buzzard Lake. Although poorly outcropping, the dip of the main structure appears steeper than the SSN, ranging from 70° to the north to 75° to the south. Overall, the foliation is affected by a conical fold with a steep axis plunging to the east. The outcrop and related frost heave is 40m wide and show from north to south: Major quartz veins, North dipping hematized unidentified gneiss with common 0.1 to 0.3m wide quartz vein and Hematized hydraulic breccia.

Attachment B Element Chemistry of Water Samples

Appendix A: Major Element Chemistry of Water Samples

Parameter	Sample ID / Units	END08-02	MZ09-04A	MZ09-04B	MZ09-04C
	Date	09/16/2008	08/12/2009	08/12/2009	08/12/2009
Parameter	Units		Result	Duplicate	Purge
pH		7.12	7.63	7.66	7.67
depth	m		245	245	245
Calcium	mg/l	4.1	370	367	354
Magnesium	mg/l	1.4	126	128	120
Sodium	mg/l	9.4	129	128	124
Alkalinity	mg/l	26	118	118	119
Potassium	mg/l	0.6	7.3	7.3	7.1
Sulphate	mg/l	2.1	<0.2	<0.2	<0.2
Chloride	mg/l	4.8	1280	1280	1220
Conductivity	µS/cm	55	3710	3720	3590
TDS Calculated	mg/l	38	1983.3	1981.3	1896.7

Notes: TDS calculated using Standard Methods for the Examination of Water and Wastewater (2005)

	Sample ID	SW 24	SW 27	SW28	SW29	SW31	SW32	SW40	SW 43	SW 73	SW 75	SW-94-85	SW 95-95	SW-96-101	SW-96-108	SW-96-109	SW-97-110	SW-97-111	SW-97-114	Andrew Lake	Andrew Lake	Andrew Lake
	Date	1989	1990	1990	1990	1990	1990	1990	1990	1993	1993	1994	1995	1996	1996	1996	1997	1997	1997	1995	1996	1997
Parameter	Units	Filtered	Filtered	Filtered	Filtered	Filtered	Filtered	Filtered	Filtered	Total	Total	Filtered	Filtered	Filtered	Filtered	Filtered	Filtered	Filtered	Filtered	Surface Water	Surface Water	Surface Water
pH		7.8	6.8	7.15	7.55	7.7	7.5	7	6.6	7.73	7.84	N/A	7.47	7.39	7.44	7.78	7.6	7.28	8.34	7.01	6.49	6.9
depth	m												215.5	360	194	78	276	276	313			
Calcium	mg/l	3.6	27	6.5	12.2	8.1	11.6	6.9	9.6	6.9	6.6	11	5.9	5.4	6.8	3.9	5.5	3.4	10	2.6	15	3.3
Magnesium	mg/l	1.7	4.1	3.2	4.2	5.4	4.9	3	3.2	2.8	2.7	2.3	5.3	4.3	8.4	4.4	2.9	4	6.2	0.9	4.2	1.1
Sodium	mg/l	1.5	1.5	1.50	1.5	11	1	1.5	5.5	1.7	5.1	17	7.4	6.2	2.40	2.2	12	8.8	4.8	0.6	1.7	1.5
Alkalinity	mg/l	25	10	17	32	69	33	33	21	28	44	N/A	42	49	33	42	36	90	66	12	6	14
Potassium	mg/l	19	9.9	6.8	10.1	12.6	13	3.7	7.2	11	11	8.1	4.8	21	34	11	15	9.7	28	0.4	2	0.4
Sulphate	mg/l	3.1	0.2	0.8	1	8	1.8	0.4	0.2	4.2	35	4	0.9	2.4	0.3	0.3	0.5	0.7	1.9	0.4	0.6	0.4
Chloride	mg/l	6.8	84	15	33	15	34	5.3	49	16	11	2	13	5.8	5	4.8	12	8.3	11	1.4	3.8	2.3
Conductivity	µS/cm	105	300	100	190	220	200	76	210	92	96	N/A	123	145	92	84	119	176	176	31	141	40
TDS Calculated	mg/l	50.7	132.7	44	81.2	101.5	86.1	40.6	87.3	59.4	97.8	-	62.5	74.5	76.7	51.8	69.5	88.9	101.5	13.5	30.9	17.4

Notes: TDS calculated using Standard Methods for the Examination of Water and Wastewater (2005)

	Sample ID	ED1 ?	END 15	END 40	END 41	END 42	END 43	END 59	END 95-61	END 95-62	END 95-64	END 95-66	END 96-70	End Lake	End Lake	End Lake
	Date		1989	1991	1991	1991	1991	1993	1995	1995	1995	1995	1996	1995	1996	1997
Parameter	Units	Filtered	Filtered	Total	Total	Total	Total	Total	Filtered	Filtered	Filtered	Filtered	Filtered	Surface Water	Surface Water	Surface Water
pH		7.85	7.85	6.5	7.9	7.2	7.45	6.99	7.08	6.66	7.57	7.16	7.1	7.04	6.9	7
depth	m								425.5	349.3	290.2	71	404			
Calcium	mg/l	6.9	19.5	2.5	9	10.7	5.3	2	8.9	8.5	9.9	2.7	4.3	31	3.8	2.9
Magnesium	mg/l	3	6.7	1.7	6.2	5.6	3.5	1	1.8	5.3	1.2	1.9	4	1.1	1.3	1
Sodium	mg/l	2	5.5	5	2.5	12.5	3.5	3.9	13	13	10	8.2	4.1	1.1	0.6	1.5
Alkalinity	mg/l	35	25	20	51	63	28	39	56	70	82	50	24	15	13	14
Potassium	mg/l	14.4	17.4	8.9	18.7	21	16.7	11	5.9	9.6	2.3	8.5	12	0.2	0.6	<0.2
Sulphate	mg/l	1.3	4.9	1.8	2.5	3.1	1.3	1.6	2.3	1.4	2	4.2	0.7	0.5	0.5	0.6
Chloride	mg/l	4.4	14.4	2.9	2.3	7.9	6.5	11	3.2	4	8	2.3	5.3	1.3	1.6	1.2
Conductivity	µS/cm	105	240	56.7	120.6	152	110.7	71	130	149	168	111	71	34	35	36
TDS Calculated	mg/l	53	83.4	34.8	71.8	98.6	53.6	53.9	68.7	83.8	82.6	57.8	44.8	44.2	16.2	15.8

Notes: TDS calculated using Standard Methods for the Examination of Water and Wastewater (2005)