

Mountain Pine Beetle Infestation Area Regional Geochemical Data Repository Project

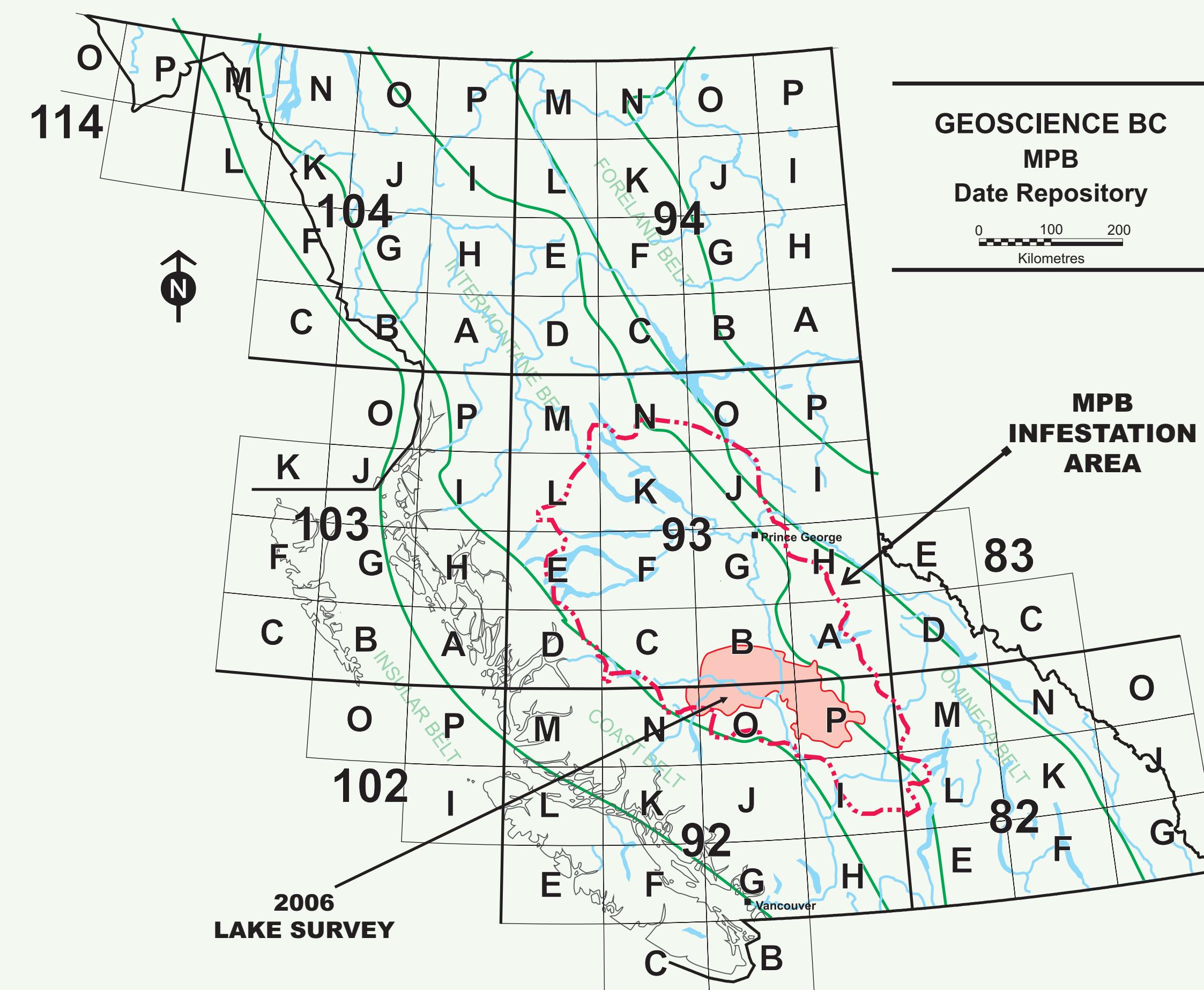
Wayne Jackaman

wjackaman@shaw.ca

Geoscience BC contribution GBC029

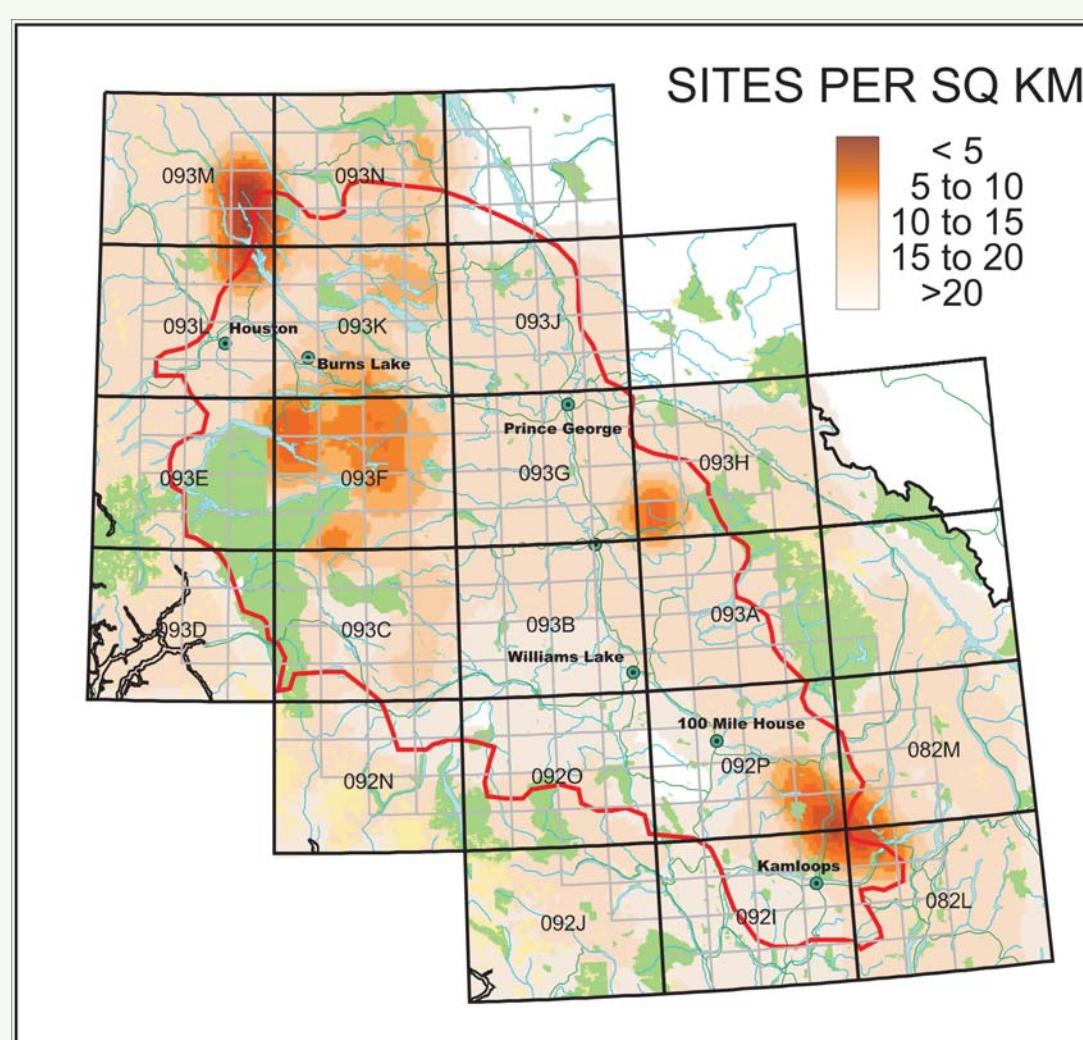
INTRODUCTION ...

A large area in central British Columbia infested by the mountain pine beetle (MPB) has been the focus of several federal and provincial geoscience initiatives over the last 25 years. Results of this work have produced a large collection of publicly available multimedia regional geochemical information. Previous projects include regional-scale stream sediment and water surveys (Lett, 2005), lake sediment and water surveys (Cook et al., 1997, 1998, 1999; Jackaman, 2006; Jackaman, in press), till programs (Levson and Giles, 1997; Levson et al., 2001; Plouffe et al., 2001; Levson, 2002; Lett et al., 2006; Pauley and Lett, 2006), biogeochemistry studies (Dunn, 1997; Cook and Dunn, 2006) plus numerous associated research activities.



Within the 150,000 square kilometre study area, in excess of 22,000 multimedia regional geochemical sample sites have been identified. Survey results include over 750,000 analytical determinations for a wide range of metals and pathfinder elements. Although this data is publicly available there is no central repository that provides comprehensive access to the information and associated geospatial datasets.

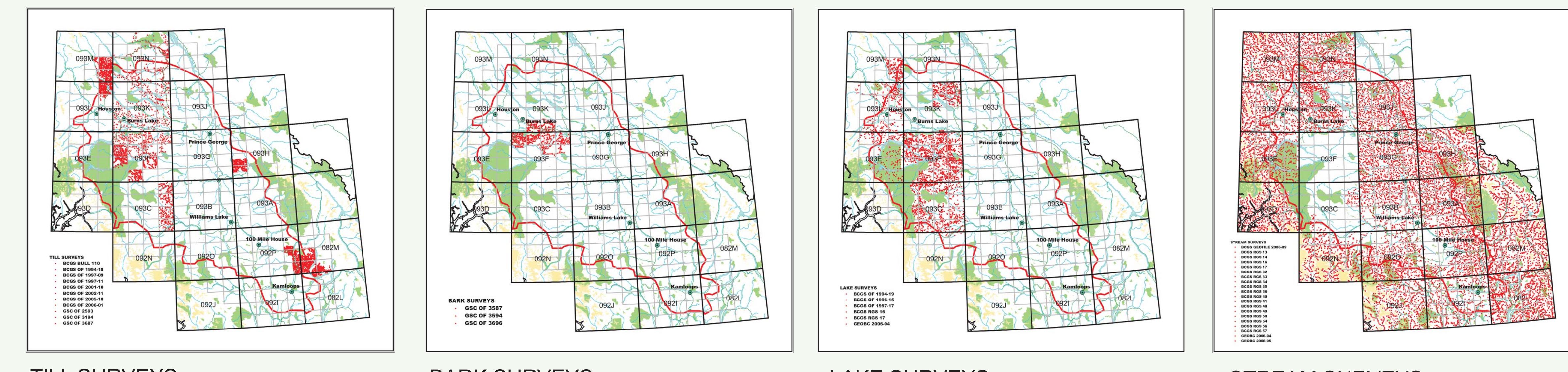
The MPB Infestation Area Regional Geochemical Data Repository Project is preparing a digital database of existing regional geochemical data and associated geospatial information. The primary goal of this project is to consolidate this diverse data landscape into a functional data repository. The resulting digital framework will include valuable regional geochemical data and associated geospatial information that can be easily accessed and incorporated into a wide range of exploration and research activities. The repository will provide immediate benefits of data access, delivery and functionality, as well as assist in the planning of detailed surveys and targeted studies, identify gaps in geochemical data that can be profiled for future attention, and provide long-term data management advantages.



The database is currently comprised of location information and analytical results compiled from regional till, bark, lake and stream surveys. It includes a total of 28,631 samples collected from 26,760 sites. The information covers over 250,000 square kilometres and sample site density ranges from 1 site every 2 square kilometres to 1 site every 20 or more square kilometres.



Distribution of regional surveys ...



TILL SURVEYS

TOTAL SAMPLES: 5,095
TOTAL SITES: 4,492
COLLECTION YEARS: 1990 to 2000
AREA COVERED: 40,500 sq km
AVERAGE DENSITY: 1 per 2.5 to 1 per 10 sq km

BARK SURVEYS

TOTAL SAMPLES: 715
TOTAL SITES: 715
COLLECTION YEARS: 1996 to 1998
AREA COVERED: 6,300 sq km
AVERAGE DENSITY: 1 per 8 to 1 per 13 sq km

LAKE SURVEYS

TOTAL SAMPLES: 3,724
TOTAL SITES: 3,515
COLLECTION YEARS: 1986 to 2005
AREA COVERED: 45,000 sq km
AVERAGE DENSITY: 1 per 8 to 1 per 13 sq km

STREAM SURVEYS

TOTAL SAMPLES: 19,097
TOTAL SITES: 18,038
COLLECTION YEARS: 1976 to 2005
AREA COVERED: 238,000 sq km
AVERAGE DENSITY: 1 per 13 sq km

Summary of analytical methods and detection limits ...

Atomic absorption spectrometry (AAS) used from 1976 to 1991

TYPE	REPORT	MAP	YEAR	SAMPLES	SITES	LAB	MTW	As	Ag	Al	As	Ba	Br	Ca	Cr	Fe	Hg	Ir	La	Mn	Mo	Pb	Se	Sn	U	Y	W	Zn
LS	BCGS RGS 16	DSL	1986	257	243	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
LS	BCGS RGS 17	DSL	1986	257	243	BONDAR	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
LS	BCGS RGS 18	DSL	1986	257	243	CANTECH	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
LS	BCGS RGS 19	DSL	1986	439	413	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 20	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 21	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 22	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 23	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 24	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 25	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 26	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 27	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 28	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 29	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 30	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 31	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 32	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 33	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 34	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 35	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 36	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1	0.2	0.2	0.02	0.2	2	0.02	10	5	2	2	2	0.2	0.2	0.2	0.2	0.5	1	2
SS	BCGS RGS 37	DSL	1986	1,000	950	CHEMEX	AsH ₃	0.2	0.5	0.1																		