Dalmin Corporation

REPORT OF REPRESENTATION WORK

ON BEHALF OF FRED TATARNIC

Licence Number N30953

DEPARTMENT OF INDIAN AND NORTHERN AFFAIRS
NOV 30 2000
MINING RECORDER
YELLOWKNIFE, N.W.T.

MINERAL CLAIM

FREIGHTRAIN - Tag Number F65593

BRODEUR PENINSULA, BAFFIN ISLAND

NUNAVUT

THIS REPORT HAS BEEN EXAMINED AND APPROVED AS TO TECHNICAL WORTH UNDER SECTION ... OF SCHEDULE ... OF THE CANADA MINING REGULATIONS AND VALUED IN THE AMOUNT OF 342,801.64

DATE: June 26, 2001 "Jason Sharp"

ENGINEER OF MINE'S FOR CHIEF, NORTH. NON-RENEW RESOURCES BRANCH

Map Sheet 58D/1,8

N73°15' W88°19'

(Approximate centre of Freightrain Claim)

November 27, 2000

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1. INTRODUCTION

This report of representation work for the Freightrain claim, tag number F65593, is presented on behalf of claim holder Fred Tatarnic, licence number N30935. Through Dalmin Corporation, a mineral industry consulting firm of which he is a principal, the writer was commissioned by Twin Mining Corporation to supervise and carry out exploration on the Freightrain claim with the objective of assessing potential for the existence of an economic diamond occurrence.

2. BACKGROUND

Lumina Investments Corporation stated in a representation work/assessment report dated January 1994 that they had staked the Zulu-1 claim in the subject area after "....one kimberlite (or possibly two closely adjacent small pipes) was serendipitously discovered while flying, although this was not, and did not become, part of the exploration strategy". Instead, they appear to have focused on conducting a regional stream sediment survey to assess the potential for kimberlites throughout the Brodeur Peninsula and appear to have made only a cursory investigation of the Jackson Inlet pipes. Their report also notes that "a kimberlite pipe had been discovered by Cominco in 1975 in the general area", but "must have been misplotted" on their maps.

The Freightrain claim was staked by Fred Tatarnic on August 8, 1998 and recorded on the first day of September 1998. At the time, Mr. Tatarnic prospected and took samples of weathered kimberlite from the two previously inferred pipes. In the samples, he subsequently discovered a 0.768 carat white and transparent, gem quality diamond. A 26.45 kg portion of the samples yielded 15 diamonds when subjected to caustic fusion by Lakefield Research Limited in September 1999 (see Annex I).

On April 27, 2000, Twin Mining Corporation signed a letter agreement with Helix Resources Inc., a private company with which Mr. Tartarnic had associated, to acquire a 100% interest in three mineral claims (Freightrain, tag # F65593; Slot, tag # F45691; and 38S, tag # F45683). The letter agreement provided for the transfer of these claims to Twin Mining Corporation upon payment of $50,000 and 30,000 common shares on or before October 31,2000. In the event that Twin Mining were to continue to hold mineral title and proceed with a mine development, further consideration would be due. Twin Mining agreed to commence due diligence exploration as soon as permitted by weather.

3. LOCATION AND ACCESSABILITY

The Jackson Inlet cluster of kimberlite pipes is located 12 km east of tidewater on the west coast of the Brodeur Peninsula of northern Baffin Island. It is centered 3.3 km south of Jackson River at 73°14' 48" latitude north and 88°16' 12" longitude west. Approximately 120 km to the east, the Nanisivik zinc mine and the community of Arctic Bay are serviced by scheduled commercial jet aircraft and marine shipping companies. The Brodeur Peninsula is bounded by Admiralty Inlet, Lancaster Sound and Prince Regent Inlet.

4. GEOLOGY AND PHYSIOGRAPHY

4.1 Regional

Flat-lying Ordovician and Silurian carbonates are exposed along the steep coastline of the Brodeur Peninsula and in the deeply incised river gorges. Between these river gorges, the land surface is an undulating plateau with elevations in the 250 to 500 m range. Except at the crests of some hills, a thick blanket of glacial till was deposited by a small ice cap centred on the peninsula during the last glaciation and beyond the northern limit of the continental Laurentide Ice Sheet (see Geological Survey of Canada, Terrain Sciences Division internet site <http://sts.gsc.nrcan.gc.ca/page1/landf/ne/baffin/brodeur.htm>). Although isolated gneissic floats and erratics provide evidence of an earlier much more extensive glaciation, the till consists mainly of carbonate blocks in a matrix of pulverized carbonate. It is grey or light brown, contains few nutrients and supports very very sparce vegetation. Annual rainfall is low. The landscape in summer has the appearance of a brown, undulating and barren desert.

4.6 Area of kimberlite pipes on Freightrain claim

From the air and on aerial photographs, evidence of the Jackson Inlet cluster of kimberlite pipes is manifested as three dark brown circular patches along a northeast-southwest axis and within a 500 by 600 m halo of tan colouration. Within the halo are patches of darker tan colour. The surrounding limestone is grey. The tan colour of the halo is interpreted to result from weathering of limestone which was dolomitized by introduction of magnesium from the kimberlite magma. It remains to be determined

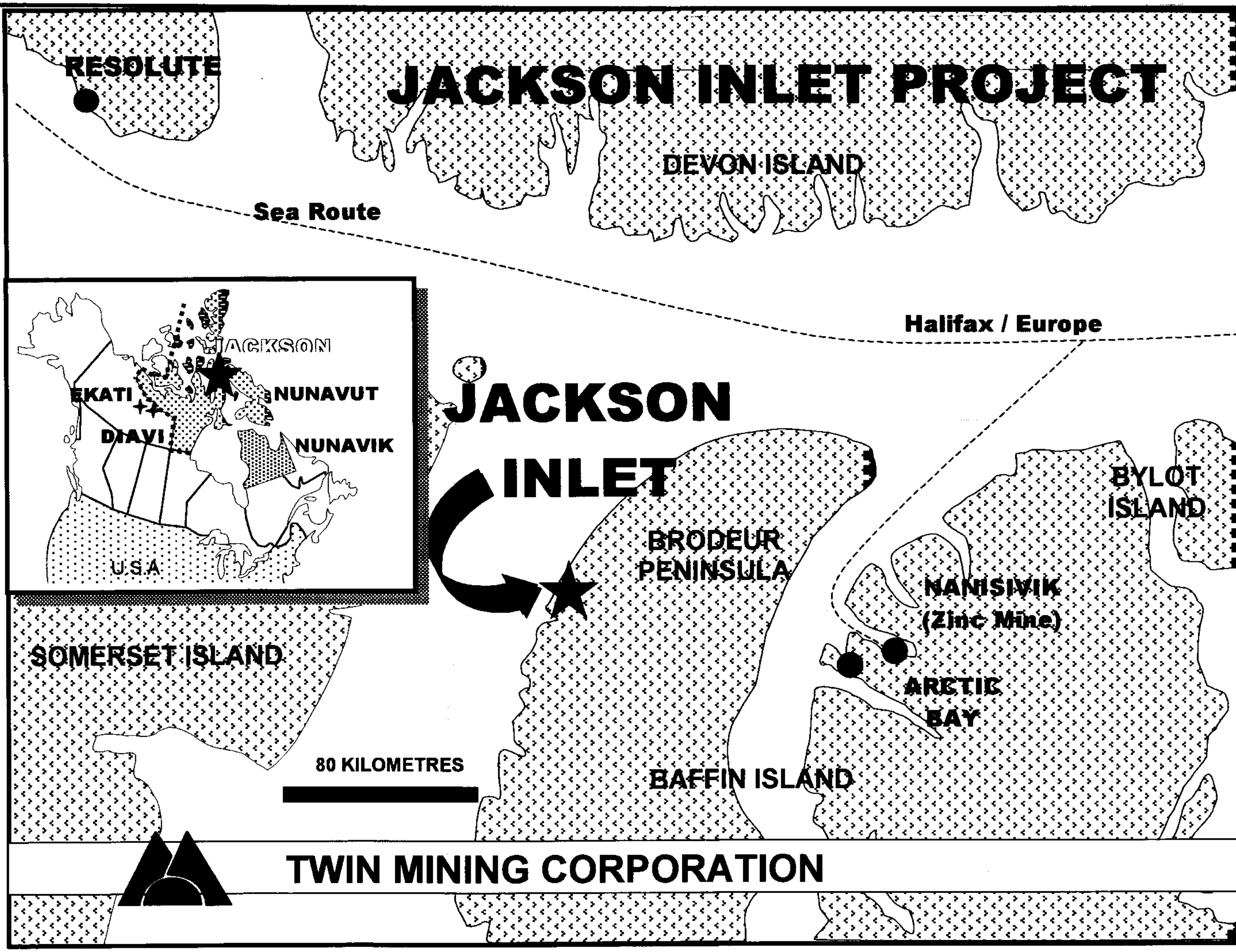


Figure 1. Location of Jackson Inlet Project and area of Freightrain claim

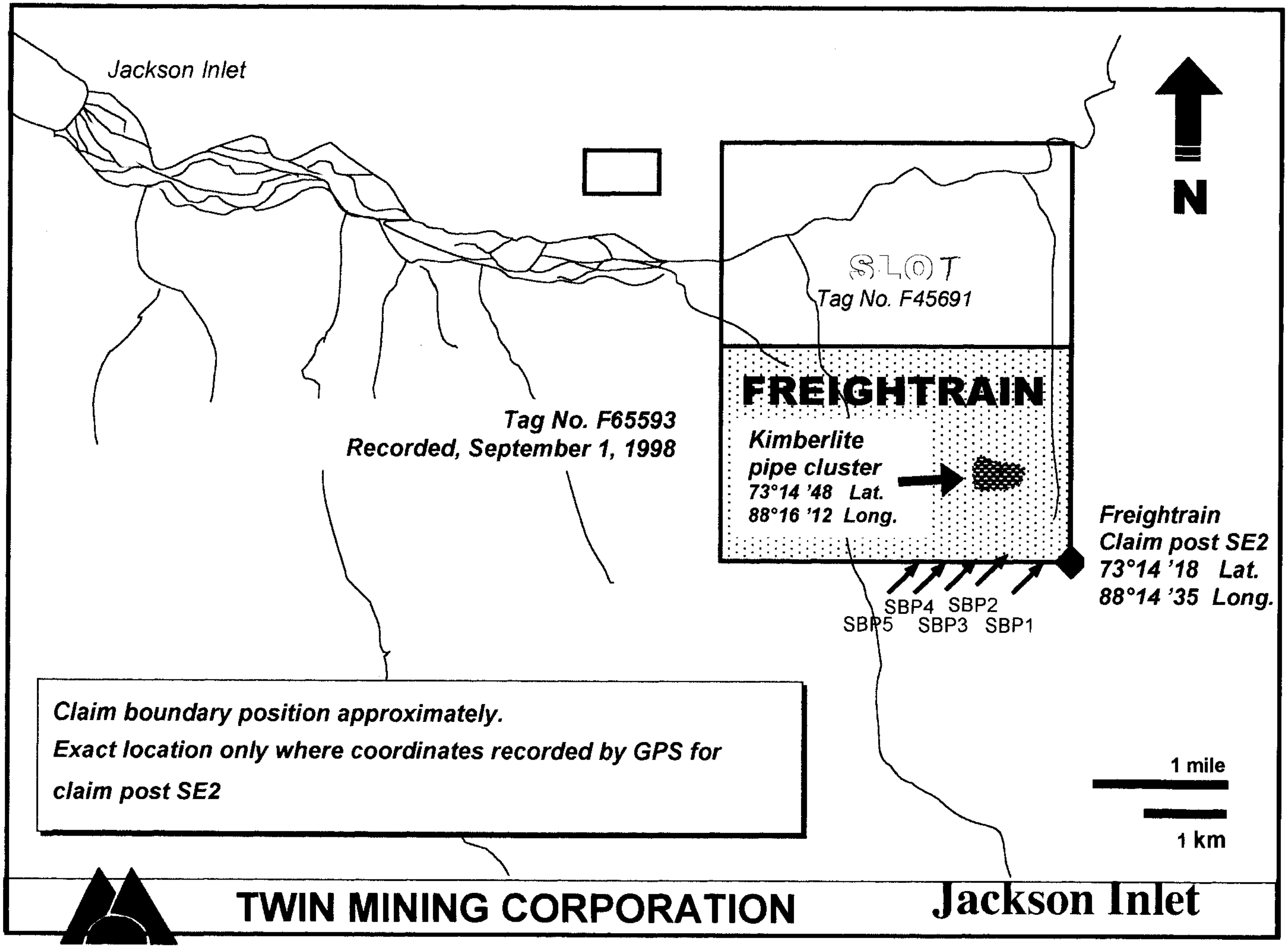


Figure 2. Freightrain claim and kimberlite pipe cluster

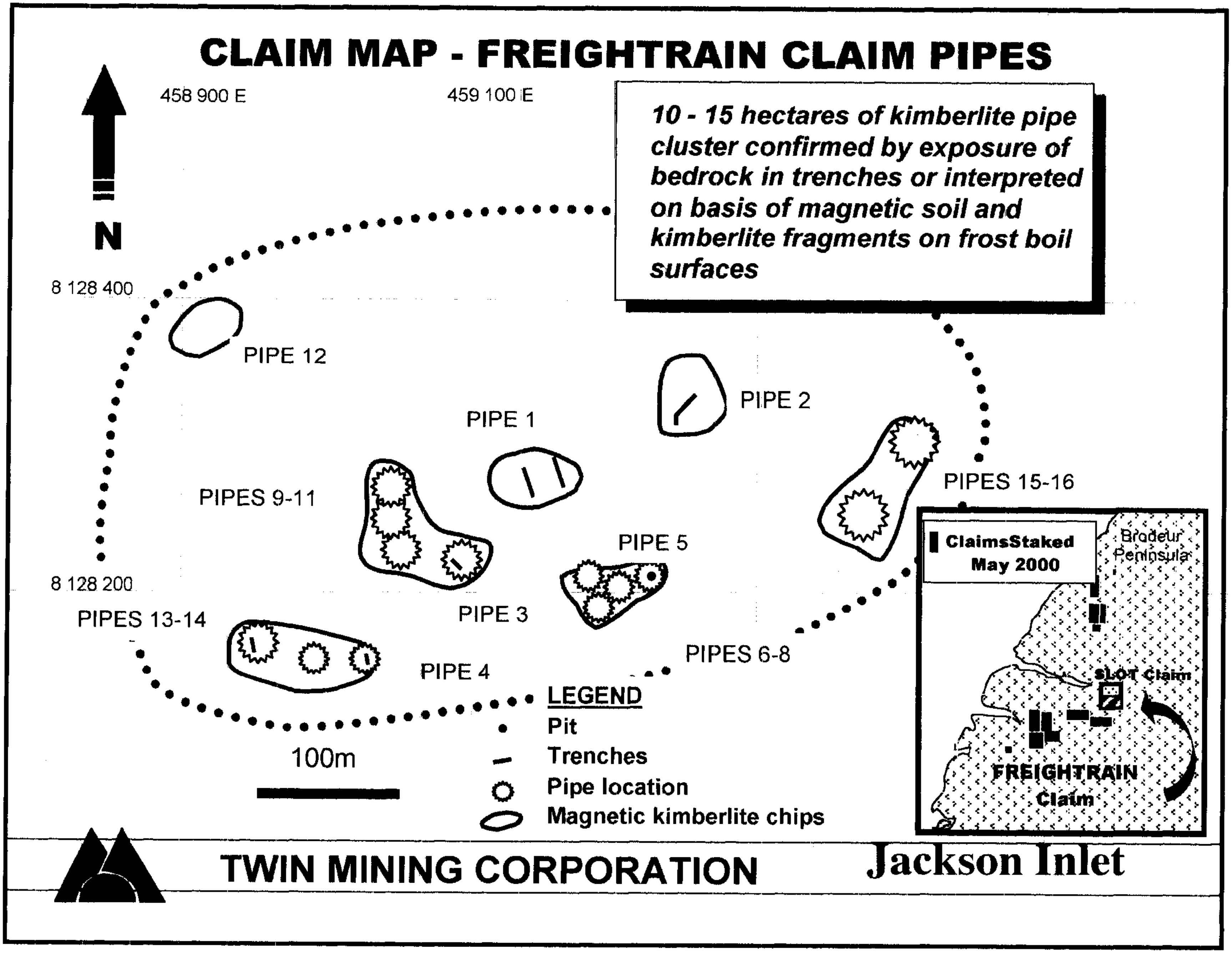


Figure 3. Kimberlite pipes, kimberlite pipe cluster and trenches

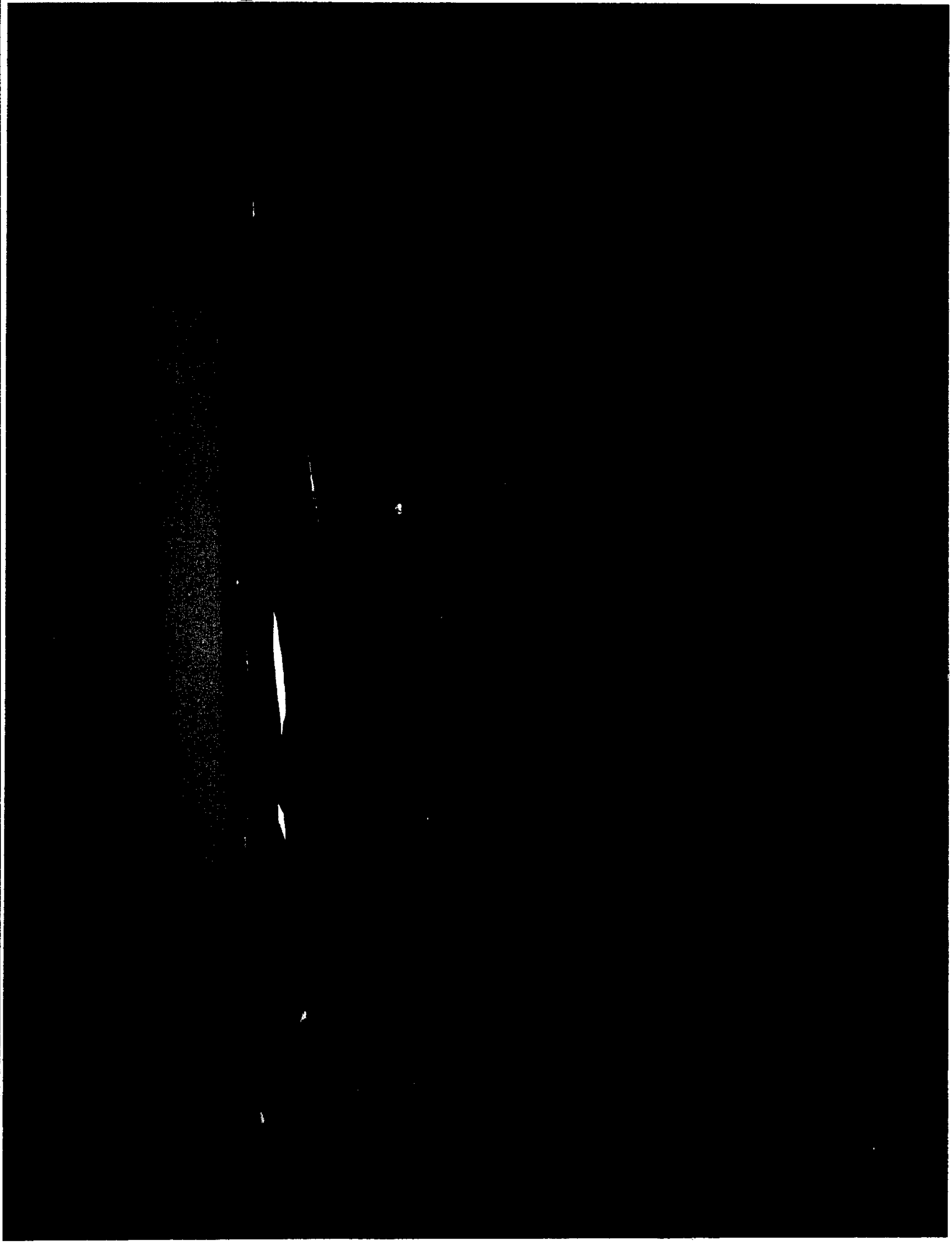


Figure 4. View southeasterly across kimberlite pipe cluster and camp

whether the pervasiveness is evidence that the carbonate between individual pipes is a roof pendant in contact with a larger intrusive.

Two of the three dark features prominent from the air are readily confirmed as kimberlite pipes when examined on the ground and from petrographic examination of the black gravel-like weathering product. Nevertheless, the central feature designated as "Pipe 1" displays an inconsistency with the normal topographically recessive nature of kimberlites in that it forms a hill of two meters relief above gently north-sloping terrain. The crest is littered with cobbles of primarily gneissic rock. Trench JI-2 exposed bedrock at a depth of 1 m across 16.4 m of this portion of the pipe and confirmed the presence of a 3-5 m zone containing numerous such weathering resistant xenoliths, thus explaining the positive relief. "Pipe 2", about 70 m to the northeast, has no topographic relief, but it is apparent from the predominance of black weathering product that at least the up slope portion is underlain by kimberlite. This was confirmed by Trench JI-3 which exposed bedrock at a depth of 1.5 m over 24.3 m in a north-south direction starting at the up slope or south kimberlite-limestone contact. To the north of the 24.3 m sampled, overburden thickness exceeds the practical 2 m limit of trenching without motorized excavating equipment.

The patches of dark tan within the 500 by 600 m halo are coincident with areas of sparce kimberlite fragments interspersed with the predominent limestone fragments on frost boil surfaces, slightly magnetic ground detected with a "Beep Mat" and concentrations of the elsewhere very sparcely scattered dwarf yellow poppies. Sites chosen for trenching and pitting were judged from the topography to have the least overburden. Trench JI-4 exposed kimberlite bedrock of "Pipe 3" at a depth of 2.0 m near the up slope or south margin of one of these sites . The bedrock is overlain by 0.5 m of black kimberlitic sand and 1.5 m of grey-brown clay containing angular limestone cobbles and rare kimberlite fragments. Black kimberlitic sand was encountered at a depth of approximately 2 m in JI-5 pit ("Pipe 4"), but efforts to deepen the pit were abandoned because of exhaustion of the explosives supply. Black kimberlitic sand was encountered at 10 cm by shovelling pit JI-6 ("Pipe 5"). Pipes 4 and 5 are thus strongly inferred as well as eleven others based on mapping the coincident surface features. The three confirmed and thirteen interpreted kimberlites occur in seven groups which may in fact be seven pipes ranging up to 125 m in diameter and occuring within an area of 10 to 15 hectares (Figure 3).

The unweathered kimberlite sampled from three pipes has a medium to dark brownish green, fine grained groundmass which comprises 20 to 30 % of the rock. The remaining 70-80 % is light green, rounded to angular olivine of random dimensions up to 2 cm. Larger olivine crystals display fractures infilled with dark, fine grained material resembling the matrix. Locally, the olivine is clear and has the appearance of the gem variety, peridot. One or more purple garnets up to 1 cm in diameter and with kelyphitic rims are visible in most hand specimens. Phlogopite up to 0.3 cm is present, but less common than garnet. Dark green to black, banded, fine to medium grained xenoliths (eclogite?) of 2 to 5 cm are noted in places and contain deep purple garnets. In addition, fragments of limestone, shale, gneiss and at least one nautiloid fossil are locally encased in kimberlite. Although hand specimens are only slightly magnetic, many contain 5-10 %

maroon to black, fine grained, angular and very magnetic fragments up to several centimeters in length. These fragments resemble a siliceous iron-manganese shale or iron formation and are prominent in the weathering product in permafrost and "soil" above the pipes.

Juvenile lapelli, pelletal lapelli, kimberlite autoliths and mantle-derived peridotite xenoliths are common in thin sections of various kimberlite samples examined by microscope at Lakefield Research. The mineral assemblage consists of abundant olivine macrocrysts as well as scarce phlogopite and garnet macrocrysts set in a a fine grained serpentine matrix. The presence of the juvenile lapelli and pyroclastic texture suggests crater facies material and a relatively shallow level of erosion.

5. REPRESENTATION WORK BY FRED TATARNIC

Between August 5th and 15th of 1998, Fred Tatarnic undertook prospecting of the Freightrain claim and collected an estimated 90 kg of samples of weathered kimberlite from the surface of Pipes 1 and 2, to a depth of no more than 0.3 m or top of permafrost.

During the following autumn and winter, Mr. Tatarnic sifted through and washed approximately 60 kg of the gravelly samples, carefully examining the grains. One grain proved to be a 0.768 carat (5.4 mm by 4.5 mm) white, transparent, gem quality diamond whose weight and dimensions have been verified by Lakefield Research Limited. A 26.45 kg sample of weathered kimberlite submitted to Lakefield Research contained 15 diamonds, of which two passed through the 1.18 mm sieve openings and were retained on the sieve with 0.85 mm openings. Of the remainder, one was retained on the 0.212 mm opening screen, five on the 0.150 mm and seven on the 0.100 mm screen.

Table 1 presents representation work by Mr. Tatarnic as well as that done for Twin Mining Corporation. Annex I presents results of diamond and diamond indicator mineral exctraction from the 26.45 kg sample of weathered kimberlite.

6. REPRESENTATION WORK - TWIN MINING CORP.

6.1 First Stage Logistics, Personnel and Approach

Dallas and Adrian Davis departed Fredericton for initial due diligence and claim staking on May 19, 2000. On being met in Iqaluit the next day by helicopter pilot, Lewis Andrews, and engineer, Jamie Baikie, mobilization continued to Clyde River aboard an

Table 1. Type of representation work performed and by whom.

TYPE OF WORK PERFORMED	WORK DONE BY
Prospecting and sampling of approximately 90 kg of weathered kimberlite; August 5-15, 1998	Fred Tatarnic
Panning and sorting through about 60 kg of weathered kimberlite, discovery of a 0.768 carat (5.4 X 4.5 mm) white, transparent diamond; late 1998 to mid-1999	Fred Tatarnic
Caustic fusion of a 26.45 kg portion of the weathered kimberlite sample, extraction of 15 diamonds and inentification, using a binocular microscope, of diamond indicator minerals in a heavy mineral concentrate prepared from 2 kg sample, Sept. 1999	Lakefield Research Ltd.
Examination of only weathered kimberlite not covered by snow, ie. a "hill" of 1-2 m relief labeled Pipe 1 on the accompanying map. Take 17 surface samples (94.52 kg) over the 10 X 10 m exposed area; May 29, 2000	Dallas & Adrian Davis for Twin Mining Corporation. Transport to/from site by Canadian Helicopters, pilot Lewis Andrews
Caustic fusion of the 94.52 kg composite, extraction and characterization of 42 diamonds; June 2000	Lakefield Research Ltd for Twin Mining Corporation
Set up camp, prospect area surrounding known Pipes 1 & 2, drill and blast 4 trenches to bedrock at a depth of 1-2 m over a total length of 65.5 m, sample 1,424 kg of kimberlite rock from these trenches, sample approximately 150 kg of weathered kimberlite and kimberlite fragments from frost boil surfaces, and, use "Beep Mat" to locate areas of magnetic soil and rock fragments; August 11-23, 2000	Gilbert Lamothe and Denis Bergeron of G. L. Geoservice Inc., with field direction and sampling by Dallas Davis. Helicopter support by Heli-Max Ltd., pilot Henry Droog. Camp, explosives, "plugger" drills and field supplies from Val d' Or to Nanisivik airport and return via Aviation Boreal. For Twin Mining Corporation.
Caustic fusion of 1,548 kg of kimberlite samples, extraction and characterization of 623 diamonds, microprobe analysis of diamond indicator minerals and petrography; Sept.-Nov. 2000	Lakefield Research Ltd. for Twin Mining Corporation

AS 350BA AStar Eurocopter chartered from Canadian Helicopters. After overnighting at Qummaq Hotel, the flight continued to Arctic Bay on May 20th and that night was spent at Enokseot Hotel. Following discovery of a crack in the rear stabilizer, the pilot moved the aircraft to the secure equipment compound at the Nanisivik Mine and ordered a replacement stabalizer to be shipped by First Air from Montreal. Accomodation from May 21st to the 31st was at the Nanisivik Mine visitor facility. The helicopter was grounded until arrival of the new stabilizer on May 24th. On May 31st, all except the pilot departed for Ottawa via First Air. The pilot departed with the aircraft the following day for Iqaluit enroute to Goose Bay.

A half hour visit to the Freightrain claim was possible on May 26th; however, weather did not permit staking nor examination of the site of the kimberlite pipes until the 29th. On the latter day, the top 10 cm, or so, of the only patch (approximately 10 m X 10m) of weathered kimberlite not covered by snow was sampled at 17 random points.

6.2 First Stage Results

A 94.52 kg aggregate of the 17 samples was subjected to caustic fusion at Lakefield Research Limited yielding 42 diamonds. Three were greater than 0.5 mm in longest dimension. The majority exhibited 85-95% preservation, white colour and transparent to translucent clarity. Multi-element analyses by electron microprobe on approximately 100 grains each of chromite and garnet from the caustic fusion residues showed "that approximately 40% of the Jackson Inlet chromite population could have been derived from potentially diamondiferous chromite harzburgite". Even though garnets are more readily destroyed by caustic fusion than chromite, the preserved population contained "5% G10 sub-calcic pyrope garnet derived from potentially diamondiferous garnet harzburgite source rocks" and "5% G3 eclogitic garnet derived from high pressure eclogitic source rocks, of which 17% of the six analyses are compositionally similar to eclogitic garnet from diamondiferous eclogite xenoliths".

Annex 2 is the Lakefield Research report on the 94.52 kg sample microdiamond extraction, selection and description. Annex 3 is their corresponding report on diamond indicator mineral extraction, selection, analysis and evaluation.

6.3 Second Stage Logistics, Personnel and Approach

The field portion of the second stage program commenced with departure for Nanisivik on August 9th and was completed by return on August 24th. The field crew under the direction of Dallas Davis consisted of Gilbert Lamothe and Denis Bergeron of G. L. Geoservice Inc., Rouyn-Noranda, Quebec. Pilot-engineer, Henry Droog, provided logistical support with an AS 350BA Astar chartered from Heli-Max Ltd., Three Rivers, Quebec. Jean-Marie Arseneault and his co-pilot son of Aviation Boreal of Abitibi, Quebec, transported explosives, a 14' X 16' canvas tent, plywood for the floor, 2 X 4's for tent frame, Pionjar hand held gas powered drills, fuel for the drills and for heating, 60-20 litre sample pails, food, Coleman stove, kerosene heater, propane heater and assorted miscellaneous supplies by DC-3 from Val d'Or to Nanisivik. The DC-3 remained on the Nanisivik airport tarmac from August 10th to the 25th when it returned to Val d'Or with the samples as well as all empty containers and gear, except the tent frame and floor. Samples were trucked from Val d'Or by Gilbert Lamothe.

Trenching with the aid of explosives to expose and sample kimberlite bedrock proved sussessful for sampling three pipes along 65.5 m of trenches (see map in pocket and Figure 3, page 5) of 1-2 m depth and confirming the existence of a fourth pipe by exposing the top of the black gravelly weathered kimberlite at a depth of two meters. Approximately 1.57 t of samples were submitted to Lakefield Research. Prospecting and traversing with a "Beep Mat" provided evidence for 12 additional pipes. All are reflected by the presence of kimberlite fragments on frost boil surfaces.

Samples from locations shown on the map in the front pocket of this report which were submitted to Lakefield Research (JI = Jackson Inlet; 1st number = trench number; next number = whole metre interval represented by respective pail(s); and last number = fraction of a metre for the interval):

> JI7, JI9, JI10. Weathered kimberlite fragments from frost boil surfaces above inferred kimberlite bodies. For diamond indicator mineral extraction, chemistry (see Annex 4) and petrography (see Annex 9);
>
> Trench JI-1. 15-20 litre pails of bedrock kimberlite product from blasting (pieces 3 cm to 15 cm in diameter) for caustic fusion, diamond indicator mineral extraction and chemistry, and, petrography. 1 pail numbered JI131, 1 numbered JI133, 1#JI127, 4#JI139, 1#JI122, 3#JI151, 1#JI129, 1#JI120, 1#JI137 and 1#JI1R (see Annexes 4 ,5 and 9 for Lakefield results);
>
> Trench JI-2. 13 pails. Same material and for same work as Trench 1 samples. 3#JI231, 2#JI229, 5#JI270, and 3#JI234 (see Annexes 4, 6 and 9 for Lakefield results);
>
> Trench JI-3. 18 pails. Same material and for same work as above (see Annexes 4, 7 and 9 for Lakefield results);
>
> Trench JI-4. 4 pails kimberlite bedrock blast product (numbered JI410, plus 4 pails of overlying sand (numbered JI410 sand) for same work as above (see Annexes 4, 8 and 9 for Lakefield results);
>
> Trench JI-5. 1 pail (1/3 filled) kimberlite from frost boil surfaces, plus 1 pail of dark mud containing unidentified rock fragments from trench. For screening, picking of any kimberlitic fragments and inclusion of these with material from frost boils for same procedure as above. Pails numbered JI510. (see Annexes 4, 8

and 9 for results); and,

Pit sample JI610 - 1 pail of weathered kimberlite. Same procedure as previous samples (see Annexes 4 and 8 for Lakefield results).

6.4 Second Stage Results

6.4.1 Diamond indicator mineral chemistry

At Lakefield Research, eavy mineral concentrates were produced from representative, 8 to 10 kg samples of kimberlite from ten sites on the Jackson Inlet property (see locations on map in front pocket of this report), through a combination of staged crushing, wet screening and heavy liquid separation. Minerals were picked from riffled aliquots of concentrates using a binocular microscope. The riffled samples were of sufficient size to contain from 60 to 120 grains of chromite and from 90 to 125 grains of garnet. Chromite and garnet grains were mounted in epoxy and analysed for major and minor element contents by electron microprobe (JEOL 733 Superprobe) under standard operating conditions. The data was interpreted using industry-standard bi-variate plots and data classification schemes published by, Sobolev (1973), Dawson and Stephens (1975), Gurney (1985), Fipke et al. (1995) and Schulze (1997).

Interpretation of the chromite data shows that for the ten sample sites, between 14% and 68% of the chromite compositions plot within the compositional field of world-wide chromite inclusions in diamond, with an average of about 46%.

Interpretation of the garnet data shows that between 9% and 56% (av. 28%) of the garnets are classified as sub-calcic, G10 Cr-pyrope and between 0% and 12% (av. 5%) as high pressure eclogitic garnet, both of which are similar to the compositions of garnet inclusions in diamond as determined from a world-wide database.

This data compares very favourably with kimberlite pipes under development elsewhere in Canada. For example, Diavik's A154S pipe which grades approximately 4.5 ct/t, contains about 28% diamond-inclusion chromite and 23.5 % sub-calcic, G10 Cr-pyrope. In addition, A154N (~2.2 ct/t), A21 (~2.7 ct/t) and A418 (~4.0 ct/t), three other pipes in Diavik's mining plan contain 23.6%, 15.9% and 10.2% sub-calcic, G10 Cr-pyrope, respectively. Data for the proportion of high-pressure eclogite and chromite have not been published for these kimberlites.

In South Africa, mineral concentrates produced from kimberlite at the Finsch (~ 0.9 ct/t), Premier (0.3 ct/t) and Newlands (0.65 ct/t) Mines contain 42.2%, 18.9% and 23.8%, sub-calcic, G10 Cr-pyrope, respectively.

Dalmin Corporation

Table 2. Samples taken and diamonds recovered from Freightrain claim

Meters from south end	Sample interval (meters)	Sample weight (Kg)	Number of diamonds	Diamonds retained on sieves with opening sizes in mm											Diamond weight (carats)
				3.35	2.36	1.70	1.18	0.850	0.600	0.425	0.300	0.212	0.150	0.100	
Pipe 1															
Trench JI-1															
0 - 3.1	3.1	23.40	7							1			1	5	0.003020
3.1 - 6.4	3.3	28.25	21									1	5	15	0.000870
6.4 - 9.1	2.7	27.09	21									2	5	14	0.001290
9.1 -13.0	3.9	109.75	62						3	3	5	4	15	32	0.018485
13.0 - 18.1	5.1	135.15	56				1		2	1	3	8	14	27	0.026740
18.1 - 20.1	2.0	27.67	15					1			1	1	3	9	0.009175
20.1 - 23.8	3.7	30.54	14									2	5	7	0.001005
Random sample		30.00	17						1			1	4	11	0.006225
Trench total	23.8	411.85	213				1	1	6	5	9	19	52	120	0.066810
Trench JI-2															
0-3.4	3.4	82.71	42						1	1		7	9	24	0.007320
3.4-10.4	7.0	148.8	54				1		2	2	3	9	13	24	0.055045
10.4-13.3	2.9	61.75	2				1	1							0.051555
13.3-16.4	3.1	86.43	43						1	1	1	5	12	23	0.010780
Trench total	16.4	379.69	141				2	1	4	4	4	21	34	71	0.124700
Surface grab sample		94.52	42								5	7	18	12	0.004375
Pipe 1 total		886.06	396				3	2	10	9	18	47	104	203	0.195885
Pipe 2															
Trench JI-3															
0 - 2.5	2.5	26.80	6							1	1	1	1	2	0.001640
2.5 - 9.2	6.7	108.40	27			1				3	2	1	6	14	0.179440
9.2 - 11.8	2.6	55.20	15				1		2			1	5	6	0.057450
11.8 - 15.3	3.5	110.35	46						1		3	2	11	29	0.011505
15.3 - 20.0	4.7	116.70	24									5	8	11	0.002655
20.0 - 23.2	3.2	29.61	6								1		3	2	0.000260
23.2 - 24.3	1.1	27.45	19								1		5	13	0.000860
Trench total	24.3	474.51	143			1	1		3	4	8	10	39	77	0.253810
Helix surface grab		86.45	16	1				2				1	5	7	0.794940
Pipe 2 total		560.96	159	1		1	1	2	3	4	8	11	44	84	1.048750
Pipe 3															
Trench JI-4															
0 - 1.0	1.0	194.68	105		1				2	1	3	6	24	68	0.155985
Pipe 4															
Trench JI-5 and surrounding frost boil surfaces															
	Grab	6.37	9							1	1	1	5	1	0.002540
Pipe 5															
Pit JI-6															
	Grab	20.73	12						2	1		1	3	5	0.023020
Pipes total		1668.8	681	1	1	1	4	4	17	16	30	66	180	361	1.426180

Long dimension of diamonds (29) greater or equal to 1 mm:

Pipe 1	2.48, 2.34, 1.91, 1.71, 1.60, 1.43, 1.28, 1.17, 1.14, 1.11, 1.08, 1.03(2) and 1.00 mm
Pipe 2	5.40, 3.99, 2.00, 1.34, 1.65, 1.48, 1.14 (2) and 1.11
Pipe 3	2.96, 1.85 and 1.05
Pipe 4	none
Pipe 5	1.48, 1.03 and 1.00

62 diamonds with long dimension equal to or greater than 0.5 mm, ie. macro diamonds: Pipe 1 - 37; Pipe 2 - 16; Pipe 3 - 6; Pipe 4 - 0; and, Pipe 5 - 3

Most diamonds are white and transparent. A few are brown and transparent .

NOTES: 1) The Helix surface grab sample assigned to Pipe 2 was taken by Fred Tatarnic in August 1998. Of this sample, 26.45 kg was subjected to caustic fusion by Lakefield Research and, when sorted by Mr. Tatarnic, the balance yielded a 0.768 carat (5.4 X 4.5 mm) white, transparent, gem quality diamond.

2) The Pipe 1 surface grab sample was taken by Adrian Davis and Dallas Davis on May 29, 2000 when first visiting the Freightrain claim for due diligence on behalf of Twin Mining Corporation.

3) All other samples were taken August 11-23, 2000 by Twin Mining's field team under supervision of Dallas Davis.

7. STATEMENT OF EXPENDITURES - FREIGHTRAIN CLAIM

Fred Tatarnic: August 5-15, 1998 prospecting and sampling

Air photos & maps (NRCanada)	$365.03	
Transport & fuel (helicopter, Otter & First Air) (Arctic Bay to and from Jackson Inlet area, plus sample shipment to Lakefield Research Limited)	$12,535.44	
Travel & accomodation (First Air, Ottawa, Arctic Bay)	$9,104.76	
Salary for Fred Tatarnic (10 days @ $140/d)	$1,400.00	
Analytical (Lakefield - mineralogy & diamond counts)	$2,787.35	
Sub-total		$26,192.58

Twin Mining Corporation: Dallas & Adrian Davis May 29, 2000 examination and sampling of kimberlite on Freightrain claim (10% of non-analytical costs incurred for May 19-June 1, 2000 visit to Jackson Inlet area for claim staking and initial investigation of Freightrain and Slot claims)

Field supplies, maps & air photos	$219.81	
Transport & fuel (Canadian Helicopters & First Air)	$4,827.22	
Travel & accomodation (First Air, Arctic Bay, Nanisivik)	$1,775.92	
Consulting fees (Dalmin Corporation)	$3,041.42	
Analytical (Lakefield - caustic fusion & diamond counts)	$8,650.00	
		$18,514.37

Twin Mining Corporation: August 8-24, 2000 trenching, pitting and geological investigations on Freightrain claim

Field supplies, explosives, camp, drilling and blasting (all provided by G. L. Geoservice Inc.)	$29,998.85	
Transport & fuel (Heli-Max and Aviation Boreal)	$93,608.60	
Travel & accomodation (First Air, Nanisivik, Ottawa)	$13,688.23	
Consulting fees (Dalmin Corporation)	$27,861.51	
Analytical (Lakefield - caustic fusion, diamond counts, diamond indicator mineral chemistry & petrography)	$132,937.50	$298,094.69

TOTAL $342,801.64

REGISTERED PROFESSIONAL ENGINEER
D. W. Davis
PROVINCE OF NEW BRUNSWICK

ANNEX 1

Lakefield Research Limited report - Microdiamond and Diamond Indicator Mineral Extraction, Selection, and Description

September 24, 1999

Sample submitted by Helix Resources /Fred Tatarnic

LakefieldResearch

Mineralogical Services

Microdiamond and Diamond Indicator Mineral Extraction, Selection, and Description

submitted by
Helix Resources

Project Managed by: Bruce Craig Jago, Ph.D.

Submission Date: September 24, 1999

Project No.: 8901-222/LIMS#SEP0005.R99 and SEP1000.R99

Summary

Microdiamond Extraction, Selection and Description

Microdiamond extraction, selection and description (LIMS#SEP0005.R99) was completed on a single sample (Helix) comprising residual kimberlite, kimberlite rock fragments and soil, that probably had been derived from the underlying kimberlite, using our standard caustic fusion technique with collection of caustic residues on a 150 mesh screen. Results are reported as a Certificate of Analysis in Appendix A; a generalised flowsheet and explanation of the technique are given in Appendix C.

A small bag of related material (~ 2 kg) was processed for its heavy mineral content (LIMS#SEP1000.R99) through a combination of wet screening and density separation using methylene iodide diluted with acetone to a specific gravity of 3.1 g/cc. A representative suite of diamond indicator minerals was selected from the heavy mineral fraction produced from this sample using a binocular microscope. The results of this selection are presented as a Certificate of Analysis in Appendix B.

It is recommended that microprobe analysis and interpretation of the diamond indicator mineral chemistry be undertaken, prior to additional sampling, to aid in the economic evaluation of the host kimberlite.

LAKEFIELD RESEARCH LIMITED

Bruce Craig Jago, Ph.D.
Head – Diamond Exploration Services
Lakefield Research Limited

Bob Irwin
Business Manager – Mineralogical Services

September 24, 1999

Technical Support: Rob Gill, Scott Young, Jeff Voyer, Rick Wittekoek and Steve Bunce.

APPENDIX A

CERTIFICATE OF ANALYSIS
RESULTS OF MICRODIAMOND
EXTRACTION, SELECTION AND DESCRIPTION

LAKEFIELD RESEARCH LIMITED

P.O. Box 4300, 185 Concession St., Lakefield, Ontario, KOL 2HO
Phone : 705-652-2019 - FAX : 705-652-3123

Helix Resources
3731 Victoria Ave, P.O. Box 636
Niagra Falls, Ontario, L2E 6V5 - Canada

Attn : Fred Tatarnic
Fax : (905) 374-2856

Lakefield, September 24, 1999

Date Rec. : September 15, 1999
LR. Ref. : SEP0005.R99
Reference : LR9902453
Project : 8901-222

CERTIFICATE OF ANALYSIS

No.	Sample ID	Wt kg	# Pours	Dia #	Dia ct
1	Helix	26.45	5	15	0.027

Bruce Craig Jago, Ph.D.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 Standard for specific registered tests.

This report refers to the samples as-received. Lakefield Research Limited is not responsible for the determination of origin, quality, or value of any diamonds recovered.

LakefieldResearch

Lakefield Research Limited
185 Concession St., Box 4300
Lakefield, Ontario
K0L 2H0, CANADA

Tel: (705) 652-2112
Fax: (705) 652-3123
Email: bjago@lakefield.com

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-222**
Client: **Helix Resources**

Date: September 24, 1999
LIMS No. **SEP0005.R99**
Sample No. **Helix**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Rock fragments, silicates, and oxides
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 26.45 kg
Number of Syndites: 0

Total Weight (carats)*: 0.027
Number of Diamonds: 15

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Mezei!
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Quality Control
Valeri Artamonov
Mineralogy Technician

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Lakefield*Research*

Lakefield Research Limited
185 Concession St., Box 4300
Lakefield, Ontario
K0L 2H0, CANADA

Tel: (705) 652-2112
Fax: (705) 652-3123
Email: bjago@lakefield.com

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-222**
Client: **Helix Resources**

Date: September 24, 1999
LIMS No. **SEP0005.R99**
Sample No. **Helix**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	2	5.199	0.026
	-850 / + 600 μm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 μm	0	0.000	0.000
	-425 / + 300 μm	0	0.000	0.000
	-300 / +212 μm	1	0.034	0.000
	-212 / +150 μm	5	0.087	0.000
	-150 / +100 μm	7	0.068	0.000
	TOTAL	15	5.388	0.027

Sample Weight: 26.45 kg
Number of Syndites: 0

Total Weight (carats)*: 0.027
Number of Diamonds: 15

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

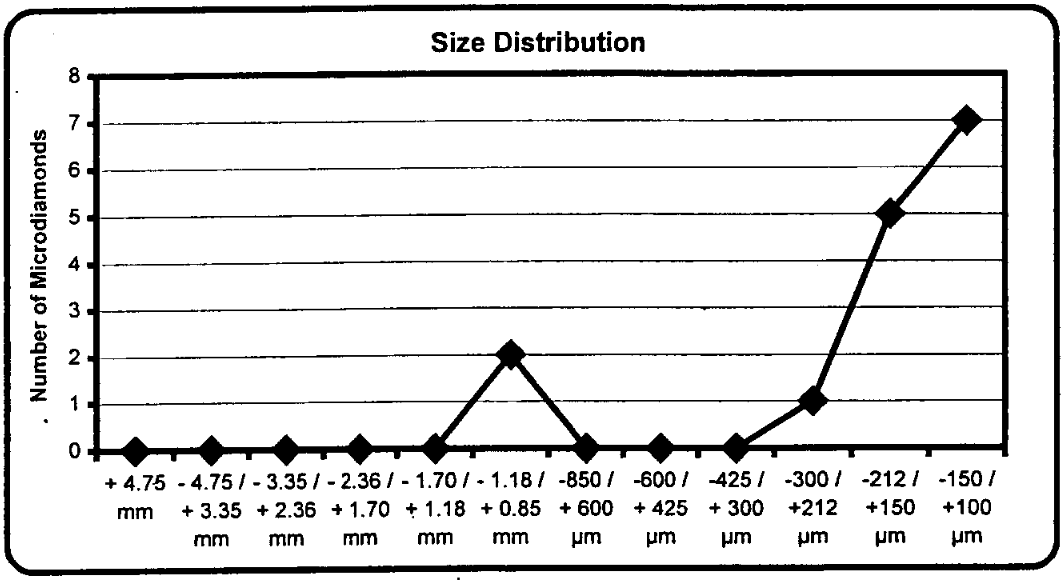
M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

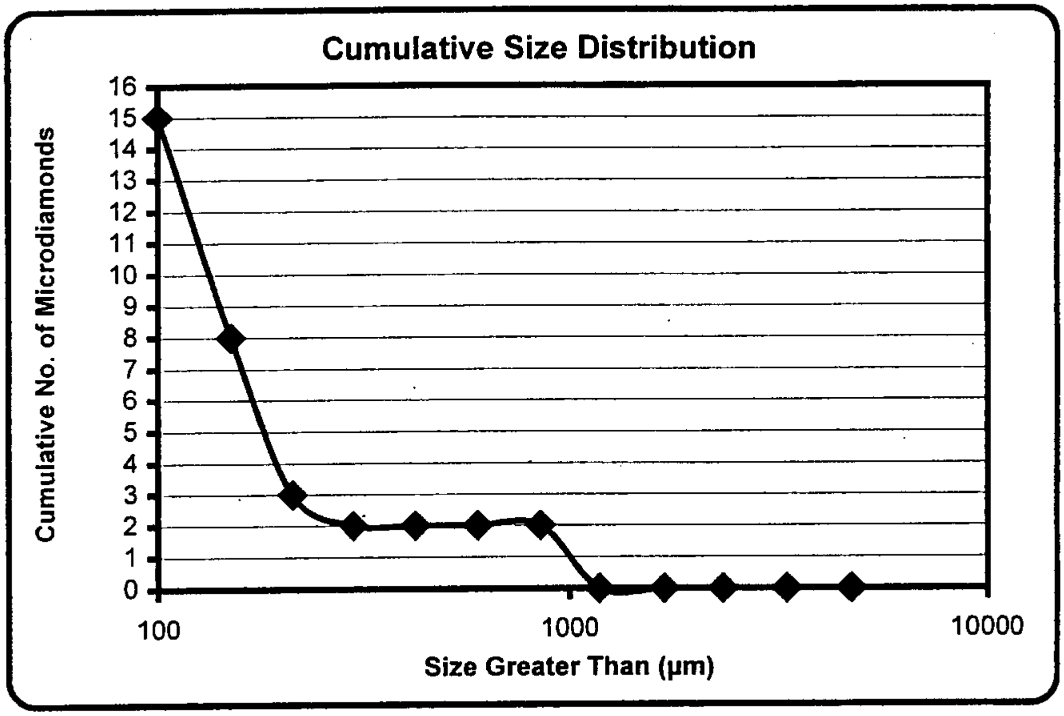
Quality Control
Valeri Artamonov
Mineralogy Technician

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Diamond Descriptions are shown as per Winspear Resources Limited Terminology,

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. Helix





LAKEFIELD RESEARCH LIMITED
P.O. Bag 4300, 185 Concession Street, Lakefield, Ontario K0L 2H0
Phone: 705-652-2112 E-mail: bjago@lakefield.com
Fax: 705-652-3123

September 24, 1999

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-222**

Client: **Helix Resources**

LIMS No. **SEP0005.R99**
Sample No. **Helix**
Sample Weight: 26.45 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
1	1.48	0.97	0.78	2.182	0.010910	White	Transparent	62.5%	Tetrahexahedral, minor cleavages
2	1.65	1.40	0.79	3.017	0.015085	Off White	Translucent	1-55%	Fragment with Crystal Faces, graphite inclusions, minor cleavages
2				5.199	0.025995	**Sub-Total**			

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Fax: 705-652-3123

September 24, 1999

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-222**

LIMS No. **SEP0005.R99**
Sample No. **Helix**

Client: **Helix Resources**

Sample Weight: 26.45 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-850 / + 600 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.29	0.29	0.23	0.034	0.000170	White	Transparent	95%	Octahedral, twinned, graphite coating, significant cleavages
1				0.034	0.000170	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.26	0.17	0.14		0.000000	White	Transparent	85%	Octahedral, twinned, minor cleavages
2	0.23	0.17	0.18		0.000000	White	Translucent	75%	Aggregate, significant cleavages, graphite inclusions
3	0.23	0.23	0.17		0.000000	White	Translucent	75%	Aggregate, significant cleavages, graphite inclusions
4	0.23	0.20	0.15		0.000000	White	Transparent	85%	Macle, twinned, graphite coating, significant cleavages
5	0.23	0.17	0.13		0.000000	White	Translucent	1-55%	Fragment on which crystal faces unrecognizable, frosted, significant cleavages
5				0.087	0.000435	**Sub-Total**			

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P.O. Bag 4300, 185 Concession Street, Lakefield, Ontario K0L 2H0
Phone: 705-652-2112 E-mail: bjago@lakefield.com
Fax: 705-652-3123

September 24, 1999

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-222**

Client: **Helix Resources**

LIMS No. **SEP0005.R99**
Sample No. **Helix**
Sample Weight: 26.45 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-150 / + 100 µm fraction									
1	0.17	0.14	0.12		0.000000	White	Transparent	95%	Octahedral, partially distorted
2	0.14	0.14	0.07		0.000000	White	Transparent	95%	Macle, twinned
3	0.14	0.11	0.10		0.000000	White	Translucent	95%	Macle, twinned
4	0.17	0.11	0.11		0.000000	White	Translucent	95%	Octahedral, twinned
5	0.14	0.11	0.11		0.000000	White	Translucent	62.5%	Fragment with Crystal Faces, significant cleavages
6	0.20	0.14	0.08		0.000000	White	Translucent	62.5%	Fragment on which crystal faces unrecognizable, frosted, very significant cleavages
7	0.17	0.11	0.11		0.000000	White	Translucent	62.5%	Fragment with Crystal Faces, minor cleavages
7				0.068	0.000340	**Sub-Total**			

15		0.026940	**TOTAL**

APPENDIX B

CERTIFICATE OF ANALYSIS
DIAMOND INDICATOR MINERAL
EXTRACTION AND SELECTION

P.O. Bag 4300, 185 Concession Street,
Lakefield, Ontario K0L 2H0
Phone: 705-652-2112
Fax: 705-652-3123
E-mail: bjago@lakefield.com

LakefieldResearch

DIAMOND INDICATOR MINERALS

September 20, 1999

Project: 8901-222 **Client: Helix Resources** **LIMS No. SEP 1000.R99**

Size Fraction - 10 + 60 mesh			PYR		ECL		CPX		ILM		CHR		OPX		OLI		OMP		KYN		GROSS		Other		INITIALS		
No.	Sample ID	Sink Weight (g)	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Picker	Time to Pick (min)	QC Picker
1	Helix	162.8	50+	0	35	0	50	0		0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	MM	-	VA
2																											
3																											
4																											
5																											
6																											
7																											
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15																											
16																											
17																											
18																											
19																											
20																											

Notes: 1 macro diamond was observed in sample.
The selected grains must be chemically analysed to classify the minerals as diamond indicators.

Bruce Craig Jago, Head - Diamond Exploration Services

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

P.O. Bag 4300, 185 Concession Street,
Lakefield, Ontario K0L 2H0
Phone: 705-652-2112
Fax: 705-652-3123
E-mail: bjago@lakefield.com

LakefieldResearch

DIAMOND INDICATOR MINERALS

September 20, 1999

Project: 8901-222 **Client: Helix Resources** **LIMS No. SEP 1000.R99**

Size Fraction																										
+ 10 mesh			PYR		ECL		CPX		ILM		CHR		OPX		OLI		OMP		KYN		GROSS		Other		INITIALS		
No.	Sample ID	Sink Weight (g)	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Pick 1	QC Pick	Picker	Time to Pick (min)	QC Picker
1	Helix	18.7	40+	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	MM	-	VA
2																											
3																											
4																											
5																											
6																											
7																											
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19																											
20																											

Notes:

The selected grains must be chemically analysed to classify the minerals as diamond indicators.

Bruce Craig Jago, Head - Diamond Exploration Services

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

APPENDIX C

EXPLANATION OF MICRODIAMOND EXTRACTION AND SELECTION PROCEDURE AND FLOWSHEET

DIAMOND EXTRACTION BY CAUSTIC DISSOLUTION

Introduction

Caustic dissolution of exploration samples efficiently produces a concentrate from which diamonds can readily be extracted during microscopic examination. The process uses diamond's property of high resistance to caustic soda (NaOH) and eliminates diamond size reduction and losses that often occur during extraction procedures that rely on crushing and attrition milling.

Procedure

The samples are processed according to the attached flowsheet. Very few minerals survive the harsh attack; therefore weight reductions commonly exceed 99% of the initial sample weight.

As-received samples are divided into equally sized charges of less than 8 kg. Smaller charge sizes are necessary if the sample contains a high proportion of carbonate minerals that are vigorously reactive with NaOH (evaluated by an acid test completed prior to charge preparation). If a high proportion of the sample is composed of fragments larger than 8 cm, simple breakage, crushing or attrition milling may be required, or the length of the dissolution process increased. Client consultation and approval is necessary before any size reduction of the sample is initiated.

After digestion in molten caustic soda, the sample is poured onto a large diameter 150 mesh screen. The + 150 mesh residue is liberated from the NaOH by washing the sample in a series of water and acid leach (HCl) baths. Once all of the NaOH is dissolved and removed, the concentrate is dried and screened on a 6 mesh screen to remove undigested material. The undigested material is examined microscopically by a mineralogist. If the + 6 mesh material is significant or consists of possible diamondiferous rock fragments, further digestion may be required. If the undigested material is of insignificant size or not considered as a possible source of diamonds, the - 6 mesh residue is further processed by a two (possibly three if the residue is large) stage magnetic separation procedure utilising a permanent magnet and a Frantz Barrier Magnetic Separator.

The magnetically characterised residue is then submitted for microscopic examination and diamond selection. (In addition to diamonds, the residue may contain partially undigested indicator minerals, colourless to opaque spinel, garnet, ilmenite, graphite, moissanite, zircon and kyanite.) Each of the magnetic fractions is examined at a magnification of 40x using a binocular microscope. Grains of questionable mineralogy are examined using a scanning electron microscope equipped with an energy dispersive spectral (SEM-EDS) analyser. Although each magnetically characterised fraction is examined, particular emphasis is given to the diamagnetic portion.

The X, Y and Z dimensions of selected microdiamonds are measured in millimetres. Macrodiamonds are weighed individually while microdiamonds are weighed in groups of 20 or 30 and the milligram weight, in each case, converted to carats. The colour, clarity and

Quality Control

Routine quality control tests are utilised to evaluate the efficiency of the caustic dissolution processing technique by running blank samples spiked with "Congo Rounds". The chance of diamond or indicator mineral contamination is evaluated by running caustic soda blanks between client's samples and examining the residue for microdiamonds and indicator minerals. Recovery of the diamond spikes typically ranges from 97 to 100%. 1998 statistics showed that, on average, only a single indicator mineral grain was carried over into the caustic soda blanks run between different client's samples.

Each residue is picked twice by separate diamond pickers. Questionable grains are examined by SEM-EDS for verification.

Every effort is made at each stage of sample handling during caustic dissolution, residue preparation and diamond picking to eliminate the possibility of contamination. These steps include:

- A rigorous sample tracking procedure.
- Dedicated screens and equipment for each sample during sample processing.
- Replacement of screens between each sample after pouring caustic soda.
- Thorough washing and scrubbing of all sample containers.
- Thorough cleaning of equipment used to prepare caustic residues between each processed sample.
- Sandblasting of each kiln pot once a month to remove any scale build-up that might entrap microdiamonds or indicator minerals.

Customized flowsheets for sample processing utilising caustic dissolution and other sample preparation techniques (magnetic, gravity, flotation, acid leaching, etc.) can be developed, in consultation with the client, to meet specialised requirements.

Lakefield Research Limited is not responsible for the determination of the origin, quality or valuation of any diamonds recovered unless otherwise instructed by the client.

LakefieldResearch

185 Concession Street, Postal Bag 4300
Lakefield, Ontario, Canada, K0L 2H0
Tel: (705) 652-2019 Fax: (705) 652-3123

Caustic Dissolution Processing for Microdiamond Recovery

SAMPLE PREPARATION
(as instructed by client, includes drying)

↓

DISSOLUTION
(Molten NaOH)

↓

Collect Residue
(150 mesh screen)

↓

WATER WASH AND
ACID LEACH RESIDUE

↓

DRY AND REMOVE
FERROMAGNETICS

↓

FRANTZ MAGNETIC SEPARATION

↓

MICROSCOPE EXAMINATION
DIAMOND SELECTION

LAKEFIELD RESEARCH AFRICA (Pty) Ltd., 58 Melvill Street, Booysens, Box 82582, Southdale 2135, Johannesburg, R.S.A
Tel: 27-11-680-3466 Fax: 27-11-433-3654

LAKEFIELD-GEOSOL S.A., Rua Sao Vicente, 255, Olhos D'Agua, 30390-570, Belo Horizonte, MG, Brazil
Tel: 55-31-288-1122 Fax: 55-31-288-1140

LAKEFIELD RESEARCH CHILE S.A., Los Ebanistas 8585, Parque Industrial La Reina, Santiago, Chile
Fono 56-2-273-0487 Facsimil 56-2-273-0250

Revised January 19, 1999

ANNEX 2

Lakefield Research Limited report - Microdiamond Extraction, Selection, and Description

June 23, 2000

Sample submitted by Twin Mining Corporation

Lakefield Research

Mineralogical Services

Microdiamond Extraction, Selection, and Description

submitted by

Twin Mining Corp.

Project Managed by: Bruce Craig Jago, Ph.D.

Submission Date: June 23, 2000

Project No.: 8901-221/LIMS#JUN0003.R99

Summary

Microdiamond Extraction, Selection and Description

Microdiamond extraction, selection and description was completed for a single sample (Combined) of residual kimberlite using our standard caustic fusion technique with collection of caustic residues on a 150 mesh screen. Results are reported as a Certificate of Analysis in Appendix A; a generalised flowsheet and explanation of the technique are given in Appendix B.

LAKEFIELD RESEARCH LIMITED

Bruce Craig Jago, Ph.D.
Manager – Mineralogical Services
Lakefield Research Limited

June 23, 2000

Technical Support: Rob Gill, Scott Young and Jeff Voyer

APPENDIX A

CERTIFICATE OF ANALYSIS
RESULTS OF MICRODIAMOND
EXTRACTION, SELECTION AND DESCRIPTION

LAKEFIELD RESEARCH LIMITED

P.O. Box 4300, 185 Concession St., Lakefield, Ontario, KOL 2HO
Phone : 705-652-2019 - FAX : 705-652-3123

Twin Mining.
391 Brunswick Street.
Fredricton, New Brunswick, E3B 1H2 - Canada

Attn : Dallas Davis
Fax : (506) 462-7277

Lakefield, June 20, 2000

Date Rec. : June 13, 2000
LR. Ref. : JUN0003.R00
Reference : LR2001534
Project : 8901-221

CERTIFICATE OF ANALYSIS

No.	Sample ID	Login # wt/kg	Pours	Dia #	Dia ct
1	Combined Sample	94.52	12	42	0.004

Bruce Craig Jago, Ph.D.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 Standard for specific registered tests.

This report refers to the samples as-received. Lakefield Research Limited is not responsible for the determination of origin, quality, or value of any diamonds recovered.

LakefieldResearch

Lakefield Research Limited
185 Concession St., Box 4300
Lakefield, Ontario
K0L 2H0, CANADA

Tel: (705) 652-2112
Fax: (705) 652-3123
Email: bjago@lakefield.com

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining**

Date: June 20,2000
LIMS No. **Jun0003.R00**
Sample No. **Combined Sample #1**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Oxides and silicates
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides, graphite and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 94.52 kg **Total Weight (carats)*: 0.004**
Number of Syndites: 0 **Number of Diamonds: 42**

** Note: Pink Corundum, Kyanite and Zircon were observed in sample.
* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Quality Control
Robert Buchan
Consulting Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

LakefieldResearch

Lakefield Research Limited
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Email: bjago@lakefield.com

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining**

Date: June 20.2000
LIMS No. **Jun0003.R00**
Sample No. **Combined Sample #1**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	5	0.334	0.002
	-300./ +212 µm	7	0.222	0.001
	-212 / +150 µm	18	0.260	0.001
	-150 / +100 µm	12	0.059	0.000
	TOTAL	42	0.875	0.004

Sample Weight: 94.52 kg
Number of Syndites: 0

Total Weight (carats)*: 0.004
Number of Diamonds: 42

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

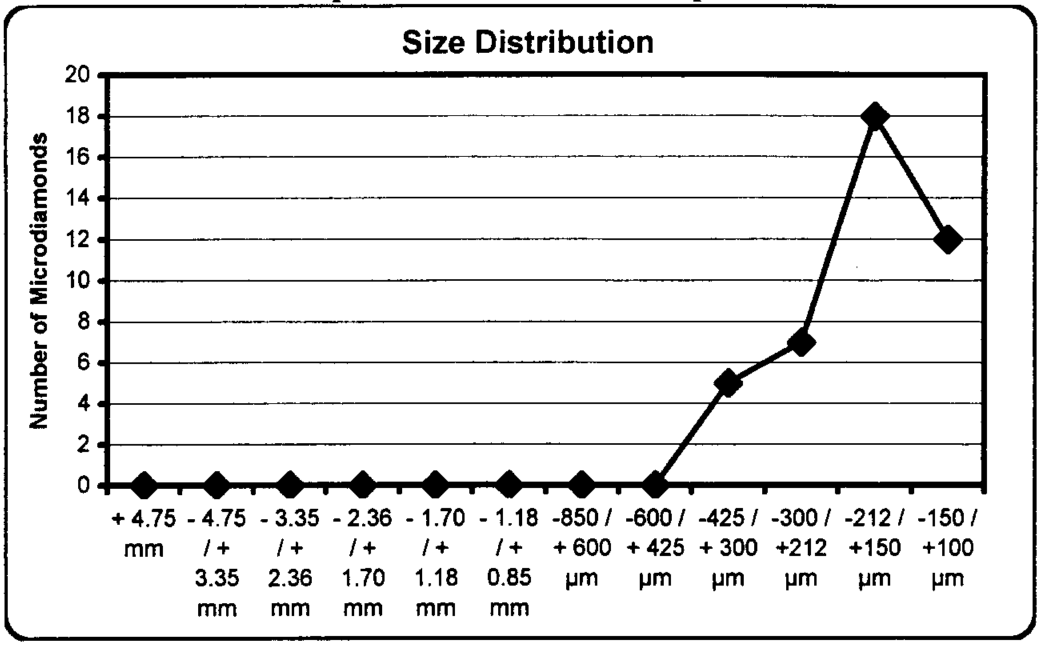
M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

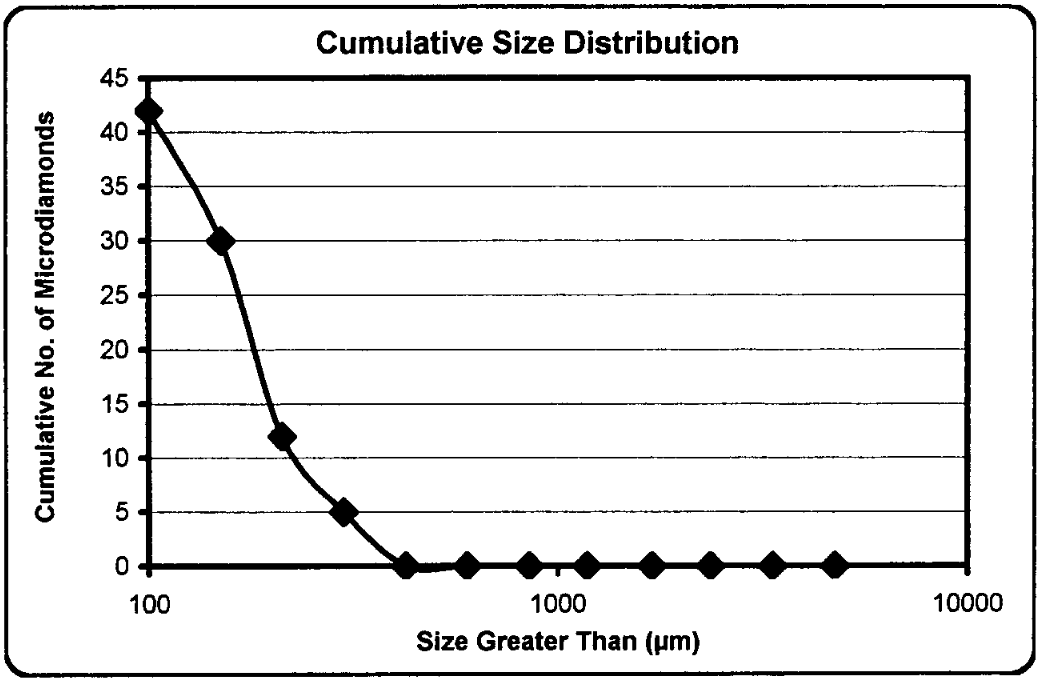
Quality Control
Robert Buchan
Consulting Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. Combined Sample #1





LAKEFIELD RESEARCH LIMITED

June 20,2000

P.O. Bag 4300, 185 Concession Street, Lakefield, Ontario K0L 2H0
Phone: 705-652-2112 E-mail: bjago@lakefield.com
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Jun0003.R00**
Sample No. **Combined Sample #1**

Client: **Twin Mining**

Sample Weight: 94.52 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 μm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-600 / + 425 μm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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June 20,2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Jun0003.R00**
Sample No. **Combined Sample #1**

Client: **Twin Mining**

Sample Weight: 94.52 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-425 / + 300 µm fraction									
1	0.40	0.31	0.31		0.000000	White	Transparent	85%	Irregular
2	0.51	0.43	0.19		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, very significant cleavages
3	0.48	0.40	0.27		0.000000	White	Translucent	95%	Fragment on which crystal faces unrecognizable, significant cleavages
4	0.46	0.34	0.28		0.000000	Grey	Translucent	95%	Octahedral, twinned, graphite inclusions
5	0.37	0.31	0.27		0.000000	Grey	Translucent	95%	Macle, twinned, graphite coating
5				0.334	0.001670	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.57	0.29	0.16		0.000000	Grey	Translucent	85%	Irregular
2	0.29	0.26	0.16		0.000000	White	Translucent	95%	Octahedral, twinned, graphite coating
3	0.34	0.26	0.20		0.000000	White	Transparent	85%	Octahedral, twinned, partially distorted
4	0.31	0.29	0.18		0.000000	Off White	Translucent	95%	Macle, twinned, graphite coating
5	0.31	0.23	0.22		0.000000	White	Transparent	95%	Octahedral, twinned, graphite coating
6	0.31	0.23	0.11		0.000000	Grey	Translucent	75%	Fragment with Crystal Faces, minor cleavages, graphite coating
7	0.40	0.31	0.20		0.000000	Off White	Transparent	95%	Macle, twinned
7				0.222	0.001110	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.48	0.51	0.17		0.000000	White	Translucent	95%	Aggregate, graphite coating
2	0.34	0.23	0.20		0.000000	White	Translucent	95%	Octahedral, twinned, graphite coating
3	0.40	0.23	0.17		0.000000	White	Transparent	85%	Irregular
4	0.34	0.23	0.19		0.000000	White	Translucent	75%	Fragment with Crystal Faces, significant cleavages
5	0.29	0.26	0.11		0.000000	Grey	Translucent	99+%	Octahedral, graphite coating, graphite inclusions
6	0.31	0.26	0.15		0.000000	Grey	Opaque	99+%	Octahedral, twinned, graphite coating
7	0.26	0.20	0.13		0.000000	Grey	Opaque	95%	Octahedral, twinned, graphite coating
8	0.31	0.20	0.15		0.000000	Grey	Opaque	95%	Octahedral, twinned, graphite coating
9	0.26	0.20	0.13		0.000000	White	Transparent	99+%	Octahedral

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June 20,2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Jun0003.R00**
Sample No. **Combined Sample #1**
Sample Weight: 94.52 kg

Client: **Twin Mining**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
10	0.29	0.23	0.14		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
11	0.29	0.20	0.10		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages, graphite coating
12	0.29	0.20	0.11		0.000000	Grey	Transparent	95%	Macle, partially distorted
13	0.23	0.20	0.15		0.000000	White	Translucent	85%	Fragment with Crystal Faces, minor cleavages, graphite coating
14	0.17	0.14	0.10		0.000000	White	Transparent	99+%	Octahedral
15	0.20	0.14	0.12		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite coating
16	0.17	0.14	0.11		0.000000	White	Translucent	95%	Octahedral, twinned
17	0.20	0.14	0.12		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
18	0.20	0.14	0.15		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, very significant cleavages
18				0.260	0.001300	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.17	0.14	0.16		0.000000	Grey	Translucent	85%	Octahedral, graphite coating, stepped faces
2	0.14	0.11	0.10		0.000000	White	Translucent	95%	Octahedral
3	0.17	0.14	0.08		0.000000	White	Translucent	95%	Octahedral, twinned
4	0.17	0.11	0.09		0.000000	Grey	Translucent	85%	Aggregate, graphite coating
5	0.17	0.09	0.10		0.000000	White	Translucent	85%	Aggregate
6	0.14	0.11	0.09		0.000000	White	Transparent	95%	Macle, twinned
7	0.14	0.14	0.06		0.000000	White	Translucent	95%	Fragment with Crystal Faces, minor cleavages
8	0.14	0.14	0.08		0.000000	White	Transparent	85%	Octahedral, twinned
9	0.20	0.17	0.11		0.000000	White	Transparent	95%	Octahedral, twinned
10	0.29	0.46	0.18		0.000000	White	Translucent	95%	Octahedral, twinned, graphite coating
11	0.43	0.34	0.16		0.000000	White	Transparent	75%	Fragment with Crystal Faces, minor cleavages
12	0.14	0.14	0.14		0.000000	White	Transparent	95%	Macle, twinned
12				0.059	0.000295	**Sub-Total**			
42					0.004375	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

APPENDIX B

EXPLANATION OF MICRODIAMOND EXTRACTION AND SELECTION PROCEDURE AND FLOWSHEET

DIAMOND EXTRACTION BY CAUSTIC DISSOLUTION

Introduction

Caustic dissolution of exploration samples efficiently produces a concentrate from which diamonds can readily be extracted during microscopic examination. The process uses diamond's property of high resistance to caustic soda (NaOH) and eliminates diamond size reduction and losses that often occur during extraction procedures that rely on crushing and attrition milling.

Procedure

The samples are processed according to the attached flowsheet. Very few minerals survive the harsh attack; therefore weight reductions commonly exceed 99% of the initial sample weight.

As-received samples are divided into equally sized charges of less than 8 kg. Smaller charge sizes are necessary if the sample contains a high proportion of carbonate minerals that are vigorously reactive with NaOH (evaluated by an acid test completed prior to charge preparation). If a high proportion of the sample is composed of fragments larger than 8 cm, simple breakage, crushing or attrition milling may be required, or the length of the dissolution process increased. Client consultation and approval is necessary before any size reduction of the sample is initiated.

After digestion in molten caustic soda, the sample is poured onto a large diameter 150 mesh screen. The + 150 mesh residue is liberated from the NaOH by washing the sample in a series of water and acid leach (HCl) baths. Once all of the NaOH is dissolved and removed, the concentrate is dried and screened on a 6 mesh screen to remove undigested material. The undigested material is examined microscopically by a mineralogist. If the + 6 mesh material is significant or consists of possible diamondiferous rock fragments, further digestion may be required. If the undigested material is of insignificant size or not considered as a possible source of diamonds, the - 6 mesh residue is further processed by a two (possibly three if the residue is large) stage magnetic separation procedure utilising a permanent magnet and a Frantz Barrier Magnetic Separator.

The magnetically characterised residue is then submitted for microscopic examination and diamond selection. (In addition to diamonds, the residue may contain partially undigested indicator minerals, colourless to opaque spinel, garnet, ilmenite, graphite, moissanite, zircon and kyanite.) Each of the magnetic fractions is examined at a magnification of 40x using a binocular microscope. Grains of questionable mineralogy are examined using a scanning electron microscope equipped with an energy dispersive spectral (SEM-EDS) analyser. Although each magnetically characterised fraction is examined, particular emphasis is given to the diamagnetic portion.

The X, Y and Z dimensions of selected microdiamonds are measured in millimetres. Macrodiamonds are weighed individually while microdiamonds are weighed in groups of 20 or 30 and the milligram weight, in each case, converted to carats. The colour, clarity and morphology of each diamond are determined and all observations reported in a Certificate of Analysis.

Quality Control

Routine quality control tests are utilised to evaluate the efficiency of the caustic dissolution processing technique by running blank samples spiked with "Congo Rounds". The chance of diamond or indicator mineral contamination is evaluated by running caustic soda blanks between client's samples and examining the residue for microdiamonds and indicator minerals. Recovery of the diamond spikes typically ranges from 97 to 100%. 1998 statistics showed that, on average, only a single indicator mineral grain was carried over into the caustic soda blanks run between different client's samples.

Each residue is picked twice by separate diamond pickers. Questionable grains are examined by SEM-EDS for verification.

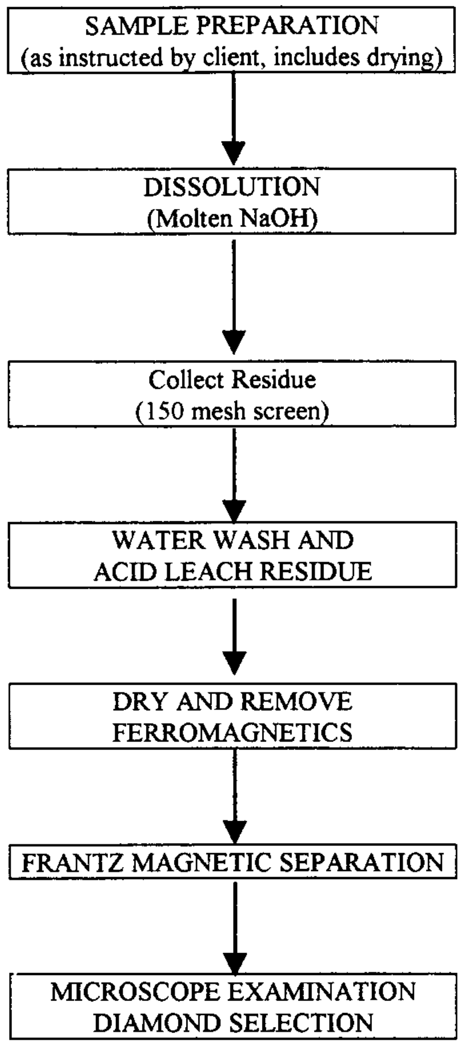
Every effort is made at each stage of sample handling during caustic dissolution, residue preparation and diamond picking to eliminate the possibility of contamination. These steps include:

- A rigorous sample tracking procedure.
- Dedicated screens and equipment for each sample during sample processing.
- Replacement of screens between each sample after pouring caustic soda.
- Thorough washing and scrubbing of all sample containers.
- Thorough cleaning of equipment used to prepare caustic residues between each processed sample.
- Sandblasting of each kiln pot once a month to remove any scale build-up that might entrap microdiamonds or indicator minerals.

Customized flowsheets for sample processing utilising caustic dissolution and other sample preparation techniques (magnetic, gravity, flotation, acid leaching, etc.) can be developed, in consultation with the client, to meet specialised requirements.

Lakefield Research Limited is not responsible for the determination of the origin, quality or valuation of any diamonds recovered unless otherwise instructed by the client.

Caustic Fusion Processing for Microdiamond Recovery



ANNEX 3

Lakefield Research Limited report - Diamond Indicator Mineral Extraction, Selection, Analysis and Evaluation

August 11, 2000

Sample submitted by Twin Mining Corporation

LakefieldResearch

Mineralogical Services

Diamond Indicator Mineral Extraction, Selection, Analysis and Evaluation

submitted by
Twin Mining

Project Managed by: Bruce Craig Jago, Ph.D.

Submission Date: August 11, 2000

Project No.: 8901-221/LIMS#JUN1004.R00

Summary

Chromite and garnet grains were selected from caustic fusion residues produced during microdiamond extraction of a sample of residual kimberlite from the Jackson Inlet project area. Electron microprobe data was obtained for approximately 100 grains of each mineral and an estimate of the diamond prospectivity of the kimberlite was made on the basis of a variety of mineral chemistry plots (Gurney 1985 and Dawson and Stephens (1975).

Interpretation of the data suggests that the garnet population comprises approximately:

- 5% G10 sub-calcic Cr-pyrope garnet derived from potentially diamondiferous garnet harzburgite source rocks,
- 70% G9 Cr-pyrope garnet derived from barren, lherzolitic source rocks,
- 20% G1 Ti-Cr-pyrope garnet having a megacrystic paragenesis, and,
- 5% G3 eclogitic garnet derived from high pressure, eclogitic source rocks of which 17% of the six analyses are compositionally similar to eclogitic garnet from diamondiferous eclogite xenoliths.

It is estimated that approximately 40% of the Jackson Inlet chromite population could have been derived from potentially diamondiferous chromite harzburgite. This is a significant number of analyses and points to a strong exploration potential for this kimberlite on this basis alone.

The relatively low number of high potential G10 harzburgitic garnets should not be used to discourage additional exploration and sampling. As indicated in the introduction, below, the garnet population may not be representative as it was selected from a caustic fusion residue in which garnet typically is not completely preserved.

Diamond Indicator Mineral Extraction, Selection, Analysis and Evaluation

Introduction

Relic diamond indicator minerals were selected from the caustic fusion residue that resulted from the processing (LIMS#JUN0003.R00) of a composite sample of residual kimberlite for microdiamonds from Twin Mining's Jackson Inlet property. With few exceptions, caustic fusion processing destroys the vast majority of the silicate indicator minerals although chromite and ilmenite often occur as relic phases, chromite sometimes exhibiting a euhedral crystal habit.

The caustic fusion residue from the Jackson Inlet sample contained abundant chromite and mantle-derived garnet grains of which approximately 120 grains of each were selected and submitted for electron microprobe analysis. **It must be cautioned that because garnet often is destroyed during the caustic fusion process that the garnet population selected from the caustic fusion residue may not representative of the of the garnet population at Jackson Inlet but this is unlikely to be the case for chromite which is more resistant.**

Lakefield uses a Jeol 733 Superprobe for microprobe analysis. It is operated at 15 KeV and 20 nA operating current and is calibrated using a variety of natural standards.

Diamond Indicator Mineral Evaluation

It is now widely recognised that diamond is xenocrystic having been liberated from a variety of mantle-derived xenoliths during ascent and emplacement into the upper crust and that it only has been carried from the upper mantle to the upper crust by kimberlite, lamproite and orangeite magmas. Further, there have only been three principal sources of diamond recognised as occurring in the upper mantle. This has been determined on the basis of the chemistry of the mineral suite that occurs as inclusions in diamond. The principal host rocks of diamond in the mantle are garnet-harzburgite, chromite-harzburgite and eclogite. Other minor sources include garnet-dunite, garnet-lherzolite, garnet-websterite and an as yet still undefined calc-silicate paragenesis. The diagnostic phase(s) in each of these rock types are, Cr-rich, sub-calcic pyrope garnet, Cr-Mg-rich chromite and, Na-bearing (>0.8 wt. % Na_2O) and K-bearing (>0.8 wt. % K_2O) eclogitic garnet and omphacitic pyroxene, respectively. Chromite and garnet in the Jackson Inlet samples were evaluated on this basis.

The principal tools used in diamond exploration and the economic evaluation of suspected diamondiferous host rocks are based on evaluations of microdiamond content, diamond indicator mineral chemistry and the proportion of diamond indicator minerals that are compositionally similar to the diamond inclusion suite. The diamond potential of the Jackson Inlet kimberlite was evaluated on the basis of the mineral chemistry of garnet and chromite using a variety of bi-variate plots, published mineral classification schemes such as those proposed by Dawson and Stephens (1975) and Gurney (1985), and a database of over 10,000 analyses of mantle-derived minerals compiled from the literature. An evaluation of the microdiamond content of the Jackson Inlet sample is beyond the scope of this work.

Interpretative plots are given in Appendix A. Related, electron microprobe analyses are given in Appendix B.

Interpretation

According to the classification scheme proposed by Dawson and Stephens (1975), the garnet population selected from the Jackson Inlet caustic fusion residue is dominated by G9 lherzolitic garnet (75%) with lesser amounts of G1 megacrystic (20%) and G3 eclogitic (5%) parageneses also being present (Table 1).

Table 1: Jackson Inlet Garnet Classification Based on Dawson and Stephens (1975)

# of Anal.	%	Dawson and Stephens (1975)
23	20	G1 Megacrystic
6	5	G3 Eclogitic
90	75	G9 Lherzolitic

Figure 1 shows that all of the G9 lherzolitic garnets as defined by Dawson and Stephens (1975) do not plot within the field of lherzolitic garnets as defined by Gurney's (1985) CaO vs Cr_2O_3 plot. This is a commonly encountered discrepancy (e.g. Mitchell 1986) between the two classification schemes. It arises partially because Gurney's (1985) plot is a two dimensional representation of six dimensional geochemical data and because of the small size of the database used by Dawson and Stephens' (1975) to establish their classification scheme.

Gurney's (1985) plot originally was developed to separate garnets of known lherzolitic parentage from harzburgitic garnets (which are compositionally similar to peridotitic garnet inclusions in diamond) and was not based on Dawson and Stephens' (1975) classification scheme as many people believe. The dividing line constructed by Gurney (1985) to separate lherzolitic and harzburgitic garnets was based on a number of garnet populations from kimberlites in the Cape Val craton of South Africa. Further, Gurney (1985) determined that about 85% of peridotitic garnet inclusions in diamond plotted on the Ca-poor side of the boundary and the line was known, at the time of development, as the "diamond-in" line or "Gurney's 85% line". On this plot, Gurney also divided diamond inclusion garnets of peridotitic from eclogitic paragenesis on the basis of Cr-content, with those having less than 2 wt. % Cr_2O_3 being of eclogitic parentage.

Using Gurney's (1985) classification scheme, seven of the G9 lherzolitic garnets would be reclassified as G10 harzburgitic garnets or sub-calcic Cr-pyropes. Table 2 summarises a combined classification based on the Gurney (1985) and Dawson and Stephens' (1975) schemes.

Table 2: Combined, Gurney 91985) and Dawson and Stephens' (1975) Classification of Garnet from Jackson Inlet Caustic Fusion Residues

# of Anal.	%	Gurney (1985)	Dawson and Stephens (1975)
23	20	Megacrystic	G1 Megacrystic
6	5	Eclogitic	G3 Eclogitic
83	70	Lherzolitic	G9 Lherzolitic
7	5	Harzburgitic	G9 Lherzolitic
119	**100**		

The compositional distinction between peridotitic, megacrystic and eclogitic garnet and their compositional similarity to garnet inclusions in diamond also are illustrated in Figure 2. This plot also shows that there is considerable compositional overlap between the compositional groups.

Figure 3 was constructed by McCandless and Gurney (1986) to distinguish between eclogitic garnet that had been derived from barren, versus diamondiferous, eclogitic xenoliths. The diagram's theoretical basis is that there is a positive correlation between the proportion of Na entering the lattice of eclogitic garnet and pressure. Hence, eclogitic garnet derived from the diamond stability field in the mantle could have a high Na content. On the basis of over 400 analyses, McCandless and Gurney (1986) chose 0.8 wt. % Na_2O as the approximate limit between barren and diamondiferous eclogitic source rocks. Schulze (1997) recently up-dated the figure to include fields for megacrystic garnet while the field of "garnet of mixed paragenesis" was added for this project as it includes garnet from diverse source in the mantle.

Figure 3 clearly shows that one of the Jackson Inlet eclogitic garnets (17%) plots well within the field of garnet from diamondiferous eclogite xenoliths. The other eclogitic garnets plot with the field of garnet of mixed parageneses, including barren eclogite xenoliths, but these clearly have elevated Na_2O contents suggesting that they also were derived from a high pressure, albeit, potentially barren, upper mantle environment.

Chromite

Jackson Inlet chromite data are plotted on Figures 5 and 6. Both diagrams were constructed to illustrate the relatively unique Cr- and Mg-rich, Ti-poor nature of chromite inclusions in diamond and diamondiferous chromite harzburgite xenoliths compared to chromite from a wide variety of upper mantle and crustal, mafic and ultramafic source rocks. As such, the diagrams can be used to estimate the proportion of chromite that is present in an exploration sample that could have been derived from potentially diamondiferous mantle sources. However, it must be recognised that there is some compositional overlap between Mg- and Cr-rich phenocrystal and xenocrystal chromite from barren sources and this somewhat unique compositional field.

A review of Figures 5 and 6 and chromite microprobe data (Table 2, Appendix B) suggests that about 40% of Jackson Inlet chromite shows strong compositional similarities with chromite inclusions in diamond. These chromite, therefore, could have been derived from potentially diamondiferous, chromite harzburgite source rocks. This is a significant number of analyses and suggests an excellent exploration potential on this basis.

Conclusions

Interpretation of the data suggests that the garnet population comprises approximately:

- 5% G10 sub-calcic Cr-pyrope garnet derived from potentially diamondiferous garnet harzburgite source rocks,
- 70%, G9 Cr-pyrope garnet derived from barren, lherzolitic source rocks,
- 20% G1 Ti-Cr-pyrope garnet having a megacrystic paragenesis, and,
- 5% G3 eclogitic garnet derived from high pressure, eclogitic source rocks of which 17% of the six analyses are compositionally similar to eclogitic garnet from diamondiferous eclogite xenoliths.

It is estimated that approximately 40% of the Jackson Inlet chromite population could have been derived from potentially diamondiferous chromite harzburgite. This is a significant number of analyses and points to a strong exploration potential for this kimberlite on this basis alone.

The relatively low number of high potential G10 harzburgitic garnets should not be used to discourage additional exploration and sampling. As indicated above, the garnet population may not be representative as it was selected from a caustic fusion residue in which garnet typically is not completely preserved.

Recommendations

Sampling of fresh kimberlite for microdiamond and diamond indicator mineral content and mineral chemistry evaluation is strongly recommended. If possible, microdiamond sample sites should be evenly distributed on a 25 x 25m grid pattern across the outcrop exposure of the exposed kimberlite pipe or dyke with individual samples being not less than 24 kg. Samples should be selected from the core and margins of suspected dykes to account for variations in the microdiamond content due to flow differentiation. Samples from discrete intrusive phases should be kept separate as microdiamond and macrodiamond contents can be very different between intrusive phases.

If fresh kimberlite only can be accessed by diamond drilling, discrete intrusive phases should be sampled separately with 50-100 kg of sample material being sent for analysis from each intrusive phase.

Microprobe analysis and an evaluation of the diamond indicator mineral chemistry should be performed on a representative suite of diamond indicator minerals (including 75-100 grains each of chromite, garnet and clinopyroxene) derived from about 10kg samples of each intrusive phase.

Encouraging microdiamond and diamond indicator mineral chemistry data should result in a comprehensive microdiamond sampling campaign using diamond drill core followed by mini-bulk and bulk sampling programs if warranted.

LAKEFIELD RESEARCH LIMITED

Bruce Craig Jago, Ph.D.
Manager – Mineralogical Services
Lakefield Research Limited

August 21, 2000

Technical Support: Rob Gill, Scott Young, Jeff Voyer and Rick Wittekoek.

APPENDIX A

Diamond Indicator Mineral Plots

Figure 1: CaO vs Cr_2O_3 Garnet Plot

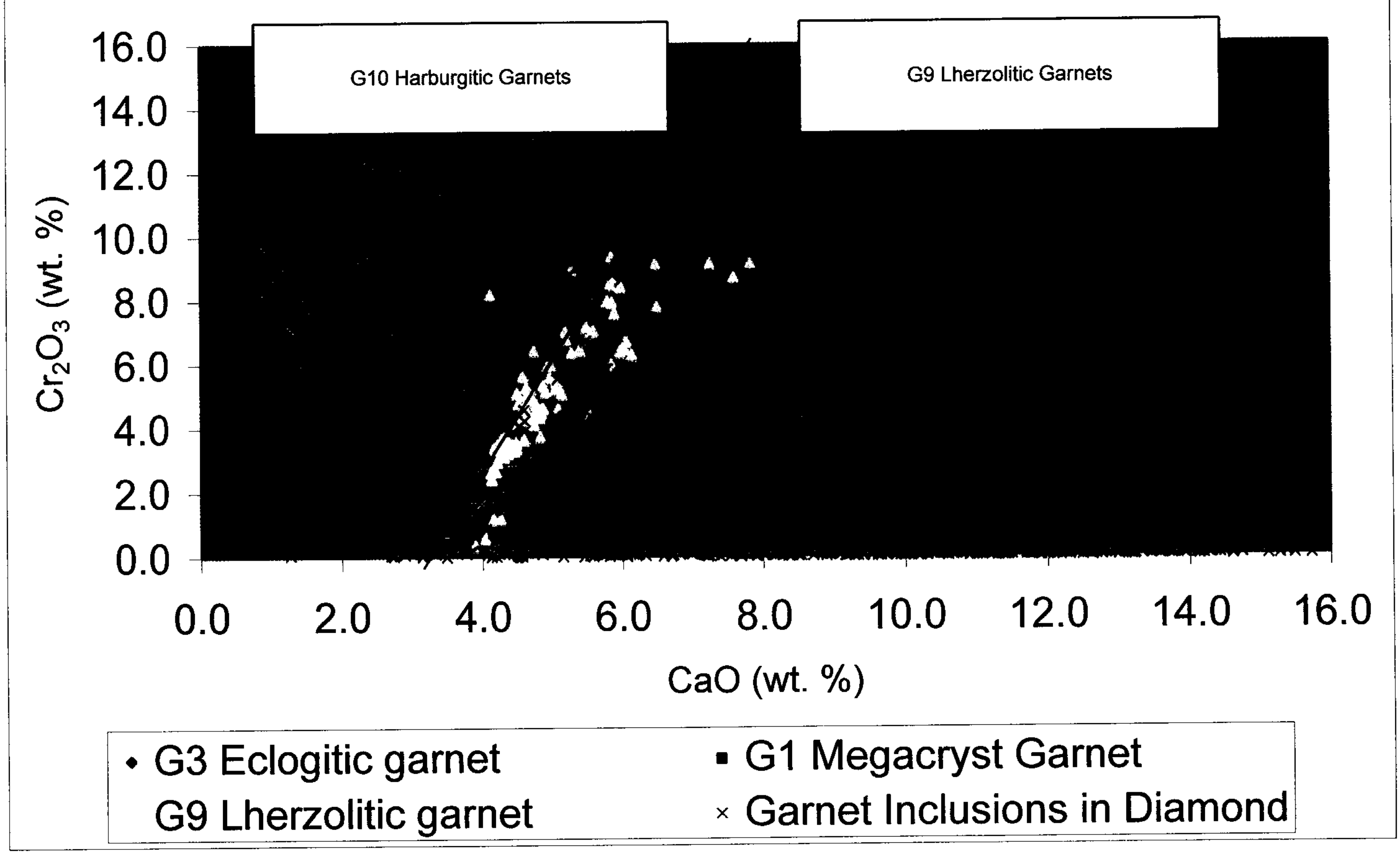


Figure 2: Cr_2O_3 vs TiO_2 Garnet Plot

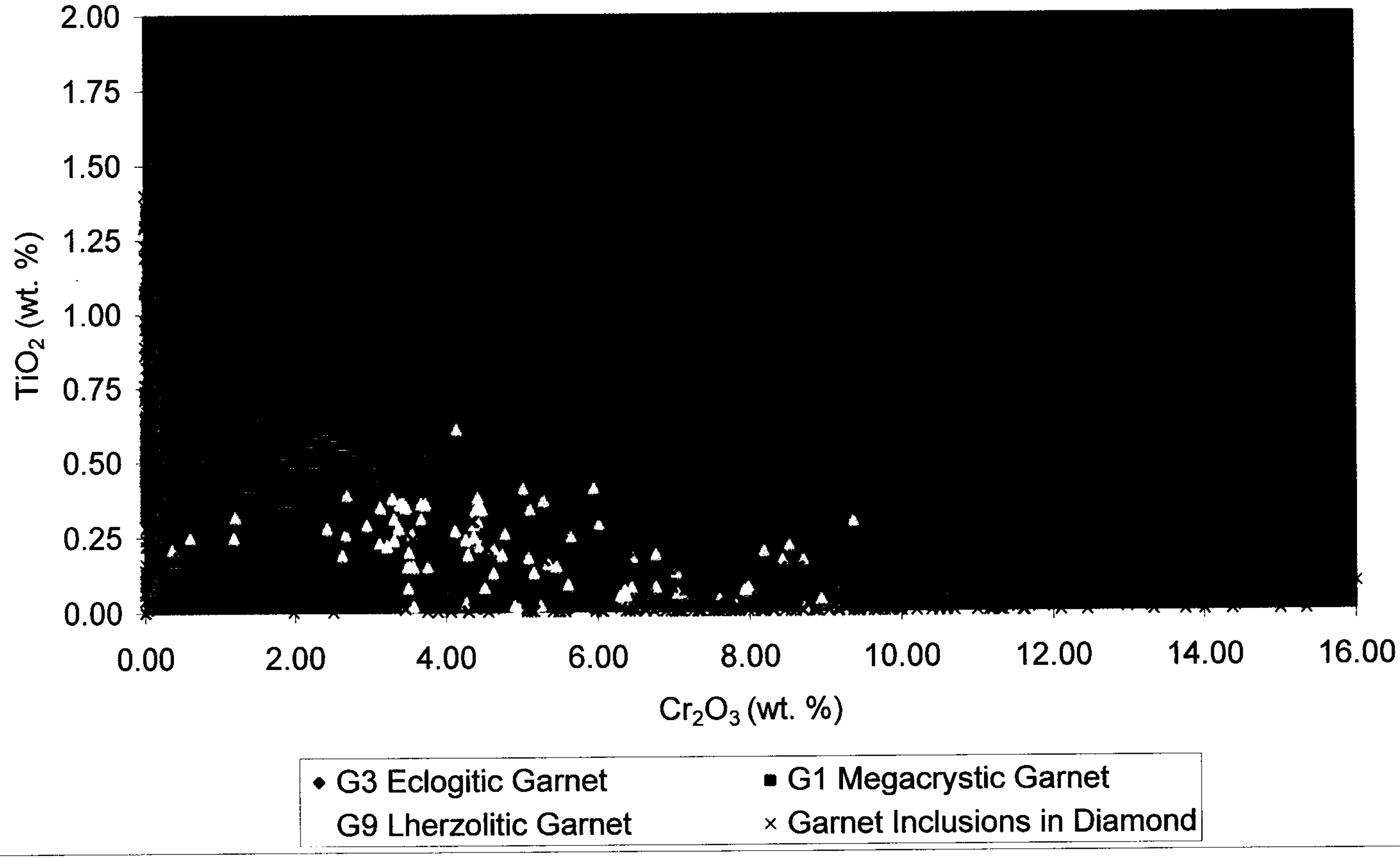
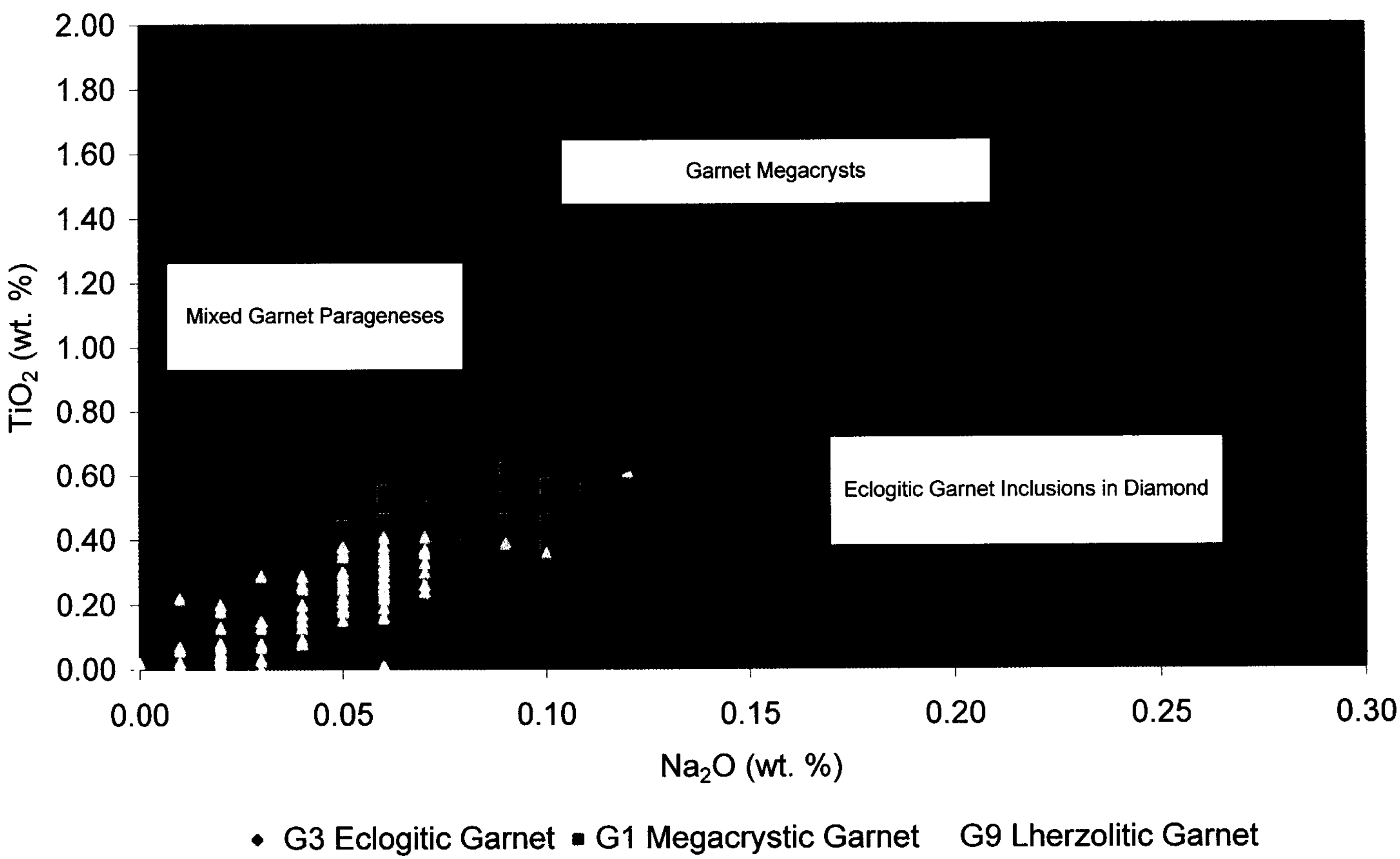


Figure 3: Na_2O vs TiO_2 Garnet Plot



Schulze (1999)

Figure 4: MgO vs Cr_2O_3 Chromite Plot

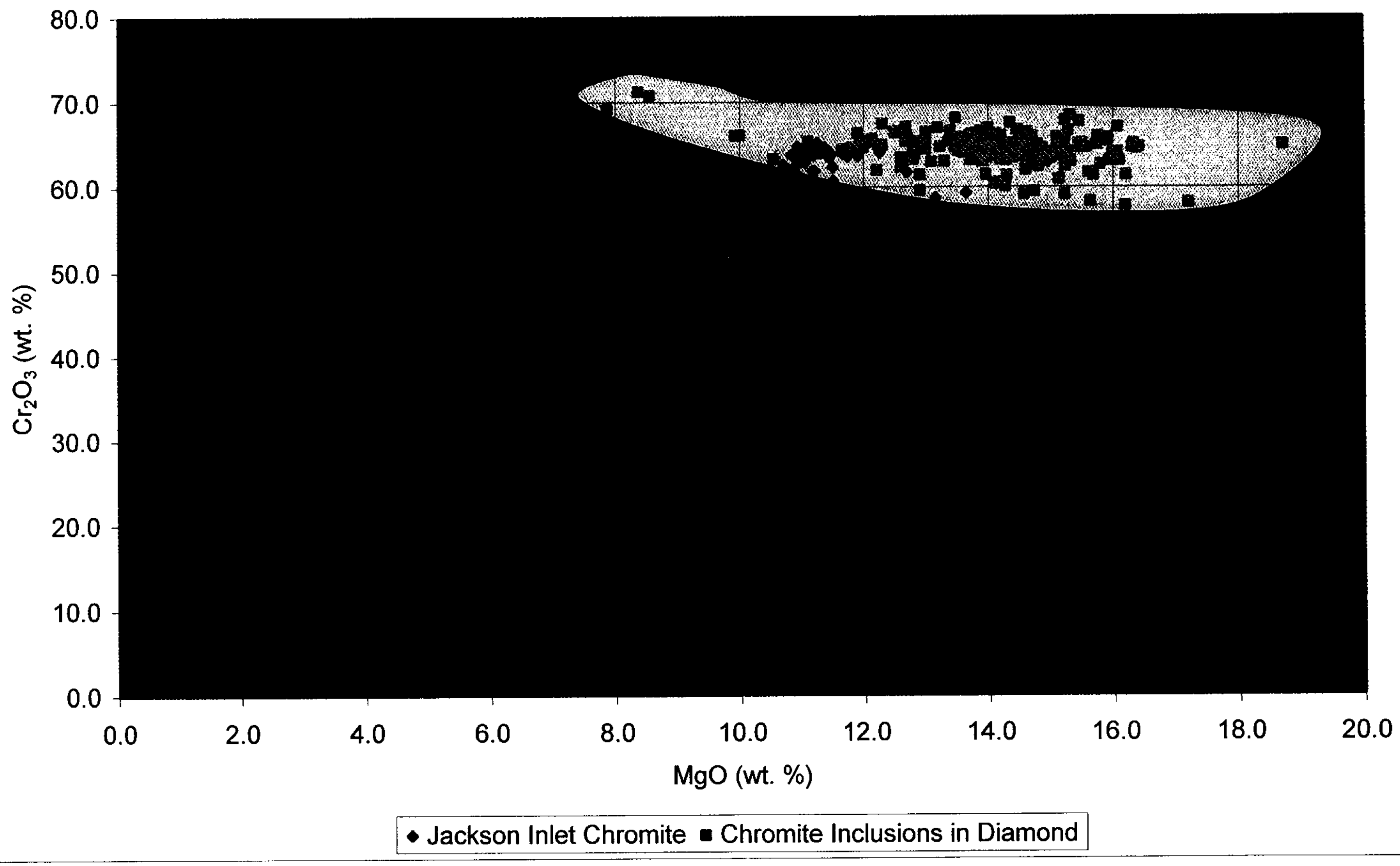
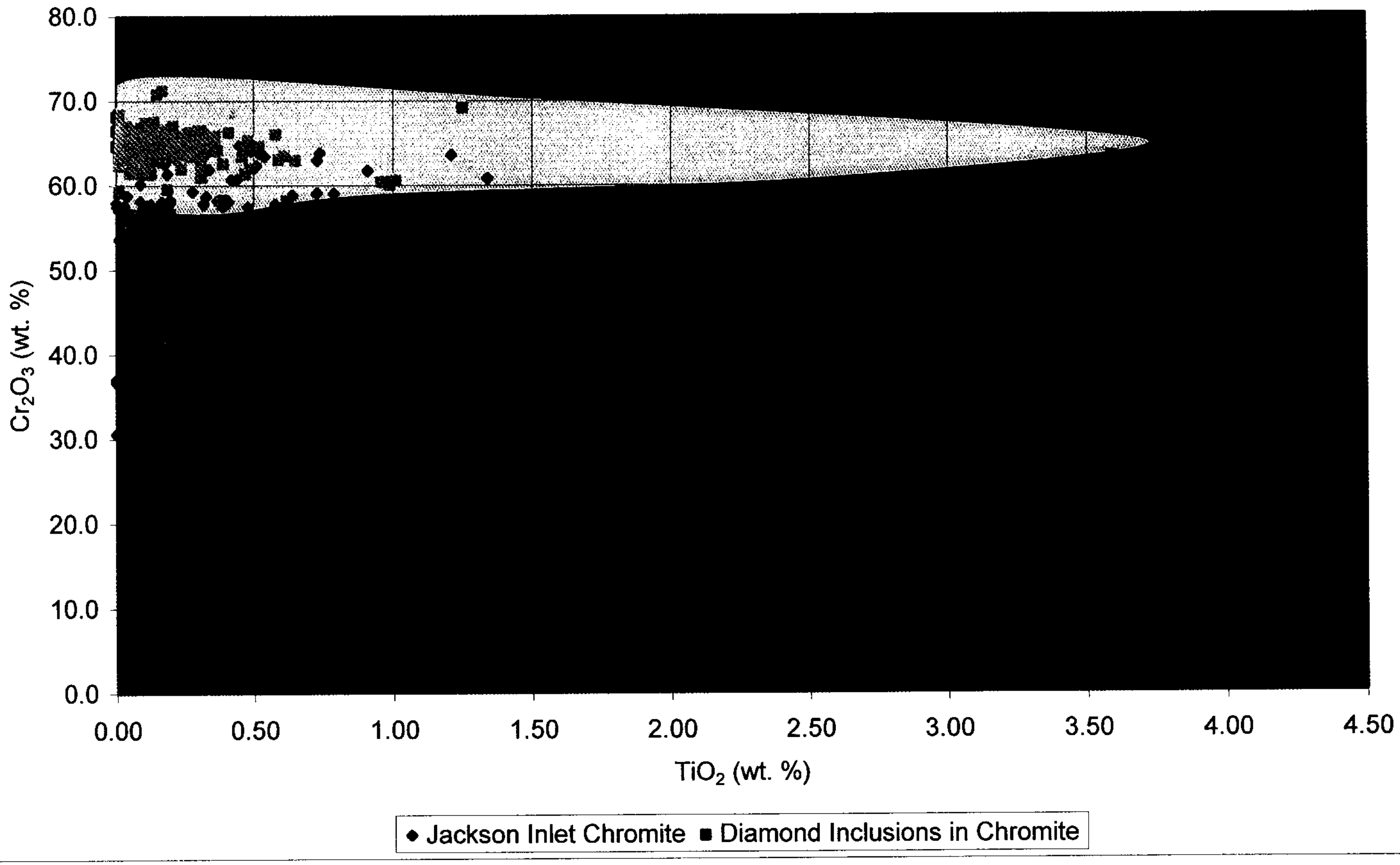


Figure 5: TiO_2 vs Cr_2O_3 Chromite Plot



APPENDIX B

Electron Microprobe Analyses of Garnet and Chromite

Table 1: Garnet Electron Microprobe Analysis

		Anal. #	SiO2	TiO2	Al2O3	FeO	MgO	CaO	MnO	Cr2O3	Na2O	Total
Megacrystic	G1	59	41.53	0.51	21.21	8.00	21.06	4.12	0.24	2.54	0.10	99.31
Megacrystic	G1	64	41.53	0.57	21.48	7.62	21.41	3.95	0.28	2.40	0.10	99.33
Megacrystic	G1	65	41.88	0.49	21.76	7.71	21.78	4.00	0.25	1.82	0.07	99.76
Megacrystic	G1	66	41.94	0.53	21.67	7.67	21.63	4.03	0.23	2.12	0.09	99.92
Megacrystic	G1	67	41.79	0.52	20.96	7.95	21.04	4.44	0.26	2.63	0.06	99.66
Megacrystic	G1	69	41.81	0.44	21.80	7.39	21.35	4.20	0.22	2.20	0.05	99.45
Megacrystic	G1	71	41.75	0.39	21.34	7.89	21.00	4.38	0.23	2.49	0.07	99.53
Megacrystic	G1	72	41.78	0.46	22.02	8.09	21.17	3.96	0.26	1.95	0.09	99.79
Megacrystic	G1	75	41.88	0.13	23.94	9.19	20.95	3.52	0.24	0.41	0.06	100.32
Megacrystic	G1	76	41.65	0.62	21.69	8.26	21.10	3.90	0.23	1.49	0.09	99.06
Megacrystic	G1	77	41.78	0.53	21.41	7.58	21.28	4.25	0.24	2.34	0.09	99.50
Megacrystic	G1	81	42.09	0.56	21.74	7.56	21.17	3.97	0.24	2.33	0.11	99.76
Megacrystic	G1	82	41.61	0.38	22.54	9.37	20.00	4.01	0.26	1.40	0.08	99.63
Megacrystic	G1	84	41.57	0.46	21.79	8.15	20.96	4.01	0.26	2.26	0.10	99.55
Megacrystic	G1	85	41.66	0.53	21.76	7.57	21.37	3.97	0.23	2.26	0.09	99.43
Megacrystic	G1	86	41.54	0.56	21.89	8.73	21.23	3.90	0.21	1.45	0.10	99.60
Megacrystic	G1	92	41.58	0.33	22.00	7.51	21.24	4.07	0.25	1.88	0.07	98.93
Megacrystic	G1	94	41.24	0.38	23.09	9.91	19.74	3.98	0.28	0.38	0.10	99.10
Megacrystic	G1	96	41.08	0.50	20.74	7.77	21.03	4.25	0.26	2.76	0.07	98.45
Megacrystic	G1	97	41.16	0.30	22.45	8.89	20.07	4.24	0.31	1.83	0.07	99.33
Megacrystic	G1	106	41.17	0.55	20.84	7.84	20.97	4.37	0.31	2.50	0.06	98.60
Megacrystic	G1	116	41.24	0.55	21.44	7.21	21.24	3.92	0.32	2.47	0.10	98.51
Megacrystic	G1	119	41.35	0.46	23.86	7.64	20.36	4.28	0.24	3.13	0.06	101.37
Eclogitic	G3	80	39.70	0.10	22.89	20.79	12.08	4.55	0.35	0.01	0.07	100.54
Eclogitic	G3	87	39.55	0.09	22.74	20.57	12.04	4.55	0.36	0.20	0.08	99.99
Eclogitic	G3	89	38.93	0.10	22.55	20.87	11.64	4.47	0.35	0.01	0.07	99.00
Eclogitic	G3	91	38.69	0.12	22.39	20.53	11.68	4.50	0.36	0.02	0.10	98.38
Eclogitic	G3	93	38.39	0.04	22.23	23.86	9.88	4.30	0.23	0.12	0.04	99.08
Eclogitic	G3	98	40.67	0.13	23.22	11.32	15.01	9.24	0.19	0.18	0.05	100.01
Lherzolitic	G9	29	40.25	0.04	18.27	6.90	19.13	5.89	0.37	7.60	0.02	98.46
Lherzolitic	G9	30	41.09	0.38	21.06	7.34	21.11	4.30	0.26	3.29	0.05	98.89
Lherzolitic	G9	31	40.92	0.36	19.94	6.91	21.01	4.80	0.27	4.44	0.05	98.69
Lherzolitic	G9	32	41.00	0.25	19.31	7.00	20.34	4.58	0.27	5.65	0.05	98.44
Lherzolitic	G9	33	40.11	0.17	16.88	6.86	19.31	5.90	0.34	8.71	0.04	98.32
Lherzolitic	G9	34	41.17	0.00	21.50	6.87	21.06	4.37	0.27	3.43	0.03	98.70
Lherzolitic	G9	35	41.14	0.28	20.86	7.22	21.20	4.48	0.24	3.37	0.05	98.83
Lherzolitic	G9	36	40.50	0.17	17.31	7.59	18.76	5.98	0.38	8.43	0.04	99.16
Lherzolitic	G9	37	40.15	0.02	18.01	8.35	17.49	6.50	0.46	7.82	0.00	98.81
Lherzolitic	G9	38	41.04	0.19	20.18	8.01	20.09	4.77	0.33	4.74	0.06	99.41
Lherzolitic	G9	39	41.59	0.41	19.78	7.17	20.36	4.63	0.27	5.02	0.06	99.31
Lherzolitic	G9	40	41.32	0.18	19.78	7.60	19.73	5.14	0.33	5.09	0.02	99.18
Lherzolitic	G9	41	41.15	0.39	21.65	6.75	21.54	4.17	0.25	2.69	0.09	98.70
Lherzolitic	G9	42	39.95	0.01	17.36	8.39	16.47	7.59	0.49	8.73	0.06	99.05
Lherzolitic	G9	43	40.78	0.18	18.79	6.91	19.92	5.40	0.28	6.46	0.05	98.78
Lherzolitic	G9	44	40.67	0.15	19.52	7.15	20.32	5.07	0.28	5.46	0.03	98.64
Lherzolitic	G9	45	40.71	0.16	19.57	7.20	20.46	4.87	0.30	5.35	0.06	98.68
Lherzolitic	G9	46	40.73	0.15	21.26	7.61	20.10	4.83	0.34	3.76	0.05	98.82
Lherzolitic	G9	47	40.96	0.35	21.01	7.38	20.59	4.46	0.25	3.47	0.06	98.54
Lherzolitic	G9	48	41.13	0.61	20.15	6.66	21.21	4.50	0.27	4.14	0.12	98.80
Lherzolitic	G9	49	41.01	0.01	18.82	8.28	18.12	6.06	0.39	6.73	0.01	99.44
Lherzolitic	G9	50	39.97	0.01	18.87	7.81	18.43	6.03	0.34	6.50	0.01	97.98
Lherzolitic	G9	51	41.45	0.24	21.23	7.99	20.36	4.27	0.28	3.31	0.07	99.20
Lherzolitic	G9	52	41.32	0.02	21.28	7.01	20.77	4.38	0.24	3.57	0.02	98.61
Lherzolitic	G9	53	40.95	0.38	19.92	7.14	20.80	4.75	0.25	4.42	0.06	98.67
Lherzolitic	G9	54	41.91	0.31	20.63	7.64	20.96	4.60	0.24	3.67	0.06	100.00
Lherzolitic	G9	55	41.46	0.02	19.97	7.29	20.40	5.05	0.25	5.25	0.01	99.70
Lherzolitic	G9	56	41.54	0.15	21.21	6.61	21.43	4.45	0.24	3.49	0.04	99.16
Lherzolitic	G9	57	40.78	0.07	16.36	7.28	18.72	6.48	0.28	9.14	0.01	99.12
Lherzolitic	G9	58	41.16	0.07	18.67	7.42	19.89	5.28	0.25	6.36	0.02	99.13

		Anal. #	SiO2	TiO2	Al2O3	FeO	MgO	CaO	MnO	Cr2O3	Na2O	Total
Lherzolitic	G9	60	40.35	0.04	16.99	7.69	19.27	5.28	0.34	8.95	0.02	98.93
Lherzolitic	G9	61	40.58	0.04	19.39	8.07	18.58	5.97	0.35	6.40	0.02	99.42
Lherzolitic	G9	62	41.51	0.08	18.83	7.09	19.61	5.50	0.30	6.77	0.03	99.70
Lherzolitic	G9	63	41.83	0.21	23.36	10.61	19.67	3.90	0.24	0.37	0.05	100.24
Lherzolitic	G9	68	41.12	0.19	18.36	6.83	20.45	5.20	0.27	6.77	0.06	99.26
Lherzolitic	G9	70	41.73	0.25	23.33	8.40	21.04	4.04	0.17	0.61	0.05	99.62
Lherzolitic	G9	73	40.88	0.20	17.49	6.70	21.14	4.12	0.27	8.19	0.02	99.01
Lherzolitic	G9	74	41.04	0.30	16.18	6.97	19.60	5.85	0.31	9.37	0.05	99.67
Lherzolitic	G9	78	41.95	0.32	23.00	7.62	20.94	4.26	0.25	1.21	0.06	99.62
Lherzolitic	G9	79	41.16	0.41	18.78	7.85	20.29	4.93	0.27	5.95	0.07	99.71
Lherzolitic	G9	83	40.83	0.08	17.51	7.24	19.28	5.79	0.30	7.98	0.02	99.04
Lherzolitic	G9	88	41.99	0.29	21.33	7.74	21.14	4.21	0.25	2.95	0.06	99.95
Lherzolitic	G9	90	41.25	0.26	21.04	7.33	21.27	4.19	0.24	2.67	0.07	98.32
Lherzolitic	G9	95	41.17	0.25	22.62	10.33	19.30	4.16	0.32	1.19	0.06	99.39
Lherzolitic	G9	99	40.29	0.05	19.17	8.26	18.61	6.14	0.37	6.30	0.02	99.20
Lherzolitic	G9	100	41.18	0.36	20.71	7.13	21.30	4.27	0.25	3.67	0.10	98.96
Lherzolitic	G9	101	40.74	0.27	20.47	7.40	20.52	4.74	0.26	4.12	0.06	98.58
Lherzolitic	G9	102	41.25	0.19	20.27	7.41	20.50	4.51	0.27	4.29	0.05	98.75
Lherzolitic	G9	103	40.87	0.13	18.38	6.87	20.45	5.19	0.26	7.03	0.02	99.21
Lherzolitic	G9	104	40.06	0.01	16.78	8.19	16.81	7.25	0.40	9.16	0.01	98.66
Lherzolitic	G9	105	40.83	0.31	20.90	7.33	20.90	4.46	0.24	3.31	0.06	98.34
Lherzolitic	G9	107	40.91	0.19	21.68	7.87	20.81	4.12	0.34	2.63	0.06	98.62
Lherzolitic	G9	108	40.64	0.08	18.84	6.80	20.63	4.74	0.33	6.45	0.04	98.56
Lherzolitic	G9	109	41.55	0.22	20.34	7.13	79.87	4.62	0.31	4.45	0.01	98.49
Lherzolitic	G9	110	40.84	0.03	20.64	6.88	20.89	4.58	0.36	4.27	0.03	98.51
Lherzolitic	G9	111	40.82	0.26	19.99	7.28	20.44	4.52	0.37	4.78	0.05	98.52
Lherzolitic	G9	112	40.64	0.24	20.56	7.31	20.66	4.54	0.35	4.26	0.06	98.63
Lherzolitic	G9	113	41.06	0.28	21.33	8.02	21.04	4.13	0.31	2.43	0.05	98.65
Lherzolitic	G9	114	41.36	0.08	21.10	7.46	20.78	4.40	0.35	3.50	0.02	99.06
Lherzolitic	G9	115	40.89	0.29	18.65	7.72	20.41	4.98	0.33	6.02	0.03	99.32
Lherzolitic	G9	117	41.00	0.08	9.86	7.53	20.40	4.84	0.29	4.51	0.03	98.53
Lherzolitic	G9	118	40.97	0.15	20.92	7.01	21.22	4.22	0.30	3.51	0.03	98.33
Lherzolitic	G9	120	40.80	0.09	19.46	7.61	19.73	4.97	0.32	5.61	0.04	98.63
Lherzolitic	G9	121	42.03	0.22	21.75	7.83	20.75	4.36	0.32	3.22	0.06	100.53
Lherzolitic	G9	122	41.20	0.23	20.75	7.45	20.39	4.31	0.30	3.12	0.06	97.83
Lherzolitic	G9	124	41.73	0.26	21.09	7.36	20.92	4.48	0.29	3.55	0.04	99.72
Lherzolitic	G9	125	41.09	0.36	20.48	7.37	21.02	4.31	0.35	3.73	0.06	98.77
Lherzolitic	G9	126	40.89	0.34	19.60	6.91	21.11	4.50	0.32	5.11	0.06	98.84
Lherzolitic	G9	127	40.07	0.03	17.18	8.31	16.51	7.83	0.42	9.15	0.02	99.52
Lherzolitic	G9	128	40.54	0.04	18.19	7.19	19.69	5.49	0.35	7.17	0.02	98.68
Lherzolitic	G9	129	41.72	0.20	20.92	7.34	20.81	4.48	0.27	3.51	0.04	99.29
Lherzolitic	G9	130	40.91	0.22	17.06	7.29	18.92	5.83	0.32	8.52	0.05	99.13
Lherzolitic	G9	131	41.11	0.01	19.58	7.87	18.38	5.85	0.42	6.00	0.02	99.23
Lherzolitic	G9	132	41.01	0.30	20.06	7.03	21.07	5.54	0.31	4.42	0.07	98.83
Lherzolitic	G9	133	42.00	0.21	20.56	7.52	19.54	5.09	0.36	4.63	0.05	99.97
Lherzolitic	G9	134	41.90	0.29	20.14	7.35	20.15	4.79	0.28	4.37	0.04	99.58
Lherzolitic	G9	135	41.18	0.36	20.92	7.17	21.52	4.34	0.27	3.43	0.07	99.26
Lherzolitic	G9	136	40.81	0.34	19.72	7.34	20.98	4.65	0.30	4.48	0.06	98.69
Lherzolitic	G9	137	41.23	0.01	20.14	7.02	20.77	4.69	0.27	4.96	0.02	99.12
Lherzolitic	G9	138	42.01	0.15	21.28	7.43	20.21	4.37	0.30	3.57	0.03	99.34
Lherzolitic	G9	139	41.47	0.25	20.06	7.51	20.14	4.82	0.28	4.37	0.04	98.94
Lherzolitic	G9	140	41.55	0.36	20.97	7.06	20.72	4.17	0.26	3.39	0.07	98.55
Lherzolitic	G9	141	41.87	0.33	20.78	7.22	20.41	4.66	0.29	4.37	0.07	100.00
Lherzolitic	G9	142	41.10	0.02	20.28	6.80	20.93	4.72	0.31	4.91	0.02	99.10
Lherzolitic	G9	143	40.42	0.07	17.31	7.09	19.48	5.86	0.30	7.93	0.03	98.48
Lherzolitic	G9	144	41.12	0.35	20.81	7.51	21.12	4.26	0.29	3.13	0.05	98.64
Lherzolitic	G9	145	41.37	0.13	20.36	7.22	20.02	4.87	0.29	4.63	0.04	98.92
Lherzolitic	G9	146	41.74	0.37	19.38	6.94	20.81	4.63	0.31	5.29	0.07	99.55
Lherzolitic	G9	147	41.58	0.06	18.70	7.26	19.68	5.59	0.33	7.05	0.01	100.27
Lherzolitic	G9	152	40.92	0.13	19.72	7.12	20.50	4.90	0.34	5.16	0.03	98.81

Table 2: Chromite Electron Microprobe Analysis

	TiO2	Cr2O3	Al2O3	FeO	MgO	MnO	ZnO	NiO	Total
1	0.20	57.01	14.74	15.38	11.56	0.29	0.11	0.07	99.36
2	0.20	58.00	12.21	17.57	11.02	0.31	0.15	0.09	99.56
3	0.16	57.07	13.18	17.12	11.23	0.28	0.15	0.05	99.25
4	0.54	63.42	6.24	17.77	10.98	0.32	0.06	0.05	99.39
5	0.64	58.86	11.68	16.81	11.41	0.30	0.12	0.06	99.87
6	0.07	52.64	19.18	15.24	12.35	0.28	0.16	0.06	99.99
7	4.05	55.89	4.40	23.40	11.00	0.30	0.07	0.19	99.29
8	0.22	63.17	6.14	18.07	11.00	0.31	0.09	0.10	99.10
9	0.07	41.64	29.36	13.84	14.56	0.23	0.12	0.11	99.94
10	0.37	58.20	12.56	17.55	11.15	0.29	0.13	0.04	100.28
11	0.13	57.80	12.94	16.95	11.11	0.27	0.16	0.04	99.39
12	0.07	65.12	5.58	16.29	11.91	0.26	0.05	0.10	99.37
13	0.10	20.48	50.53	11.15	18.45	0.12	0.15	0.21	101.18
14	0.74	63.80	5.04	18.51	10.84	0.31	0.05	0.13	99.43
15	0.08	61.45	10.35	17.14	9.91	0.31	0.17	0.04	99.46
16	0.01	57.07	15.14	15.90	11.32	0.26	0.17	0.04	99.92
17	0.12	57.71	13.31	17.04	11.23	0.28	0.16	0.05	99.91
18	0.48	57.46	11.96	18.10	11.08	0.27	0.15	0.08	99.58
19	0.12	63.66	6.55	16.86	11.19	0.25	0.08	0.09	98.80
20	0.46	54.47	6.83	27.07	9.78	0.28	0.05	0.17	99.11
21	0.11	53.51	16.58	17.81	11.10	0.30	0.19	0.05	99.66
22	0.10	56.48	15.17	15.69	11.44	0.25	0.13	0.03	99.29
23	0.19	42.10	28.37	11.91	16.61	0.14	0.09	0.17	99.58
24	0.33	65.17	5.13	17.14	11.25	0.29	0.10	0.09	99.50
25	0.04	64.76	5.86	15.63	11.90	0.24	0.03	0.08	98.54
26	0.03	57.59	15.01	15.14	11.99	0.27	0.13	0.06	100.23
27	0.79	59.04	10.90	16.92	11.01	0.25	0.16	0.07	99.15
28	0.14	63.41	6.57	17.54	10.94	0.26	0.06	0.08	99.01
29	0.12	63.61	7.03	17.10	11.08	0.30	0.11	0.08	99.42
30	1.34	60.84	5.79	19.67	10.74	0.29	0.07	0.12	98.85
31	0.33	64.27	5.84	17.23	11.10	0.30	0.09	0.08	99.24
32	0.64	55.38	12.86	19.17	10.84	0.28	0.19	0.07	99.45
33	0.45	64.71	4.31	18.77	10.93	0.30	0.08	0.13	99.69
34	0.05	52.43	17.36	17.90	11.29	0.27	0.15	0.08	99.54
35	0.39	57.54	12.60	17.21	11.28	0.26	0.11	0.08	99.48
36	1.18	48.17	9.55	29.81	9.15	0.29	0.06	0.18	98.40
37	0.80	54.72	11.49	20.14	10.99	0.28	0.16	0.13	98.71
38	0.42	60.69	10.59	15.11	11.51	0.31	0.14	0.08	98.85
39	0.79	56.88	11.49	19.03	10.15	0.29	0.14	0.07	98.84
40	1.89	49.63	9.55	26.16	10.65	0.30	0.06	0.16	98.38
41	0.41	58.10	12.28	16.95	11.18	0.30	0.16	0.07	99.44
42	0.32	57.83	12.07	18.64	10.24	0.29	0.15	0.09	99.63
43	0.51	62.34	6.23	17.69	11.50	0.27	0.06	0.12	98.71
44	0.12	53.08	17.69	15.72	12.22	0.22	0.23	0.07	99.35
45	0.73	59.10	9.81	17.89	10.88	0.28	0.15	0.09	98.91
46	0.33	63.81	6.13	16.95	11.48	0.29	0.06	0.13	99.17
47	0.11	36.42	30.91	19.09	13.06	0.24	0.08	0.11	100.03
48	0.44	60.71	10.78	15.76	11.19	0.30	0.16	0.07	99.41

	TiO2	Cr2O3	Al2O3	FeO	MgO	MnO	ZnO	NiO	Total
49	0.01	57.19	14.75	15.64	11.34	0.27	0.21	0.07	99.49
50	0.14	57.29	14.85	15.40	11.08	0.29	0.22	0.06	99.34
51	0.09	56.25	12.78	19.78	10.16	0.29	0.17	0.11	99.63
52	0.09	58.15	11.95	17.53	11.00	0.29	0.15	0.08	99.24
53	3.19	54.96	5.21	24.03	10.74	0.32	0.12	0.17	98.74
54	1.76	55.19	5.86	26.13	9.45	0.29	0.05	0.17	98.90
55	0.65	52.38	10.21	25.07	9.76	0.28	0.07	0.12	98.53
56	0.00	30.59	40.20	12.72	15.58	0.15	0.28	0.14	99.67
57	0.06	64.39	5.73	15.88	11.86	0.26	0.09	0.12	98.39
58	0.30	63.42	6.11	17.63	10.57	0.31	0.09	0.07	98.49
59	0.00	57.97	13.41	16.03	10.90	0.32	0.21	0.07	98.91
60	0.13	57.62	11.10	18.19	10.72	0.26	0.18	0.09	98.30
61	1.21	63.60	5.22	15.82	11.91	0.28	0.07	0.19	98.30
62	2.75	56.49	4.94	23.09	10.61	0.38	0.07	0.16	98.49
63	0.19	61.34	10.85	15.57	10.95	0.32	0.11	0.03	99.36
64	0.04	58.79	13.32	15.66	11.07	0.27	0.17	0.06	99.38
65	0.09	64.98	5.02	16.69	11.94	0.26	0.05	0.08	99.11
66	0.10	57.35	12.92	16.92	11.25	0.31	0.07	0.10	99.04
67	0.73	62.97	6.19	17.86	10.93	0.32	0.08	0.11	99.19
68	0.14	62.87	6.54	17.09	10.94	0.28	0.03	0.08	98.95
69	0.17	40.77	28.89	15.27	13.83	0.25	0.10	0.09	99.37
70	0.00	36.69	34.60	13.37	14.54	0.21	0.27	0.07	99.76
71	0.52	63.81	5.08	17.75	11.12	0.30	0.00	0.10	98.69
72	0.18	56.93	14.73	15.35	11.37	0.27	0.16	0.02	99.00
73	0.09	60.16	11.41	16.73	10.35	0.36	0.17	0.00	99.27
74	0.16	56.92	14.57	15.75	11.05	0.29	0.15	0.05	98.96
75	0.19	63.44	5.51	17.69	11.45	0.26	0.00	0.10	98.64
76	0.06	63.59	6.72	17.09	10.90	0.30	0.10	0.07	98.82
77	0.17	58.05	13.90	16.10	10.89	0.29	0.13	0.07	99.60
78	0.10	64.80	6.15	16.74	11.30	0.28	0.04	0.07	99.49
79	3.42	50.76	6.09	27.14	9.67	0.34	0.04	0.21	97.66
79	3.32	51.04	6.35	27.11	9.86	0.28	0.12	0.21	98.29
80	0.28	59.28	11.88	13.41	13.65	0.29	0.07	0.16	99.00
81	0.21	55.81	13.30	18.16	10.92	0.28	0.11	0.07	98.86
82	0.31	62.05	10.48	15.69	10.85	0.31	0.12	0.06	99.87
82	0.07	63.82	6.01	17.17	10.93	0.29	0.11	0.07	98.48
83	0.17	64.79	6.00	15.61	12.03	0.28	0.04	0.05	98.98
84	0.01	53.63	17.63	16.85	11.54	0.32	0.15	0.06	100.19
85	0.18	57.15	13.35	17.99	11.17	0.32	0.11	0.08	100.36
86	0.58	57.80	11.87	18.01	10.99	0.33	0.13	0.04	99.76
87	0.00	36.99	35.27	12.96	14.83	0.19	0.23	0.12	100.58
88	0.20	58.30	12.57	17.26	11.18	0.32	0.16	0.03	100.04
89	0.21	63.98	6.46	16.93	11.31	0.34	0.06	0.09	99.37
90	0.91	61.70	7.00	16.70	12.70	0.29	0.11	0.11	99.53
91	0.49	64.08	5.51	17.31	12.26	0.28	0.02	0.14	100.11
92	0.09	22.52	46.24	16.08	16.06	0.16	0.18	0.26	101.60
93	0.34	61.90	8.06	17.64	11.18	0.33	0.09	0.07	99.60
94	0.16	62.82	7.27	18.25	11.06	0.33	0.07	0.06	100.03
95	1.03	52.26	11.81	22.15	11.97	0.29	0.05	0.13	99.68
96	0.33	58.71	10.39	16.52	13.16	0.24	0.03	0.17	99.57

	TiO2	Cr2O3	Al2O3	FeO	MgO	MnO	ZnO	NiO	Total
97	1.59	57.16	5.70	24.80	9.26	0.29	0.07	0.16	99.05
98	0.07	56.04	16.17	16.13	11.53	0.29	0.16	0.04	100.42
99	0.05	64.64	6.42	16.95	11.37	0.28	0.09	0.10	99.91
100	0.06	64.27	6.10	17.31	10.96	0.31	0.05	0.10	99.17
101	0.19	56.02	13.07	18.07	10.79	0.26	0.17	0.09	98.65
102	0.11	57.60	12.67	16.83	10.91	0.28	0.10	0.07	98.56
103	0.34	35.84	32.70	16.50	12.99	0.23	0.20	0.14	98.93
104	0.10	35.27	34.67	13.70	14.85	0.21	0.19	0.12	99.10
105	0.30	63.54	5.31	17.37	11.74	0.34	0.09	0.08	98.78
106	0.06	55.14	16.63	14.98	12.10	0.25	0.09	0.06	99.30
107	1.95	51.16	8.24	25.51	10.22	0.29	0.05	0.15	97.58
107	2.00	51.84	8.83	25.40	10.15	0.27	0.03	0.14	98.66
108	0.36	34.84	34.23	14.95	14.13	0.26	0.11	0.15	99.02
109	0.08	64.03	6.10	17.27	11.14	0.29	0.10	0.04	99.07
110	0.06	63.95	6.42	16.62	11.09	0.30	0.05	0.06	98.55
111	0.05	55.60	15.55	15.97	11.33	0.27	0.20	0.06	99.04
112	0.05	64.24	6.65	17.01	11.21	0.30	0.04	0.06	99.56
113	0.18	62.57	4.84	20.19	10.71	0.33	0.04	0.12	98.99
114	0.03	19.44	51.05	10.53	18.24	0.11	0.14	0.17	99.71
115	0.29	63.90	5.35	17.12	11.66	0.33	0.12	0.07	98.84
116	0.07	61.90	10.41	15.53	11.21	0.31	0.09	0.04	99.54
117	0.74	56.33	12.77	15.88	12.46	0.25	0.06	0.08	98.56
118	0.05	64.19	6.74	16.78	11.02	0.31	0.05	0.06	99.20

ANNEX 4

Lakefield Research Limited report - Diamond Indicator Mineral Extraction, Selection, Analysis and Evaluation

October 17, 2000

Samples submitted by Twin Mining Corporation

LakefieldResearch

Mineralogical Services

Diamond Indicator Mineral Extraction, Selection, Analysis and Evaluation

submitted by
Twin Mining Corp.

Project Managed by: Bruce Craig Jago, Ph.D.

Submission Date: October 17, 2000

Project No.: 8901-221/LIMS#SEP1003.R00

Summary

Chromite, ilmenite and garnet grains were selected from heavy mineral concentrates produced from kimberlite collected at 10 sample sites on the Jackson Inlet property. Interpretation of microprobe data from these minerals shows that:

- The majority of grains selected have either a peridotitic or eclogitic parentage.
- Between 14% and 68% of the chromite compositions plot within the compositional field of chromite inclusions in diamond (Fipke et al 1995), with an average of about 46%.
- Between 9% and 56% (av. 28%) of the garnets are classified as sub-calcic, Cr-pyrope and have a dunitic or harzburgitic parentage, as defined by the plotting methods of Sobolev (1973) and Gurney (1985), although the number of such grains is drastically reduced using Dawson and Stephens (1975) classification scheme to a range of 0 to 14.5% (av. 3.3%).
- Between 0% and 12% (av. 5%) of the garnets are classified as potentially high pressure eclogitic garnet similar to the compositions of garnet inclusions in diamond as defined by McCandless and Gurney (1989).
- A small proportion of the ilmenite population (~14%) has a mantle parentage although ilmenite generally is scarce in all samples. Those occurring as mantle ilmenite suggest moderate levels of diamond preservation.

The compositional similarity of chromite and garnet from Jackson Inlet kimberlites to chromite and garnet inclusions in diamond and diamondiferous, chromite- and garnet-harzburgite xenoliths from world wide source suggests that at least some of these chromite and garnet grains likely were derived from diamond-bearing sources in the mantle as indicated by Gurney (1985) and Fipke et al. (1995). As a result, the host kimberlite likely also contains diamond derived from diamondiferous, chromite- and garnet-harzburgite/dunite xenoliths that were disaggregated during transport and emplacement of the Jackson Inlet kimberlites into the upper crust.

The absolute abundance of diamond in the Jackson Inlet kimberlites can not be estimated accurately due to:

- A lack of understanding of the diamond grade of diamondiferous source rocks (chromite- and garnet-harzburgite, high-pressure eclogite) in the mantle.
- A lack of understanding of the proportion of diamondiferous source rocks in the mantle and the sampling efficiency of the host kimberlite relative to these source rocks.
- The effects of diamond resorption in the mantle and during transport and emplacement of the host kimberlite into the upper crust.
- The effects of crystal sorting during transport and emplacement of the host kimberlite into the upper crust.
- Not all kimberlites with G10 garnets contain diamonds.

A simple ranking of the diamond potential of the 10 samples collected from Jackson Inlet kimberlites can be done using the relative abundance of chromite and peridotitic and eclogitic garnet grains among each grain population that are compositionally similar to chromite and garnet inclusions in diamond. The Table below summarises the results of this simple ranking. The table shows that, based on the relative proportions of diamond inclusion chromite and harzburgitic and high pressure eclogite garnet, sample sites JI610 and TR 3 exhibit the greatest potential to host diamond regardless of the garnet classification scheme. Although the results are different in detail, there is remarkable consistency among the top and bottom end of the rankings.

Table of combined diamond potential rankings

Ranking	Sobolev (1973)/ Gurney (1985)	Dawson and Stephens (1975)
1	JI610	TR 3
2	TR 3	JI610
3	JI9	JI7
4	TR 4	JI410
5	JI410	JI510
6	JI510	JI9
7	JI7	TR 4
8	TR 2	TR 2
9	TR 1	JI10
10	JI10	TR 1

This data suggests that future diamond exploration expenditures (i.e. those directed towards diamond sampling) should be concentrated on the sample sites from which samples JI610 and TR 3 were collected and that relatively less effort should be expended investigating sample sites TR 1, TR 2 and JI10. Follow-up sampling is recommended for sample sites that fall between the extremes of the ranking but these are less of a priority than sites JI610 and TR 3.

LAKEFIELD RESEARCH LIMITED

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November 1, 2000

1.0 Introduction and Procedures

Heavy mineral concentrates were produced from representative 8-10 kg samples of kimberlite, or residual kimberlite, obtained from ten sites (Table 1) on the Jackson Inlet property. Mineral concentrates were made through a combination of staged crushing, wet screening and heavy liquid separation (M.I. @ 3.1 g/cc density split point). Garnet, chromite and ilmenite were picked from riffled aliquots of concentrates using a binocular microscope such that each riffled aliquot was stripped of its garnet and chromite contents. A sufficient number of riffled aliquots were picked such that the total grain yield was between about 45 and 125 grains of chromite and 90 and 130 grains of garnet.

Table 1: List of Jackson Inlet Sample Sites

Sample #	Type of Material	Sample #	Type of Material
TR 1	Trench Composite	JI510	Trench Composite
TR 2	Trench Composite	JI610	Trench Composite
TR 3	Trench Composite	JI7	Residual Kimberlite
TR 4	Trench Composite	JI9	Residual Kimberlite
JI410	Trench Composite	JI10	Residual Kimberlite

Chromite, ilmenite and garnet grains were mounted in epoxy and analysed for major and minor element contents by electron microprobe (JEOL 733 Superprobe) under standard operating conditions (15 KeV, 20 na operating current). The data were interpreted using industry-standard bi-variate plots and data classification schemes published by Sobolev (1973), Dawson and Stephens (1975), Gurney (1985), Fipke et al. (1995) and Schulze (1997).

2.0 Results

Bi-variate mineral chemistry plots (Garnet: Figures 1a and 1b to 10a and 10b; Chromite: Figures 11a to 11j; Ilmenite: Figures 12 and 13) used in the interpretation of the data are present in Appendix 1 and microprobe analyses in Appendix 2.

2.1 Diamond Indicator Mineral Evaluation

It is now widely recognised that diamond is xenocrystic and liberated from a variety of mantle-derived, diamond-bearing peridotite and eclogite xenoliths during ascent and emplacement into the upper crust by magmas such as kimberlite, lamproite and orangeite. Further, only three principal sources of diamond have been recognised as occurring in the upper mantle. This has been determined on the basis of the compositions of the mineral suite (garnet, chromite, olivine, enstatite, orthopyroxene and clinopyroxene) that occurs as inclusions in diamond and a comparison of these compositions with the same minerals as found in a variety of peridotite and eclogite xenoliths.

The principal host rocks of diamond in the mantle are garnet-harzburgite, chromite-harzburgite and certain high-pressure eclogite. Other minor sources include garnet-dunite, garnet-lherzolite, garnet-websterite and, an as yet undefined, calc-silicate paragenesis. The diagnostic phase(s) in each of these rock types are, sub-calcic Cr-pyrope garnet, Cr-Mg-rich chromite and, Na-bearing (>0.8 wt. % Na_2O) and K-bearing (>0.8 wt. % K_2O) eclogitic garnet and omphacitic pyroxene, respectively. Of these, peridotitic and eclogitic garnet and chromite are of the most use in determining diamond potential.

The principal tools used in diamond exploration and the economic evaluation of suspected diamondiferous host rocks are based on evaluations of microdiamond content, diamond indicator mineral chemistry and the proportion of diamond indicator minerals that are compositionally similar to the diamond inclusion suite. Diamond indicator mineral chemistry is evaluated with a variety of bi-variate plots, published mineral classification schemes, such as those proposed by Sobolev (1973), Dawson and Stephens (1975) and Gurney (1985), and appropriate mineral chemistry databases such as those archived at Lakefield Research, which includes greater than 10,000 mineral analyses.

2.2 Garnet

2.2.1 Dawson and Stephens (1975) Method

The compositional variation of garnet from Jackson Inlet samples is plotted in Figures 1 to 10.

Table 2a: Dawson and Stephens (1975) Classification of Jackson Inlet Garnet Microprobe Data (Raw Grain Counts)

Sample	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	Total
TR1	10		1		1				88	3	3		106
TR2	9		4						93		5		111
TR3	11								100	19	1		131
TR4	14								91	6	2		113
JI410	13	1	1						101	3	5		124
JI510	5		1						90	1	2		99
JI610	6								90	3			99
JI7	60								73				133
JI9	10		6						106				122
JI10	17					5			98	3	4	1	128

Table 2b: Dawson and Stephens (1975) Classification of Jackson Inlet Garnet Microprobe Data (% of Total)

Sample	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	Total
TR1	9.4		0.9		0.9				83.0	2.8	2.8		100
TR2	8.1		3.6						83.8		4.5		100
TR3	8.4								76.3	14.5	0.8		100
TR4	12.4								80.5	5.3	1.8		100
JI410	10.4	0.8	0.8						81.6	2.4	4.0		100
JI510	5.0		1.0						91.0	1.0	2.0		100
JI610	6.1								90.9	3.0			100
JI7	44.8								55.2				100
JI9	8.2		4.9						86.9				100
JI10	13.2					3.9			76.7	2.3	3.1	0.8	100

Garnet classification results, according to the scheme proposed by Dawson and Stephens (1975), are presented in Tables 2a (raw data) and 2b (% of total grains), above. Using this method, the table shows that the garnet population is dominated by G9, Cr-pyrope that typically is interpreted to have been derived from four-phase, garnet lherzolite xenoliths. Lesser amounts of G1, megacrystic Ti-pyrope, G3, eclogitic garnet, G10, sub-calcic Cr-pyrope, G11, Cr-pyrope and trace amounts of G5, crustal garnet, G6, eclogitic garnet and G12, Cr-rich megacrystic garnet also are present. Of these groups, the greatest diamond potential is indicated by the relative abundance of G10, sub-calcic Cr-pyrope and G3 and G6 eclogitic garnet, compared to other garnet types. G10 Cr-pyrope and G3 and G6 eclogitic garnet have compositions that are similar to peridotitic and eclogitic garnet inclusions in diamond and garnet in diamond-bearing peridotite and eclogite xenoliths, while the other compositional groupings generally are associated with barren, mantle-derived rock types.

The garnet population from Trench 3 is notable as it contains the highest proportion (19 grains/14.5% of garnet population) of favourable G10, Cr-pyrope garnets although garnets of diamond eclogite paragenesis were not found in this sample.

2.2.2 Sobolev (1973) and Gurney (1985) Methods

Sobolev (1973) and Gurney (1985) plotted garnet compositions on a CaO vs Cr_2O_3 bi-variate plot to distinguish between garnets from barren versus potentially diamondiferous sources.

Sobolev (1973) and Gurney's (1985) plots originally were developed to separate garnets of known lherzolitic (Dawson and Stephens G9) parentage from harzburgitic (Dawson and Stephens G10) garnets which are compositionally similar to peridotitic garnet inclusions in diamond. The plots were not based on Dawson and Stephens' (1975) classification scheme as many people believe. The dividing line constructed by Sobolev (1973) and Gurney (1985), although different in detail, were constructed to separate lherzolitic and harzburgitic garnets from a number of garnet populations from kimberlites in Russia and South Africa, respectively. Their databases also included the corresponding compositions of garnet inclusions in diamond from these kimberlites, as well as a worldwide database of garnet inclusion in diamond compositions. Further, Gurney (1985) determined that about 85% of peridotitic garnet inclusions in diamond plotted on the Ca-poor side of this boundary and the line was known, at the time of development, as the "diamond-in" line or "Gurney's 85% line". On Gurney's plot, he divided diamond inclusion garnets of peridotitic from eclogitic paragenesis on the basis of their Cr-content, with those having less than 2 wt. % Cr_2O_3 being of eclogitic parentage. For the reasons outlined above, Sobolev (1973) and Gurney's (1985) methodology are considered to be a more reliable method of determining whether sub-calcic Cr-pyrope garnets with a harzburgitic parentage are present in a garnet population. Since the time that Sobolev (1973) and Gurney's (1985) methods were published, the so-called "harzburgitic field" has been recognised also to contain garnets derived from garnet-dunite xenoliths (also potentially diamond-bearing) although this distinction is not always made.

Table 3 summarises the proportion of garnets of potentially diamond-bearing, harzburgitic parentage, as determined by the classification schemes of Gurney (1985) and Sobolev (1973) (see also Figures 1a – 10a). These methods report a greater abundance of diamond-related harzburgitic garnets (G10 garnets of Dawson and Stephens) than do the Dawson and Stephens (1975) method (Table 2) although absolute abundances clearly are dependent on the method used.

According to both classification schemes, harzburgitic garnet accounts for between 25 and 30% of the garnet population with the greatest abundances (i.e. > 45%) occurring in the garnet populations from Trench 3 and sample JI610.

Table 3: Summary of Garnet Parentage Based on Gurney (1985) and Sobolev (1973)

	Gurney (1985)			Sobolev (1973)		McCandless and Gurney (1986)	
Sample #	**Garnet**	**Harzburgite**	**% Harzburgite**	**Harzburgite**	**% Harzburgite**	**HP* Eclogite**	**% HP* Eclogite**
TR 1	106	43	40.6	31	29.2	5	4.7
TR 2	111	13	11.7	10	9.0	12	10.8
TR 3	131	62	47.3	45	34.4	6	4.6
TR 4	113	43	38.1	33	29.2	12	10.6
JI410	124	29	23.4	19	15.3	4	3.2
JI510	99	16	16.2	17	17.2	3	3.0
JI610	99	76	76.8	56	56.6	2	2.0
JI7	133	1	0.8	19	14.3	10	7.5
JI9	122	48	39.3	53	43.4	11	9.0
JI10	128	10	7.8	9	7.0	0	0.0
Averages			**30.2**		**25.6**		**5.5**

* HP – high pressure eclogite

The compositional distinction between peridotitic (i.e. lherzolitic and harzburgitic garnet), megacrystic and eclogitic garnet and their compositional similarity to garnet inclusions in diamond is illustrated in Figures 1b to 10b (wt. % Na_2O vs TiO_2). These plots also show that there is considerable compositional overlap between the garnet groups especially at low concentrations of Na and Ti.

The Na_2O vs TiO_2 plot was constructed by McCandless and Gurney (1986) to distinguish between eclogitic garnet that had been derived from barren, versus diamondiferous, eclogitic xenoliths. The theoretical basis of the diagram is that there is a positive correlation between the proportion of Na entering the lattice of eclogitic garnet and increasing pressure. Hence, eclogitic garnet derived from the diamond stability field in the mantle could have a high Na (and Ti) content. On the basis of over 400 analyses, McCandless and Gurney (1986) chose 0.8 wt. % Na_2O as the approximate limit between barren and diamondiferous eclogitic source rocks. Schulze (1997) recently up-dated the figure to include fields for megacrystic garnet that also can have high Na and Ti contents. The field of "garnet of mixed parageneses" was added for this project as it includes garnet from diverse sources in the mantle and crust.

Garnet compositions plotted on Figures 1b to 10b and data compiled in Table 3 clearly show that a small proportion of garnet from virtually all of the samples plots within the field of high pressure eclogitic garnet. Such garnets are most abundant in the garnet populations from Samples TR 2, TR 4 and JI9. Some caution must be exercised in this interpretation as there is some compositional overlap between field boundaries.

2.3 Chromite

Chromite compositions are plotted on Figures 11a to 11j; also shown are analyses of chromite inclusions (hereafter DI chromite) and chromite intergrowths with diamond from a world wide database of chromite compositions (Fipke et al. 1995; Lakefield Research database). Such chromites generally contain greater than about 58 wt. % Cr_2O_3 and 8 to 18 wt. % MgO and overlap with the compositional range of chromite in chromite-harzburgite and chromite-dunite xenoliths. Chromite inclusions in diamond have been assigned only to the peridotitic suite of diamond inclusions; thus far, chromite has not been found that could be assigned to an eclogitic paragenesis.

Between about 45 and 125 chromite grains were picked from Jackson Inlet concentrates (Table 4). Microprobe analysis shows that, on average, a relatively high proportion of Jackson Inlet chromite grains (Av. 46.8 %) plot within the compositional field defined by DI chromite with the highest proportion of grains (68%) occurring in Sample TR 3. Interestingly, there are five samples in which over 50% of the chromite grains plot within the DI chromite field.

Table 4: Classification of Jackson Inlet Chromite Compositions

	Fikpe et al. (1995)		
Sample #	**# of Chromite Grains**	**DI Chromite**	**% of DI Chromite**
TR 1	93	13	14.0
TR 2	74	27	36.5
TR 3	92	63	68.5
TR 4	80	36	45.0
JI410	48	26	54.2
JI510	84	46	54.8
JI610	61	36	59.0
JI7	94	55	58.5
JI9	123	62	50.4
JI10	73	20	27.4
Averages			**46.8**

2.4 Ilmenite

Jackson Inlet concentrates did not yield an abundant population of ilmenite grains and only 80 grains of ilmenite in total were observed and picked from the heavy mineral concentrate samples (Table 5). Of these, only 11 grains (13.8%) plot within the compositional field (Figure 12) defined by mantle-derived ilmenite or ilmenite from peridotitic xenoliths (i.e. > ~3% MgO) and only a few of these grains contain greater than about 1% Cr_2O_3. Several of the samples have ilmenite populations with greater than about 20% mantle-derived ilmenite but these population are comprised of less than five grains so the results are not necessarily, statistically rigorous.

Some researchers (Gurney and Zweistra 1995 and M. Senn Pers. Comm.) have indicated that it may be possible to estimate the diamond preservation potential of the host kimberlite magma and mantle domain through which the kimberlite magma passed prior to emplacement into the upper crust using the MgO and FeO contents of ilmenite. The method proposes that diamonds would be stable in relatively low oxygen fugacity environments (i.e. high MgO, low FeO or Fe_2O_3 contents) but would be resorbed into the kimberlite magma or converted to graphite or a C-bearing gaseous species in relatively high oxygen fugacity environments (i.e. High FeO or Fe_2O_3 and low MgO). This proposal has not be universally accepted (e.g. Schulze 1997).

For grains plotted on Figure 13 (M. Senn Pers. Comm), ilmenites defined as having a mantle-derivation span the compositional range of Senn's (M. Senn pers. Comm.) Group 1, 2 and 3 ilmenite fields with the majority plotting in Group 2 and indicating that co-existing diamond would not have been strongly resorbed while present in the mantle source rock or during transport and emplacement of the host magma into the upper crust.

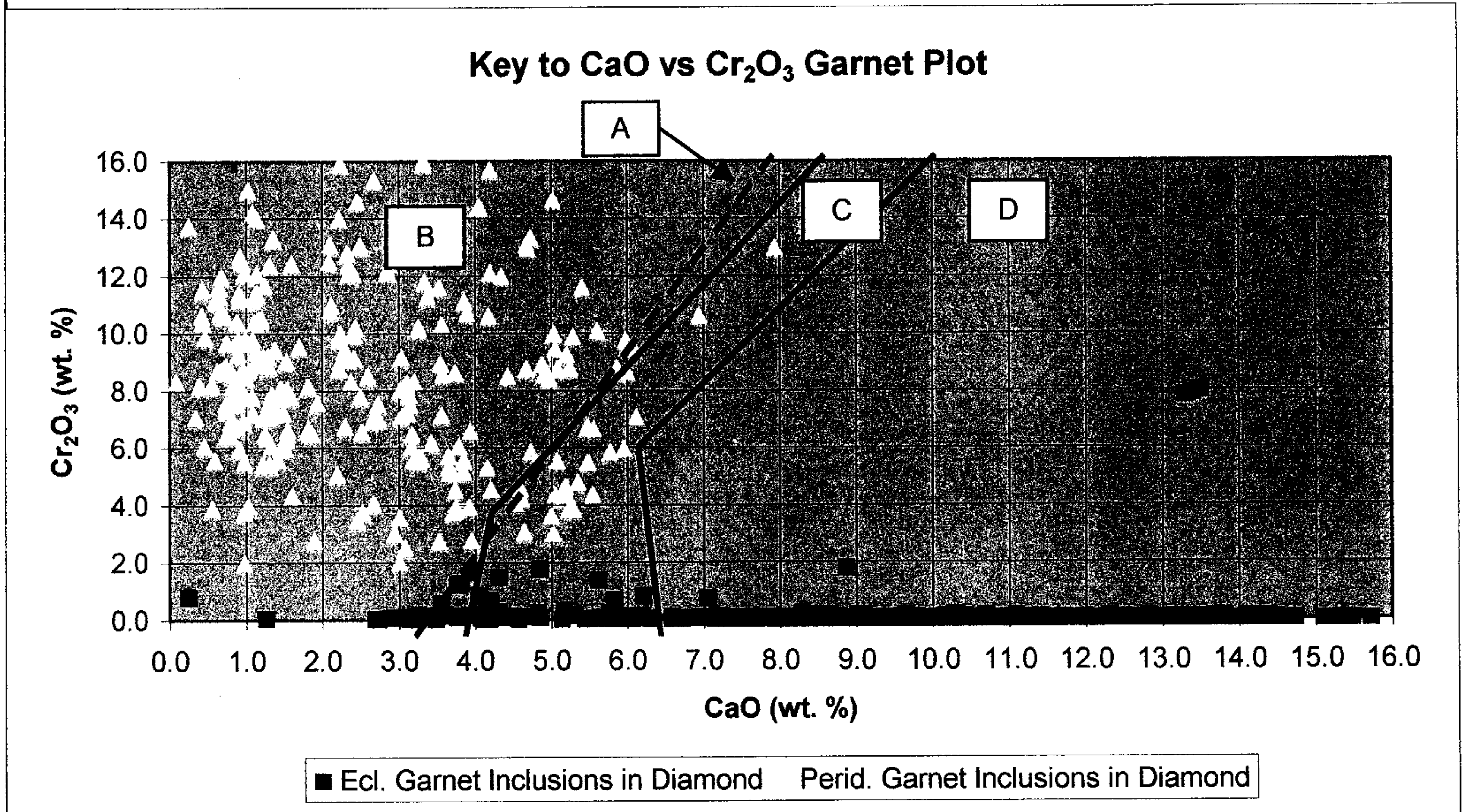
Table 5: Ilmenite Grains Selected from Jackson Inlet Mineral Concentrates

Sample #	# of Grains Selected	*Mantle –Derived Ilmenite Grains	% of Mantle-Derived Grains
TR 1-10670	1	0	0.0
TR 2-10668	23	0	0.0
TR 3-10671	7	2	28.6
TR 4-10672	11	3	27.3
JI410-10669	4	2	50.0
JI510-10666	5	0	0.0
JI610-10667	17	1	5.9
JI7-10663	4	0	0.0
JI9-10664	3	2	66.7
JI10-10665	5	1	20.0
Total	**80**	**11**	**13.8**

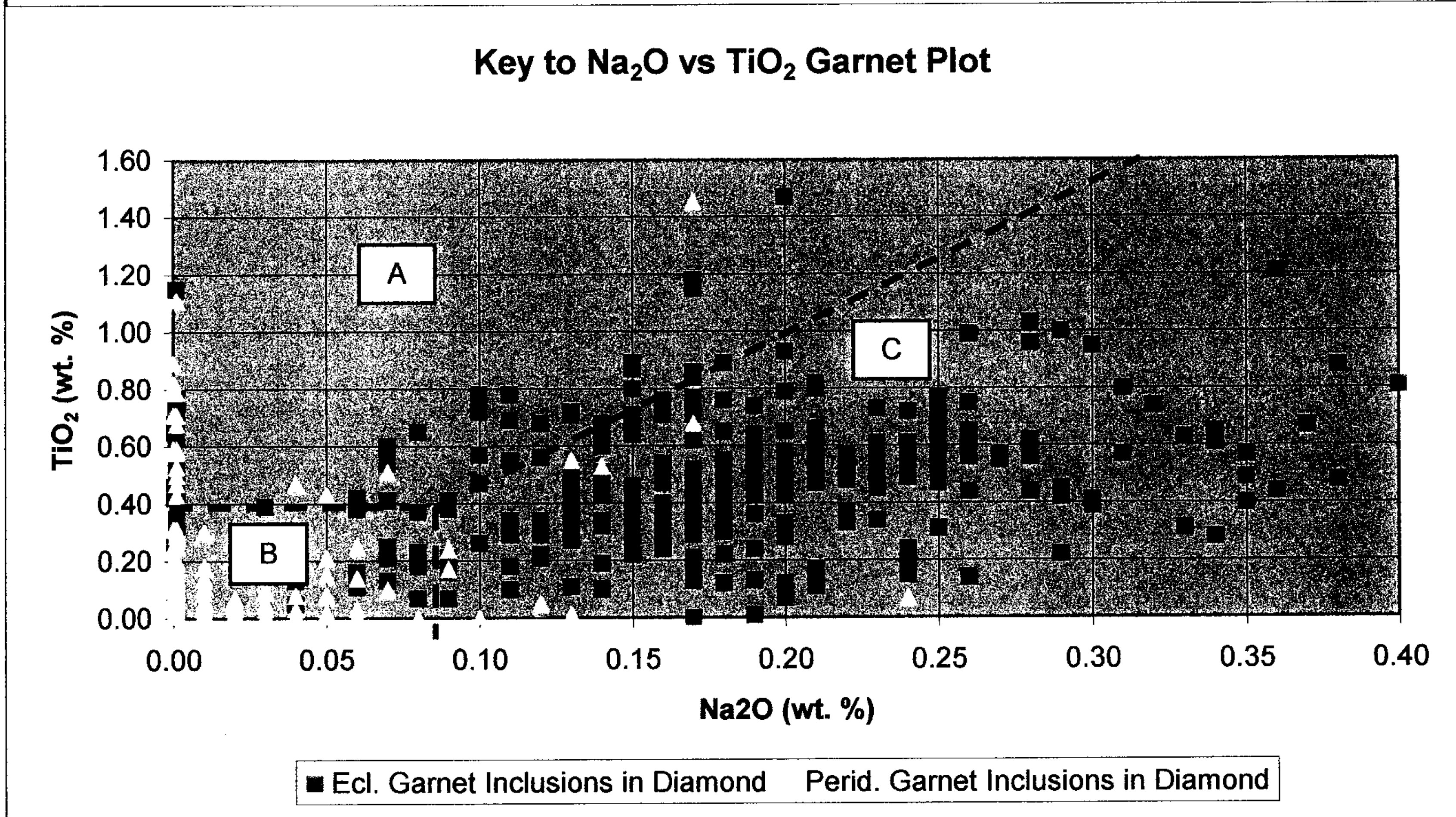
* Based on a 3 wt. % MgO cut-off

It is unlikely that statistically valid information concerning the diamond preservation potential of the Jackson Inlet ilmenite population can be gained due to the paucity of ilmenite grains that have been recovered from mineral concentrates which have a mantle geochemical signature.

Appendix A
Diamond Indicator Mineral Chemistry Plots



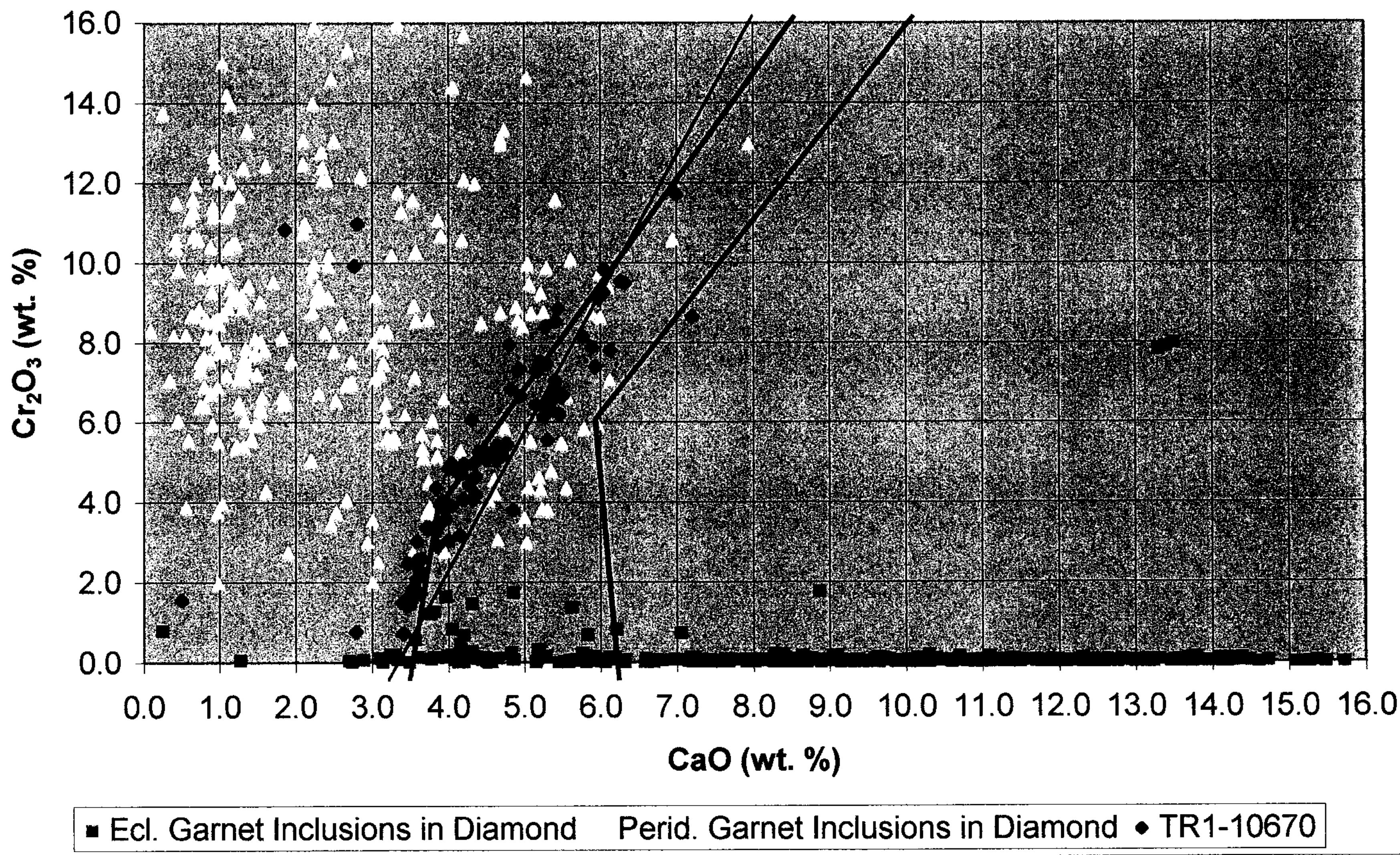
A - Gurney's 85% line separating harzburgitic garnets on the left from lherzolitic garnets on the right.
B - Sobolev's harzburgite field; C - Sobolev's lherzolite field; D - Sobolev's websterite field

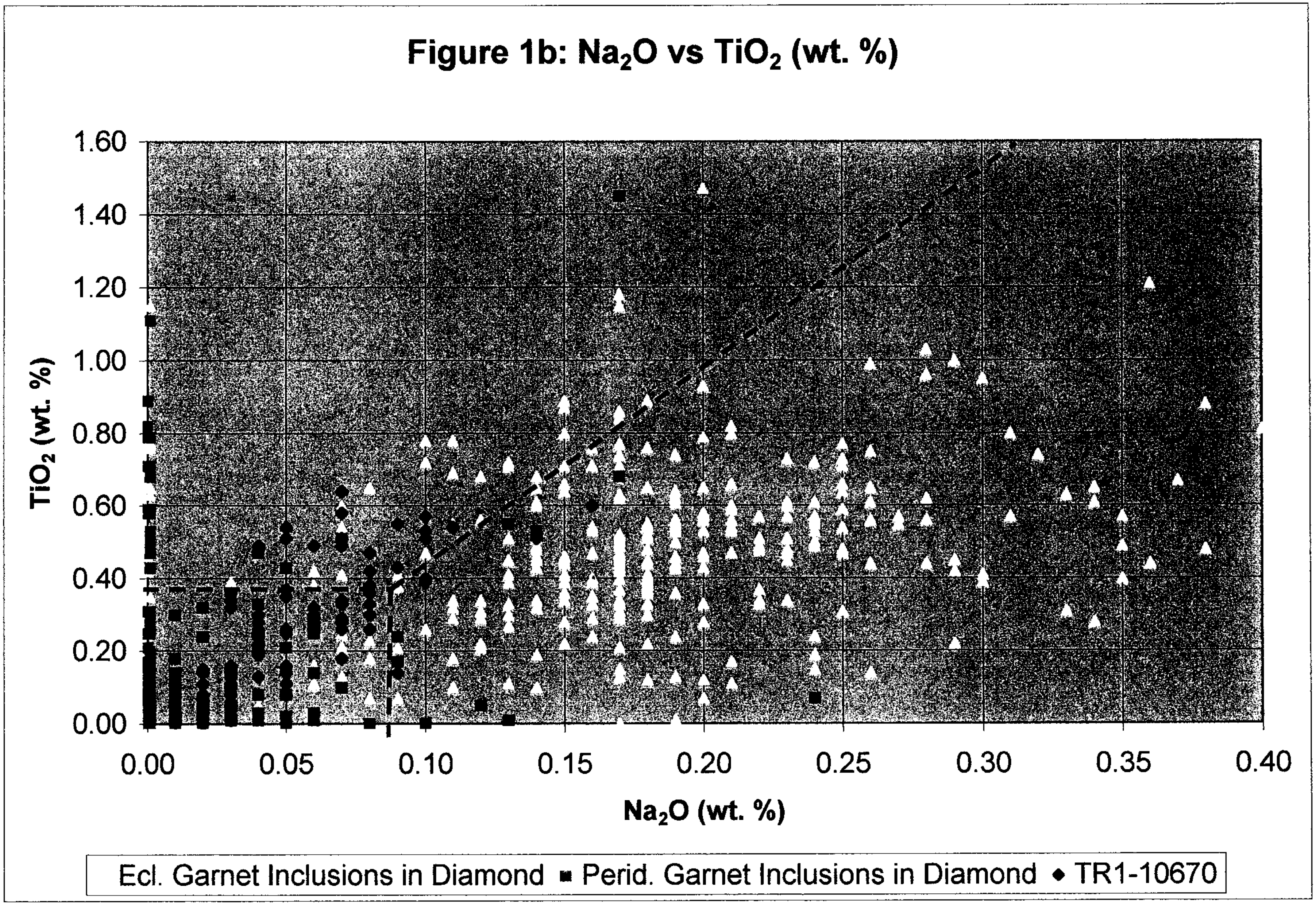


A - Shulze's garnet megacryst field; B - field of mixed parageneses

C - Field of garnet inclusions in diamond (Schulze and McCandless and Gurney)

Figure 1a: CaO vs Cr_2O_3 Garnet Plot





Schulze (1997)

Figure 2a: CaO vs Cr_2O_3 Garnet Plot

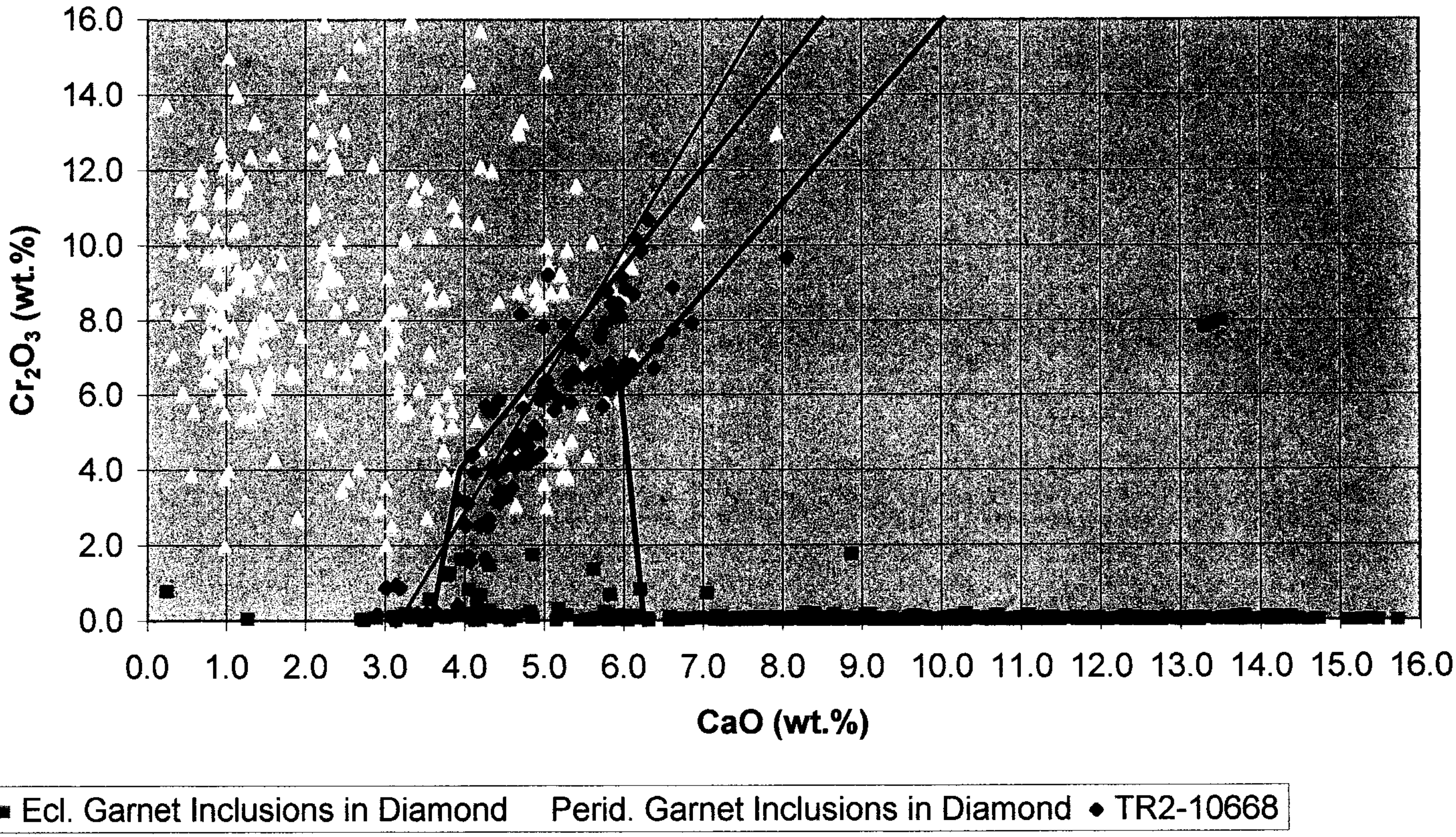
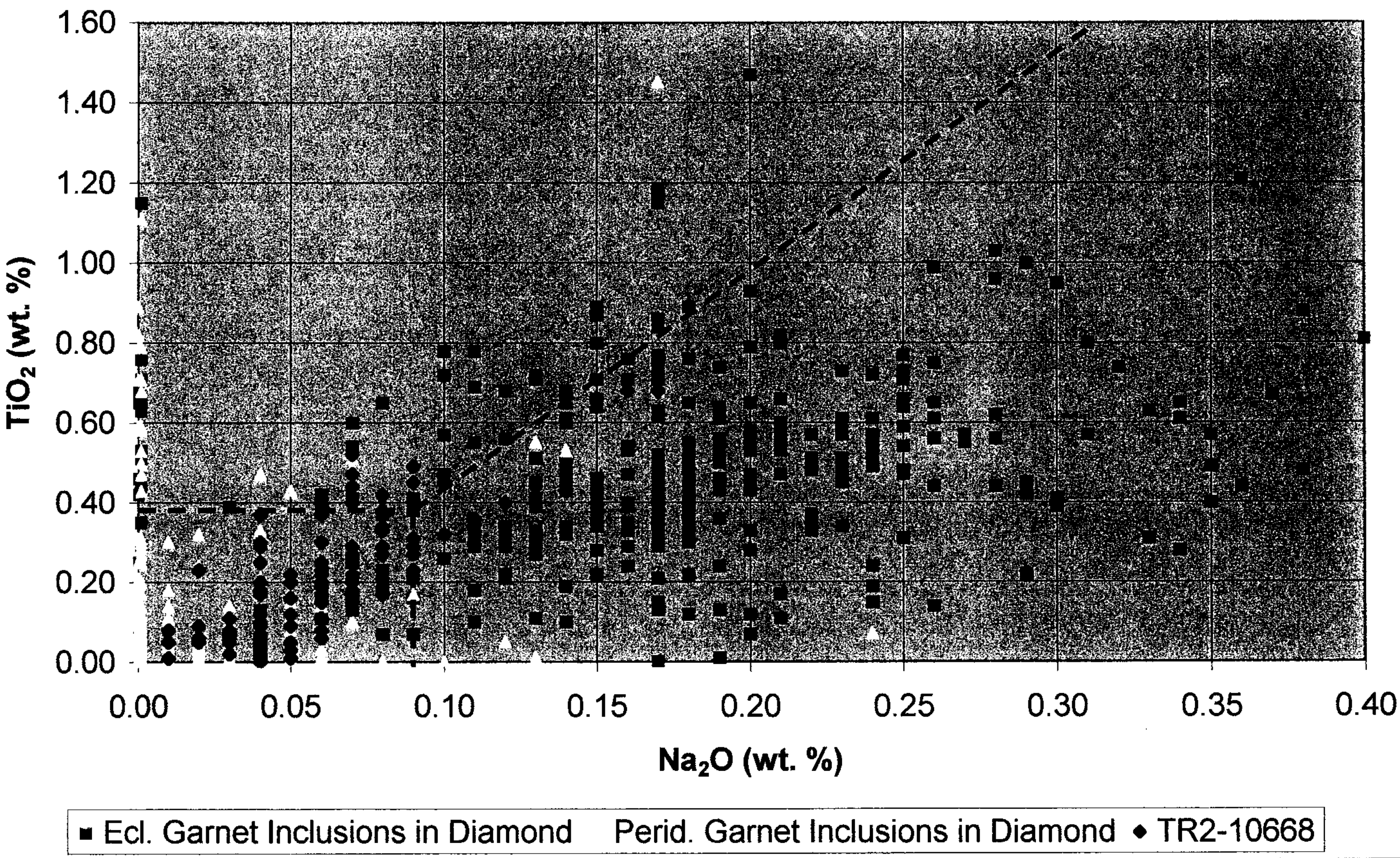


Figure 2b: Na_2O vs TiO_2 Garnet Plot



Schulze (1997)

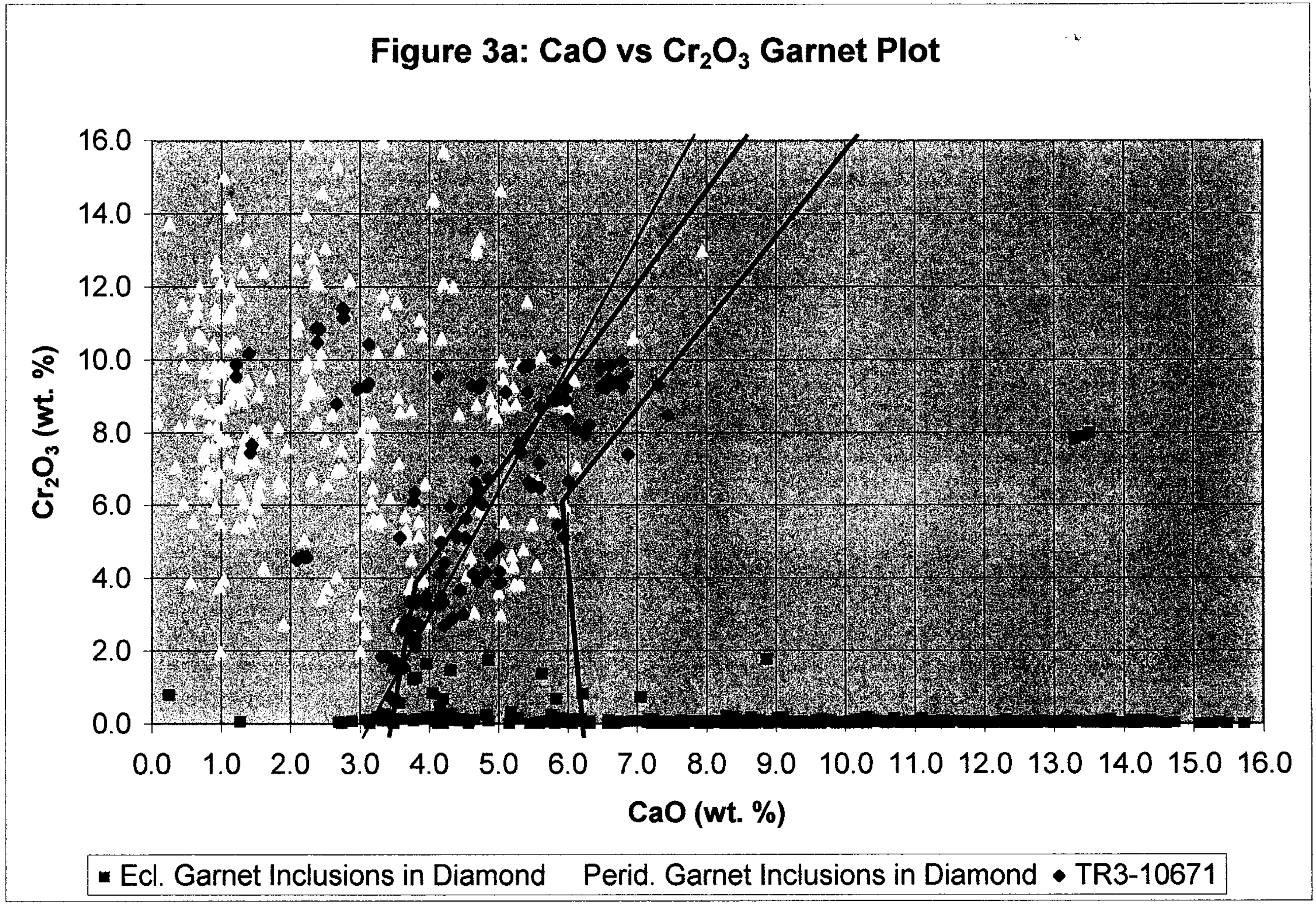
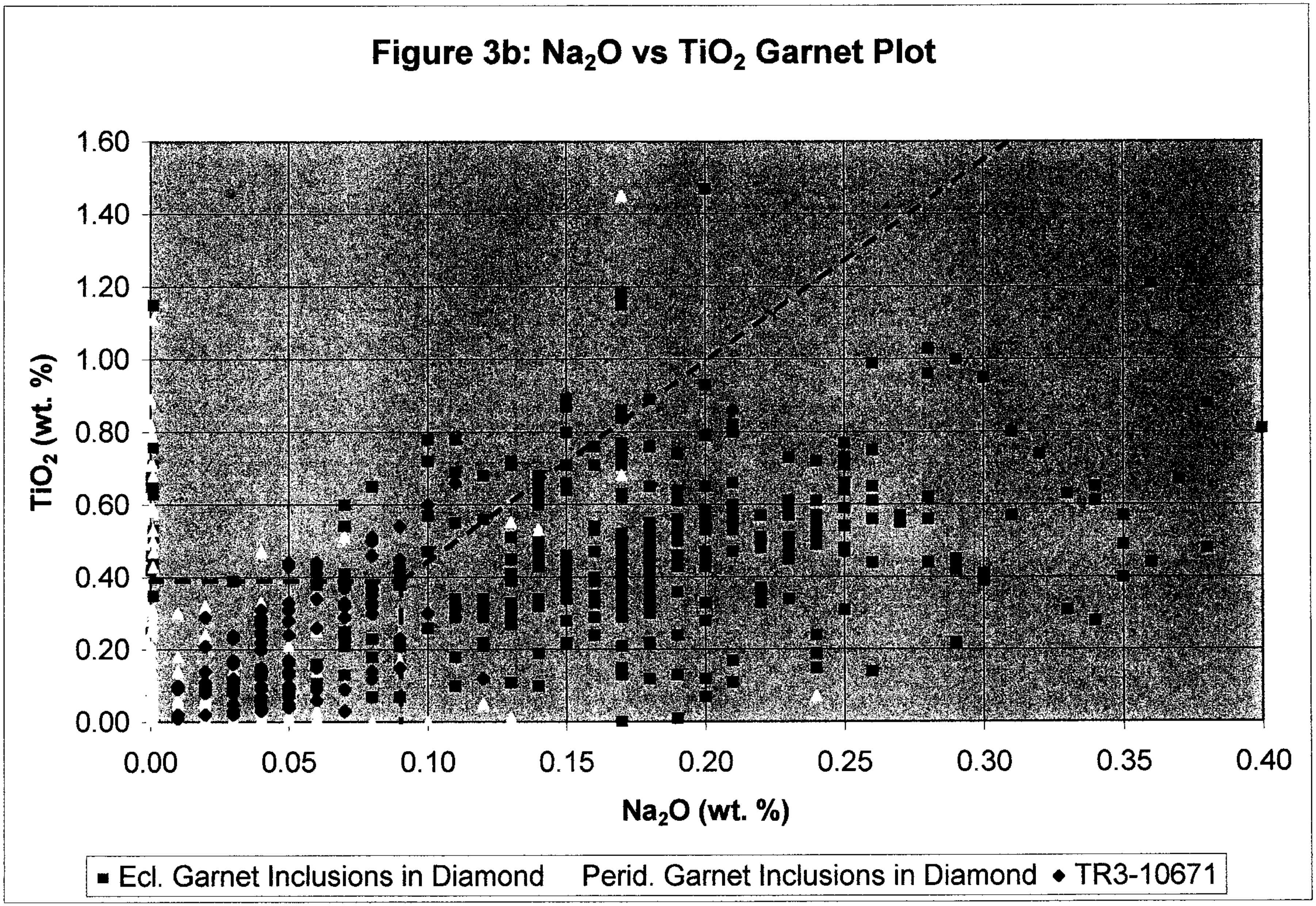
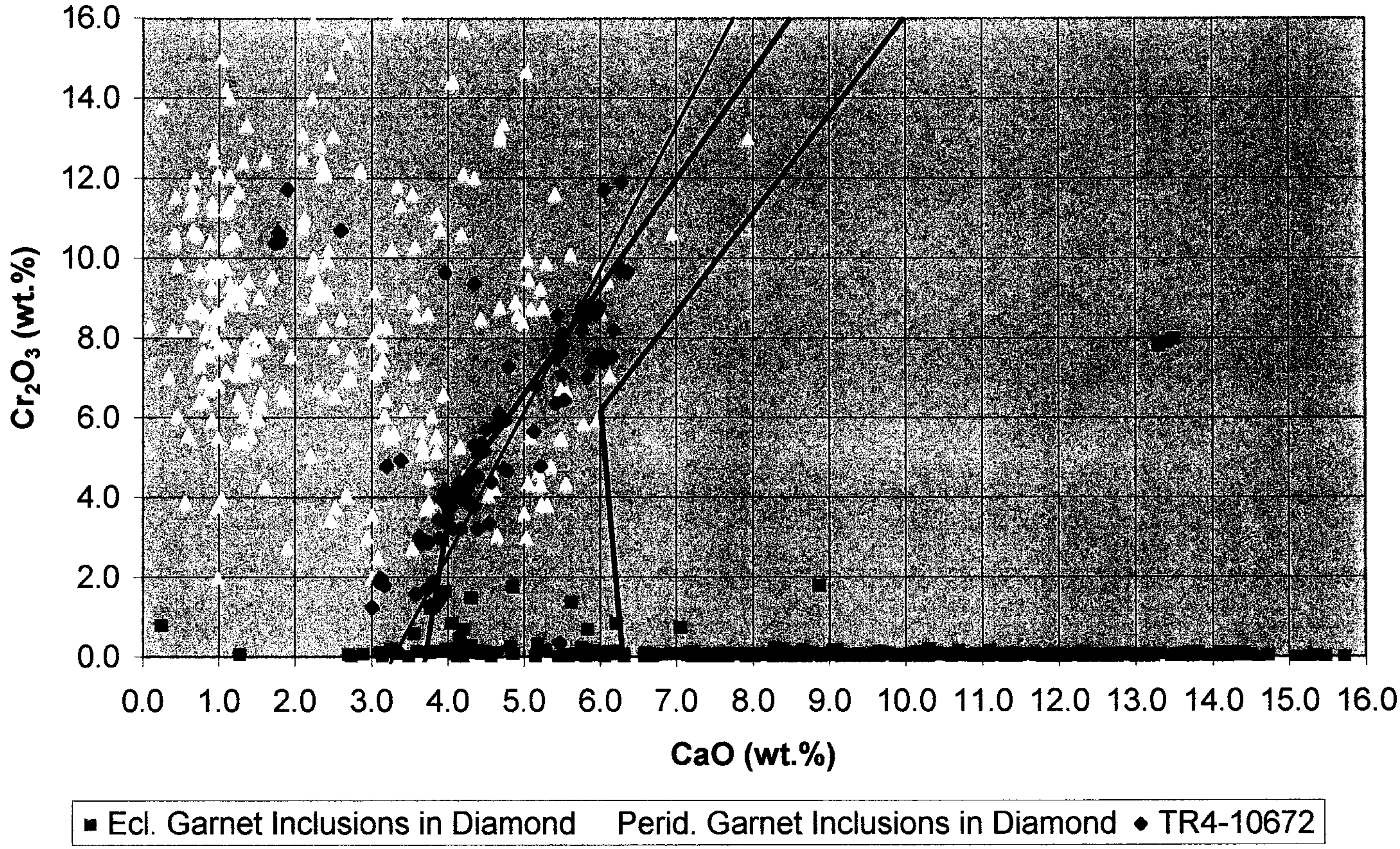


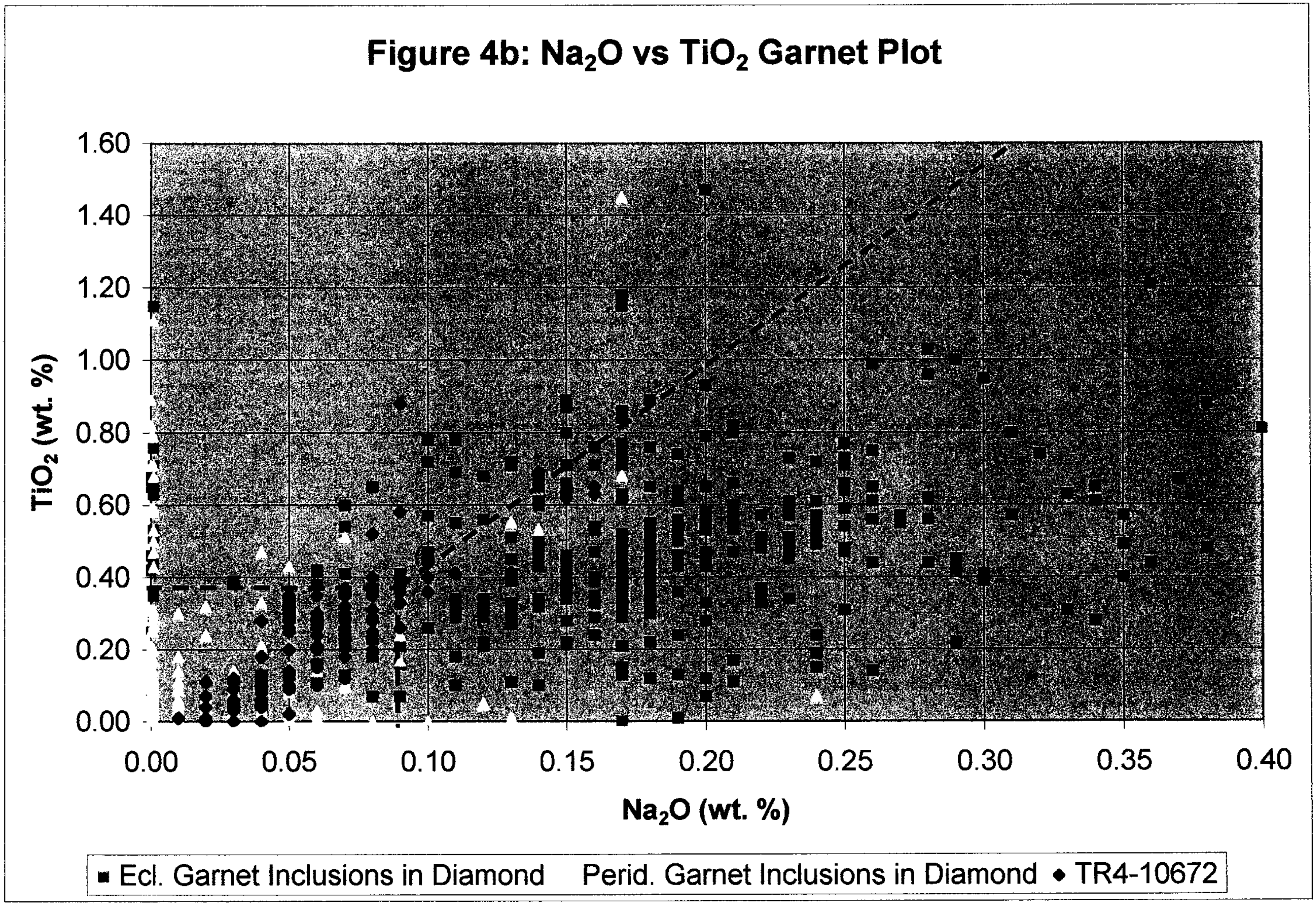
Figure 3a: CaO vs Cr_2O_3 Garnet Plot
Cr_2O_3 (wt. %)
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0
CaO (wt. %)
Ecl. Garnet Inclusions in Diamond
Perid. Garnet Inclusions in Diamond
TR3-10671



Schulze (1997)

Figure 4a: CaO vs Cr_2O_3 Garnet Plot





Schulze (1997)

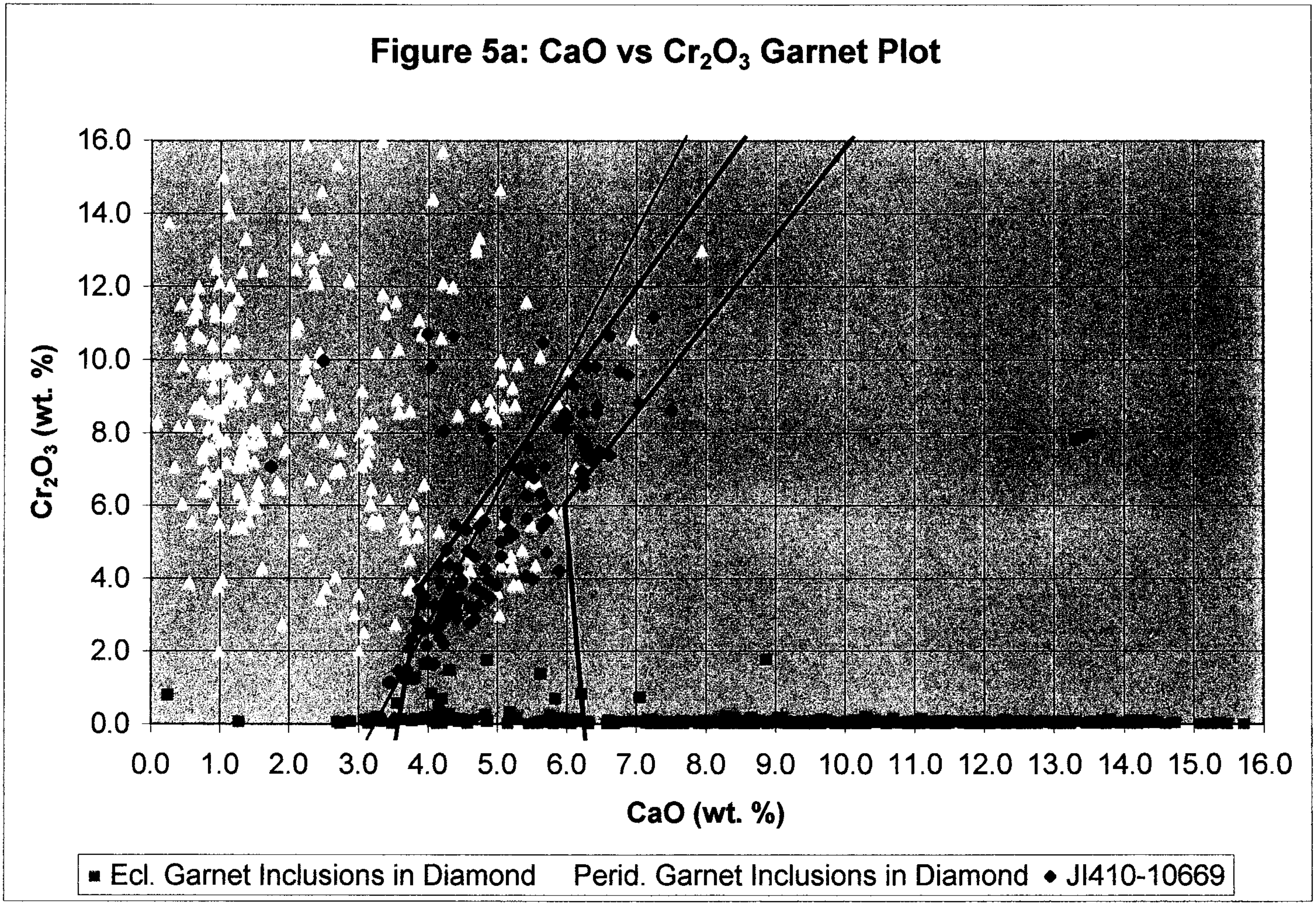


Figure 5a: CaO vs Cr_2O_3 Garnet Plot
Cr_2O_3 (wt. %)
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0
CaO (wt. %)
Ecl. Garnet Inclusions in Diamond
Perid. Garnet Inclusions in Diamond
JI410-10669

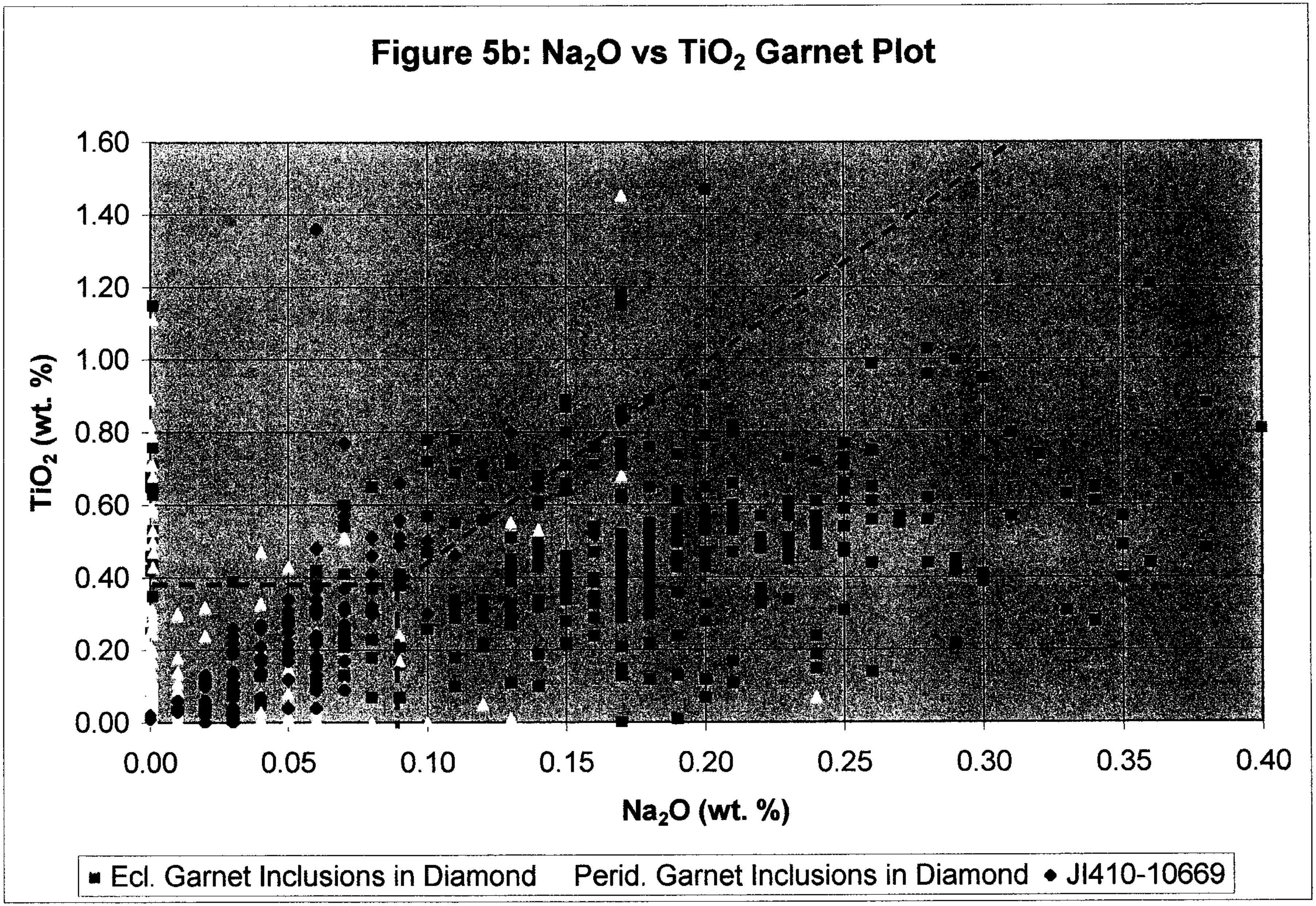


Figure 5b: Na$_2$O vs TiO$_2$ Garnet Plot
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
TiO$_2$ (wt. %)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Na$_2$O (wt. %)
Ecl. Garnet Inclusions in Diamond
Perid. Garnet Inclusions in Diamond
JI410-10669

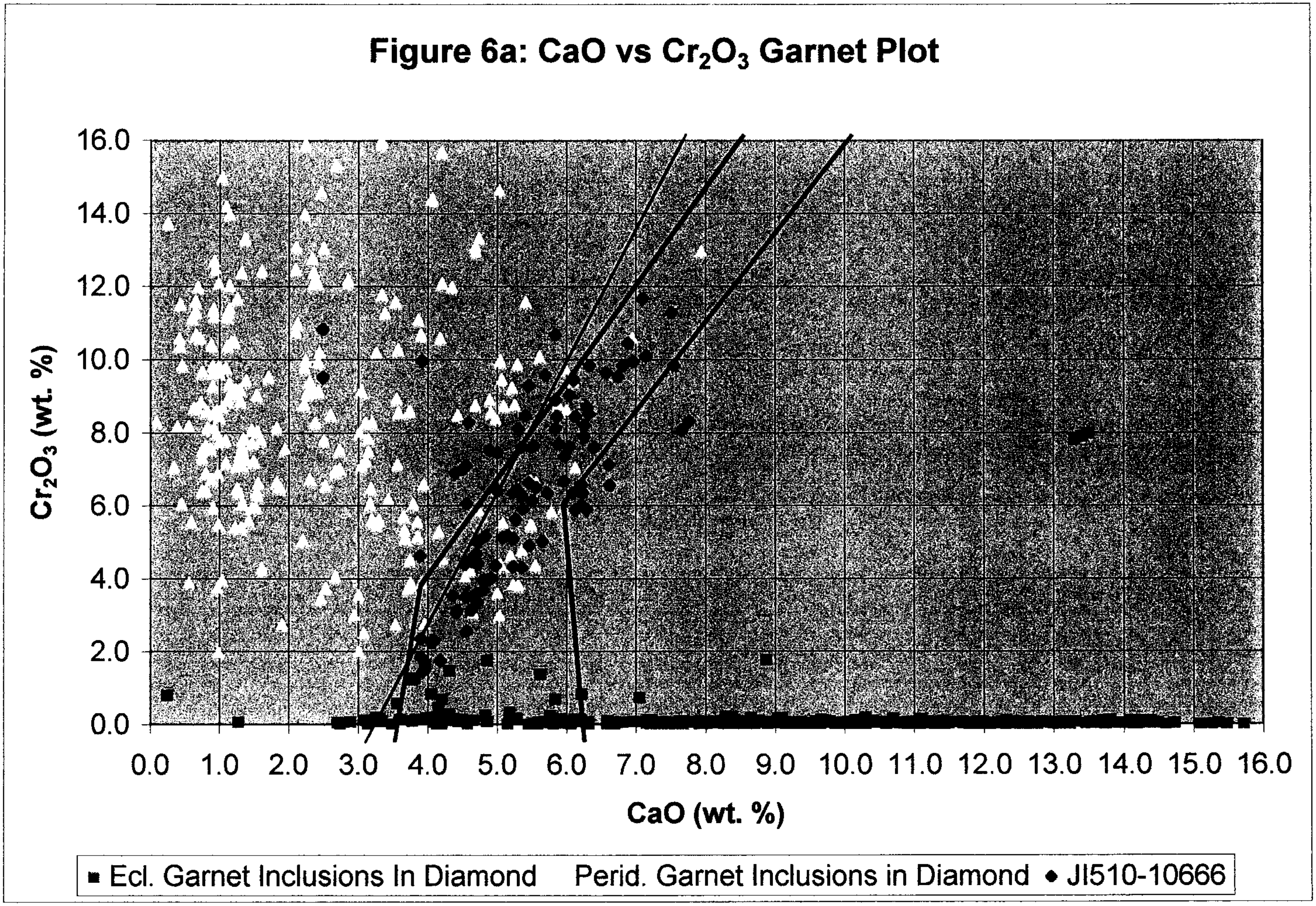
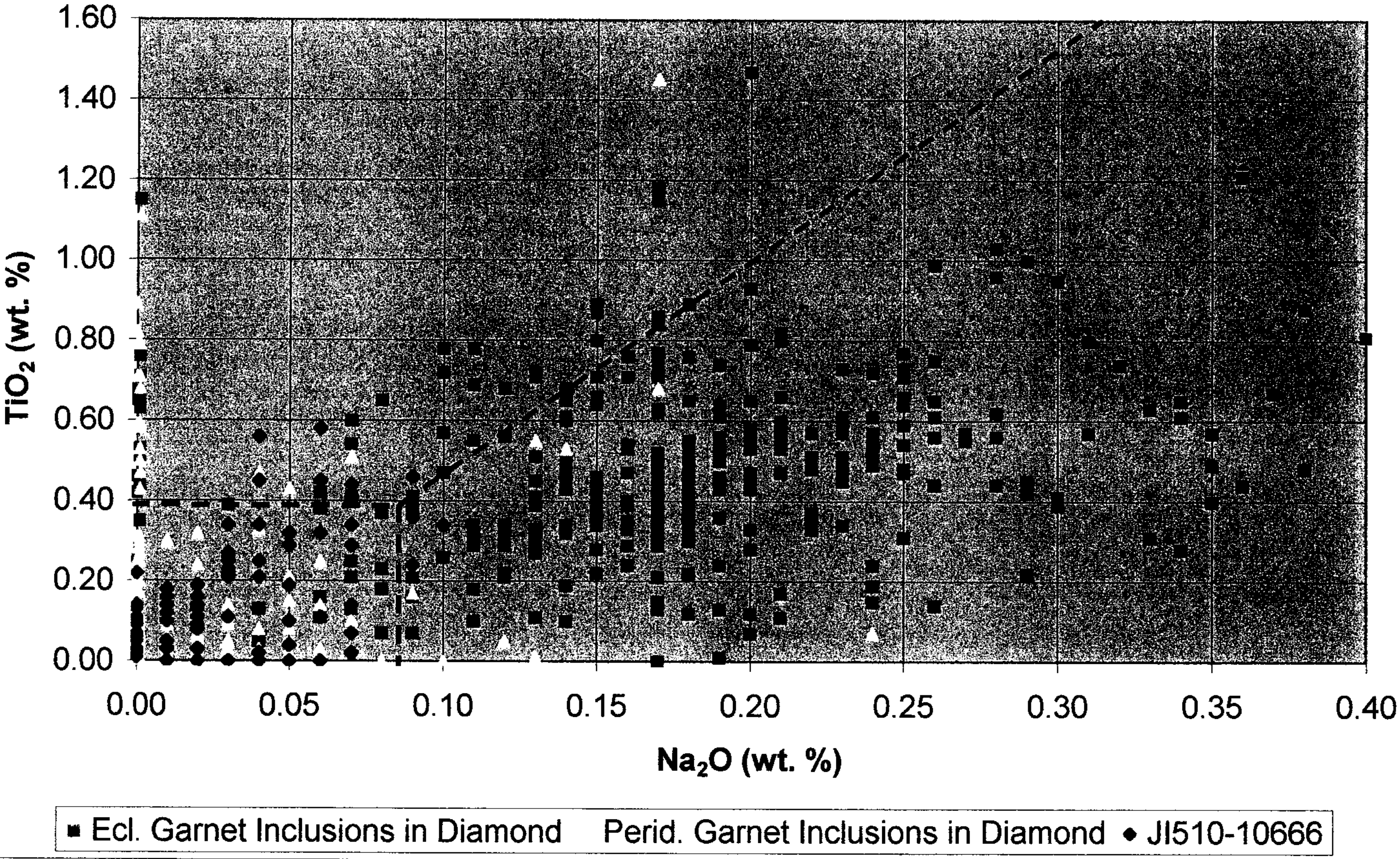


Figure 6a: CaO vs Cr_2O_3 Garnet Plot
Cr_2O_3 (wt. %)
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
11.0
12.0
13.0
14.0
15.0
16.0
CaO (wt. %)
Ecl. Garnet Inclusions In Diamond
Perid. Garnet Inclusions in Diamond
JI510-10666

Figure 6b: Na_2O vs TiO_2 Garnet Plot



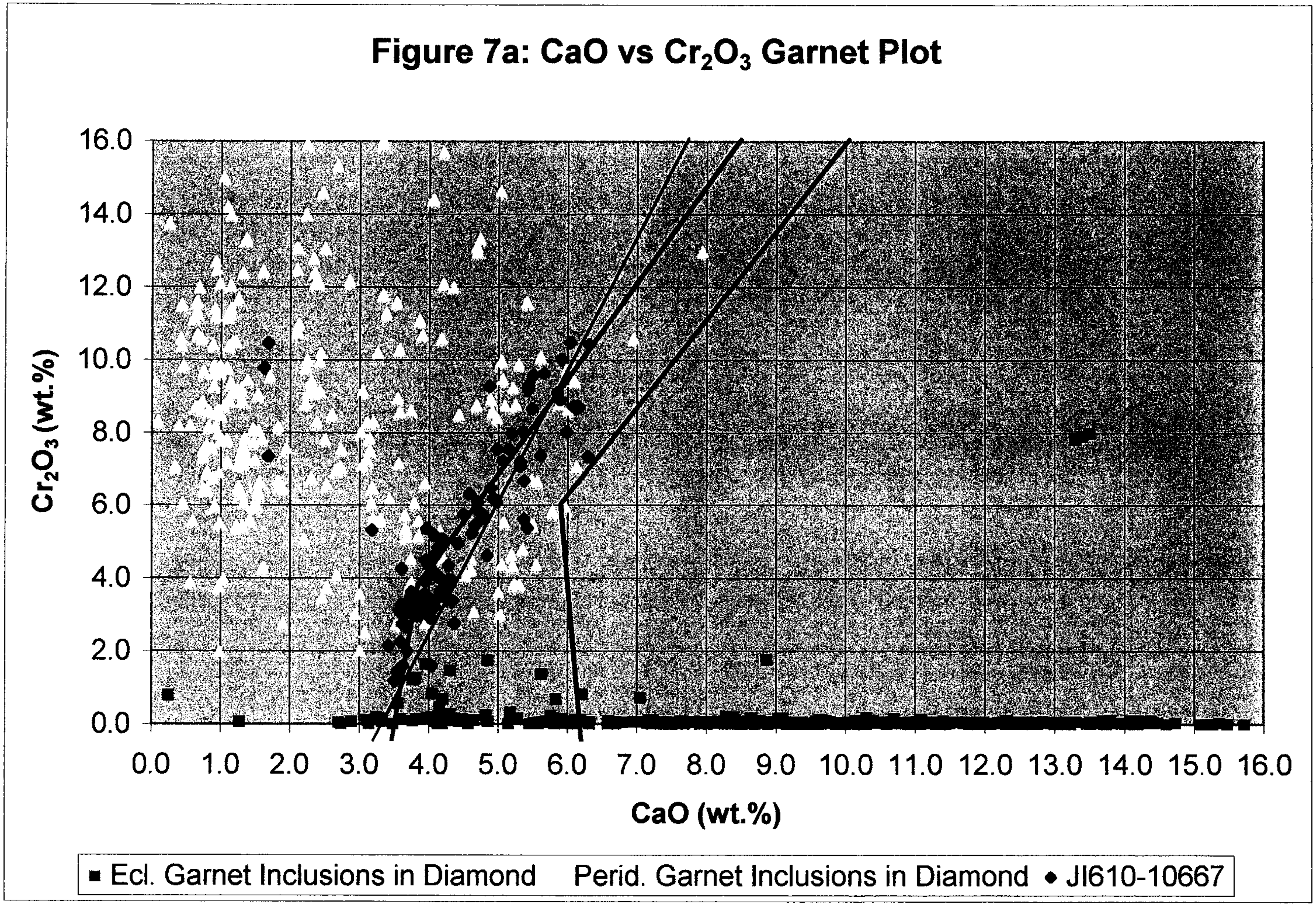
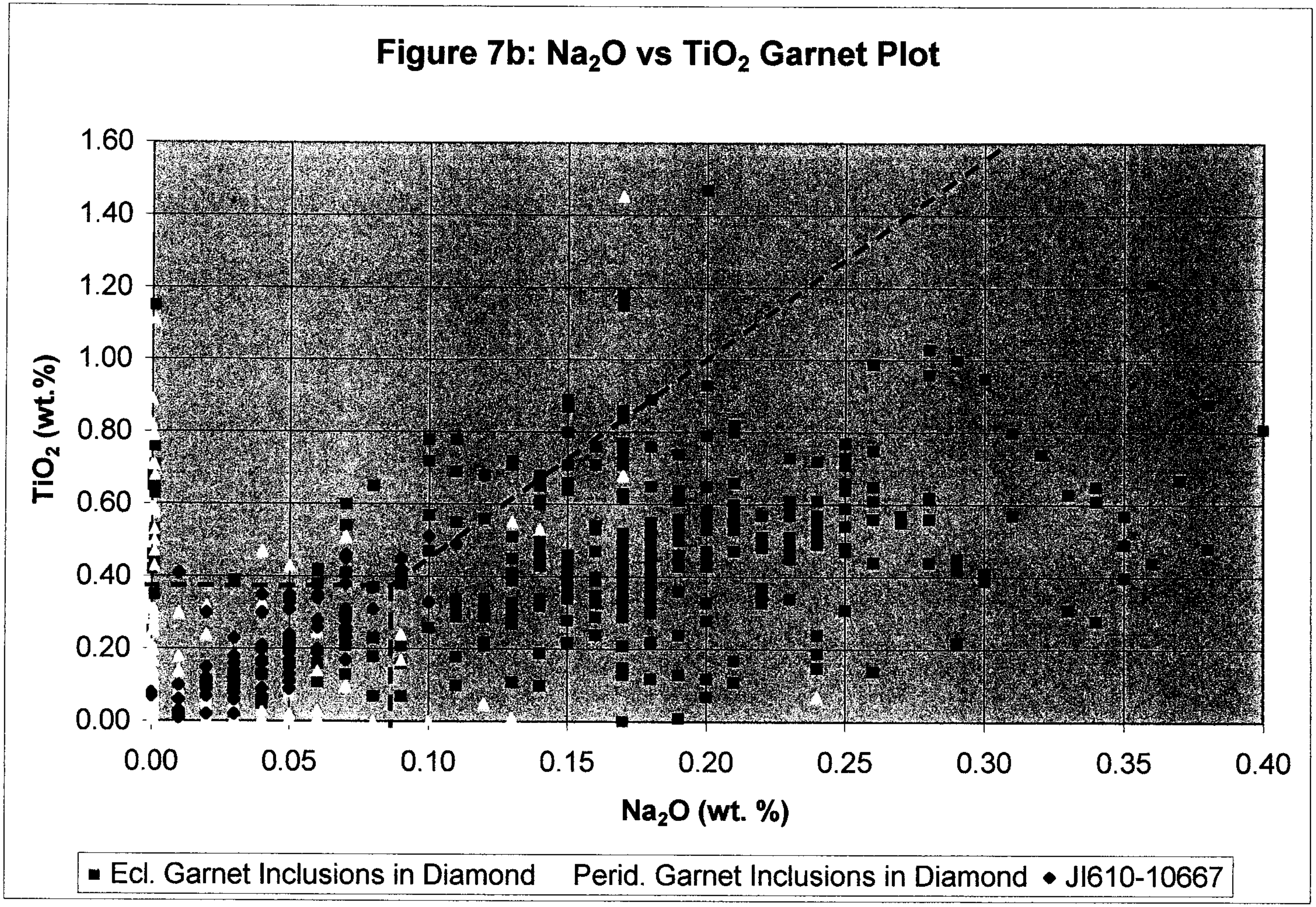


Figure 7a: CaO vs Cr_2O_3 Garnet Plot
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Cr_2O_3 (wt.%)
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0
CaO (wt.%)
Ecl. Garnet Inclusions in Diamond
Perid. Garnet Inclusions in Diamond
JI610-10667



Schulze (1997)

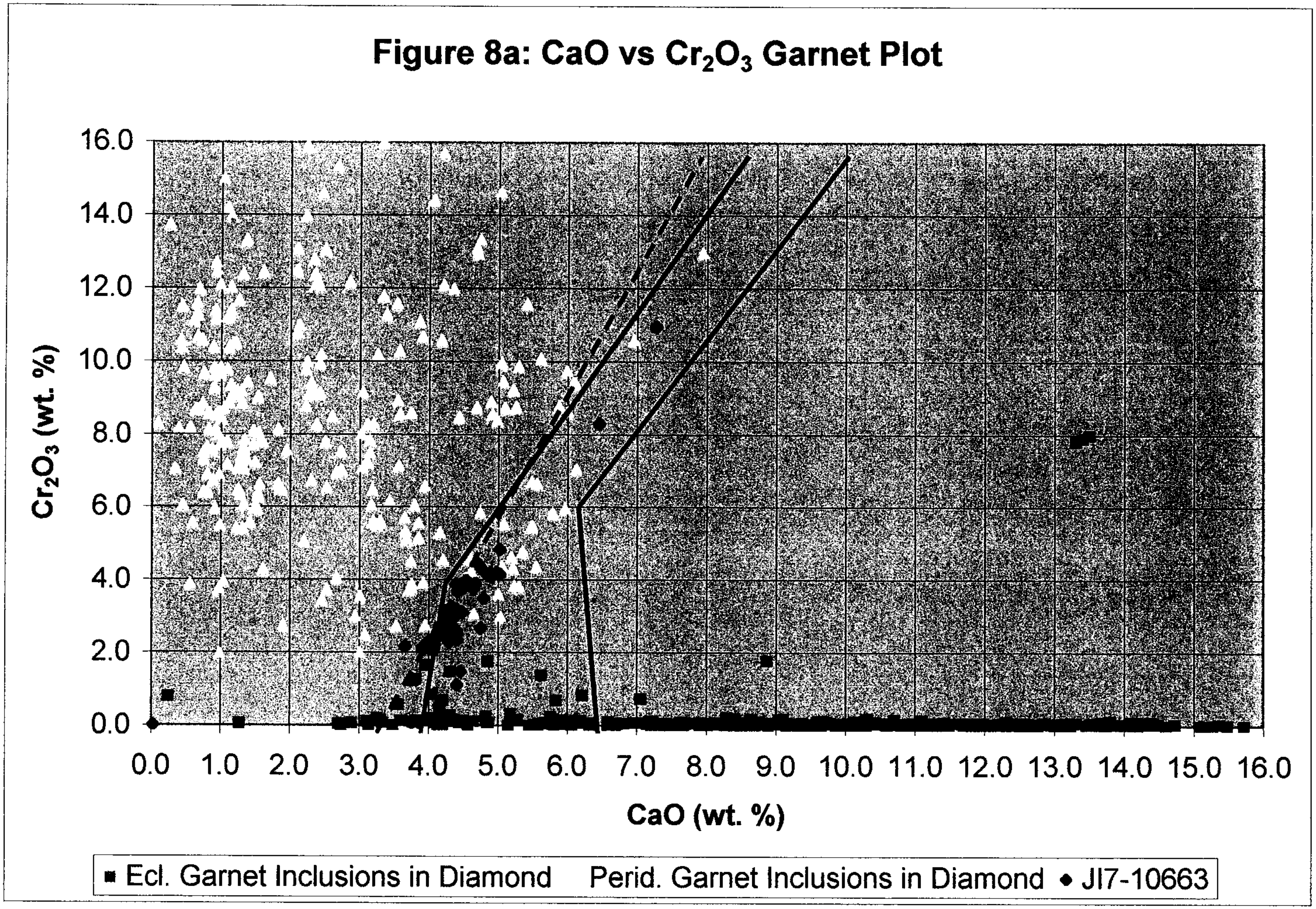


Figure 8a: CaO vs Cr_2O_3 Garnet Plot
Cr_2O_3 (wt. %)
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0
CaO (wt. %)
Ecl. Garnet Inclusions in Diamond
Perid. Garnet Inclusions in Diamond
JI7-10663

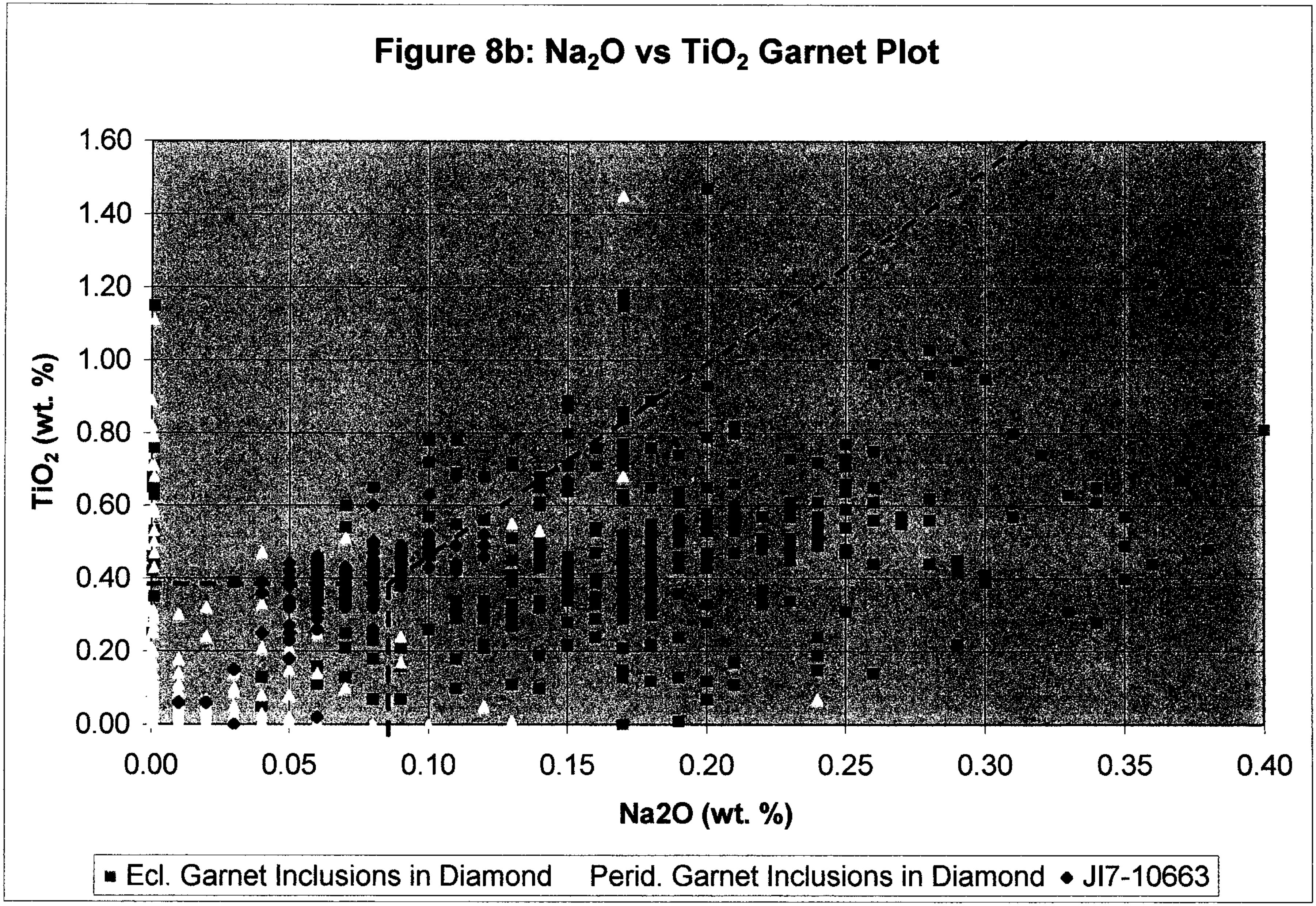


Figure 8b: Na$_2$O vs TiO$_2$ Garnet Plot
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
TiO$_2$ (wt. %)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Na2O (wt. %)
Ecl. Garnet Inclusions in Diamond
Perid. Garnet Inclusions in Diamond
JI7-10663

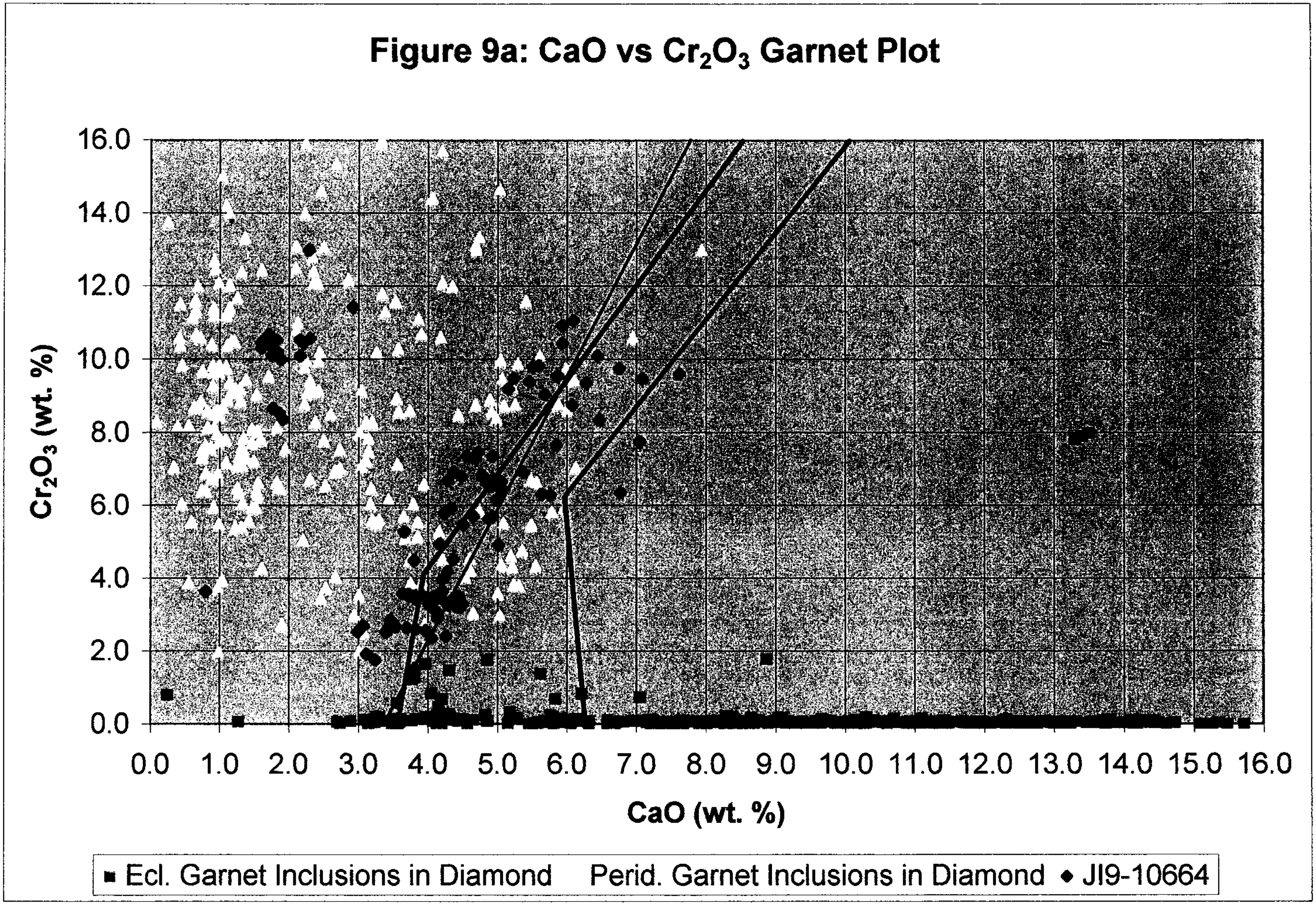


Figure 9a: CaO vs Cr_2O_3 Garnet Plot
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Cr_2O_3 (wt. %)
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0
CaO (wt. %)
Ecl. Garnet Inclusions in Diamond
Perid. Garnet Inclusions in Diamond
JI9-10664

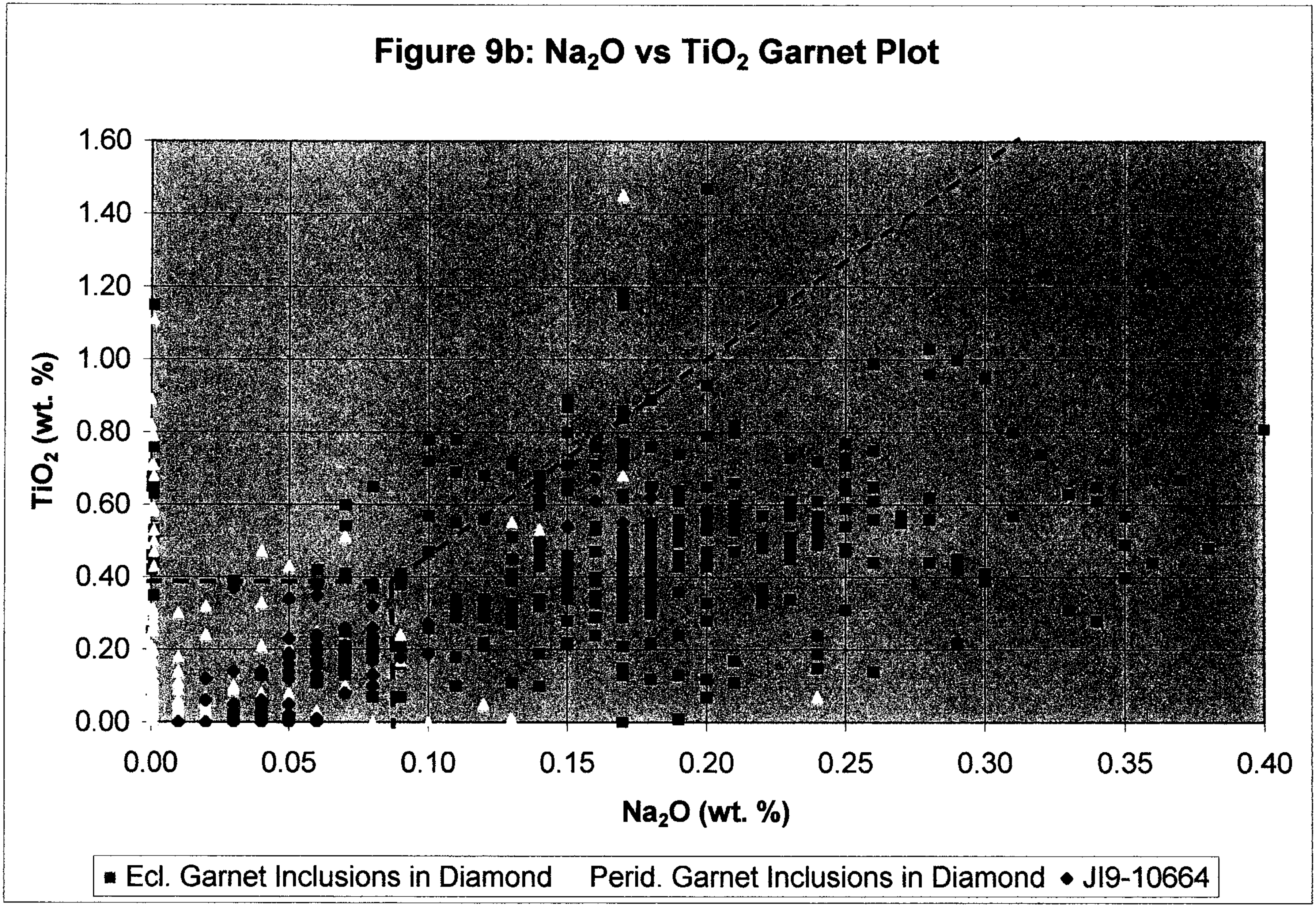


Figure 9b: Na_2O vs TiO_2 Garnet Plot
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
TiO_2 (wt. %)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Na_2O (wt. %)
Ecl. Garnet Inclusions in Diamond
Perid. Garnet Inclusions in Diamond
JI9-10664

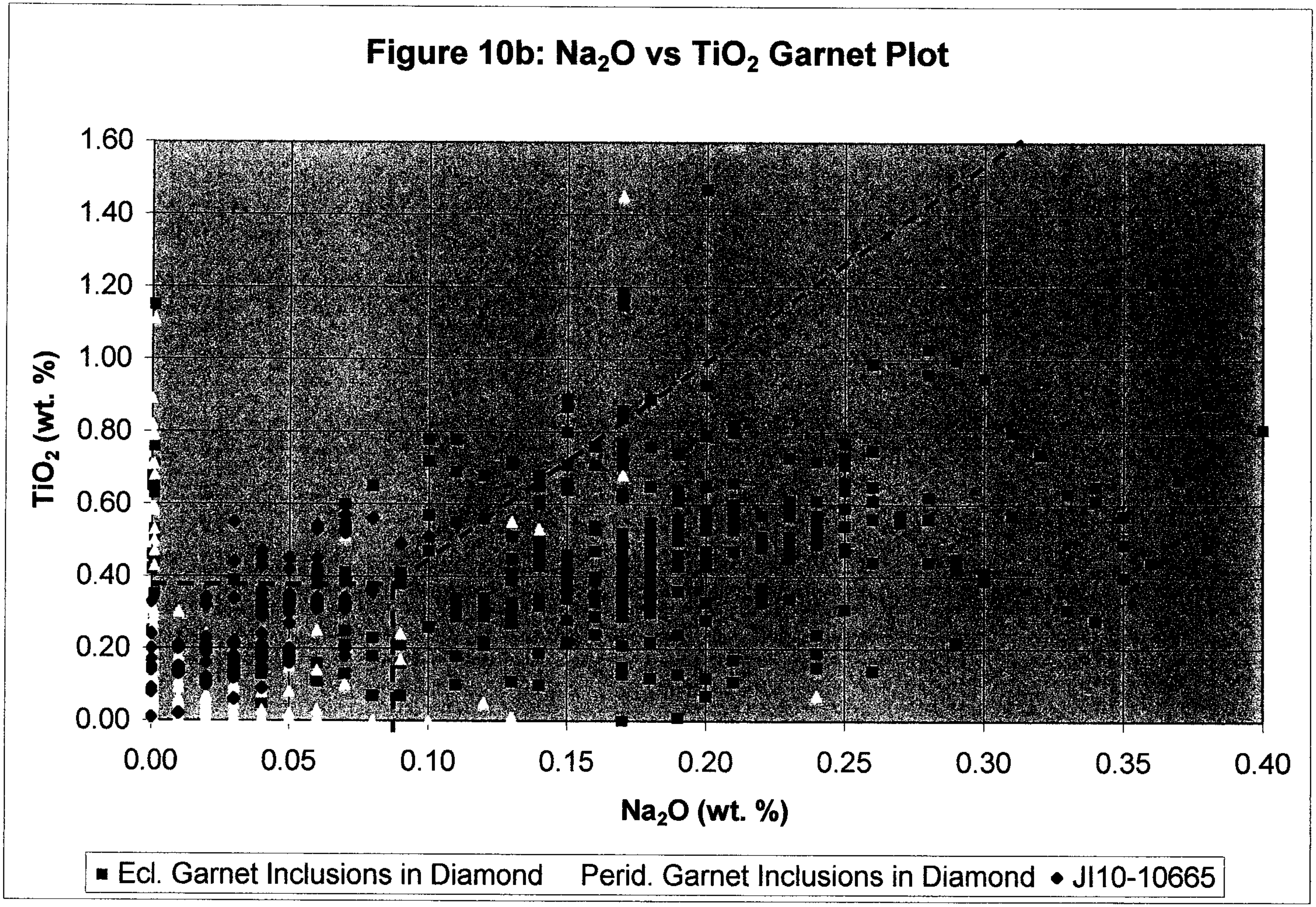


Figure 10b: Na_2O vs TiO_2 Garnet Plot
TiO_2 (wt. %)
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Na_2O (wt. %)
Ecl. Garnet Inclusions in Diamond
Perid. Garnet Inclusions in Diamond
JI10-10665

Appendix C
Electron Microprobe Analyses

Appendix C: Table of Garnet Compositions

TR1-10670	Point #	SiO2	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	Na2O	Total
1	Pt 1	41.98	0.30	22.35	1.73	0.38	9.22	19.79	3.54	0.06	99.34
2	Pt 2	43.07	0.39	23.00	1.41	0.34	8.97	20.28	3.47	0.10	101.03
3	Pt 3	42.06	0.29	22.60	1.63	0.37	9.20	19.95	3.52	0.07	99.69
4	Pt 4	41.72	0.60	23.16	0.00	0.31	13.53	16.31	4.48	0.16	100.26
5	Pt 5	43.10	0.51	22.00	2.10	0.31	7.29	21.31	3.58	0.10	100.30
6	Pt 6	42.64	0.33	22.61	1.60	0.34	9.08	20.14	3.48	0.07	100.29
7	Pt 7	42.88	0.51	23.07	0.77	0.32	7.86	21.66	2.79	0.14	100.01
8	Pt 8	41.74	0.42	22.60	1.46	0.36	8.79	20.43	3.49	0.08	99.36
9	Pt 9	42.69	0.54	21.90	1.56	0.24	8.18	21.07	0.50	0.11	99.79
10	Pt 10	38.56	0.08	21.79	0.04	2.99	28.85	4.13	5.18	0.01	101.64
11	Pt 11	42.99	0.55	22.76	0.73	0.28	8.58	21.21	3.41	0.09	100.61
12	Pt 12	42.69	0.57	22.24	1.50	0.34	8.79	20.77	3.40	0.10	100.40
13	Pt 13	41.03	0.03	16.88	8.66	0.57	7.97	16.13	7.20	0.02	98.49
14	Pt 14	42.54	0.29	21.06	3.60	0.40	7.77	19.97	3.97	0.07	99.67
15	Pt 15	42.50	0.25	20.92	3.93	0.37	7.26	20.29	3.93	0.05	99.50
16	Pt 16	42.83	0.13	22.88	1.87	0.40	9.05	19.89	3.54	0.04	100.65
17	Pt 17	41.94	0.01	20.03	5.07	0.40	7.61	19.36	4.64	0.01	99.06
18	Pt 18	42.00	0.19	20.25	4.65	0.45	8.08	19.50	4.36	0.04	99.51
19	Pt 19	42.03	0.34	19.82	4.84	0.32	7.25	20.73	4.10	0.07	99.51
20	Pt 20	41.58	0.02	18.65	6.77	0.43	7.57	18.41	5.44	0.01	98.88
21	Pt 21	42.51	0.28	21.59	3.38	0.29	7.60	20.73	3.71	0.04	100.12
22	Pt 22	41.92	0.11	17.94	7.29	0.38	7.24	19.29	5.15	0.03	99.35
23	Pt 23	42.03	0.14	20.90	4.07	0.46	8.28	19.28	4.32	0.05	99.52
24	Pt 24	41.93	0.18	20.54	3.87	0.33	6.86	20.67	3.93	0.07	98.38
25	Pt 25	41.77	0.00	17.69	7.81	0.38	7.48	17.97	6.12	0.01	99.23
26	Pt 26	41.45	0.19	17.50	7.89	0.54	8.36	17.63	5.89	0.04	99.49
27	Pt 27	42.02	0.03	19.90	5.16	0.42	7.57	19.20	4.70	0.01	99.02
28	Pt 28	41.45	0.11	17.89	7.28	0.37	7.32	19.25	5.17	0.03	98.88
29	Pt 29	41.43	0.16	14.91	10.98	0.39	6.40	21.60	2.81	0.03	98.70
30	Pt 30	42.06	0.11	21.74	3.18	0.43	8.57	19.52	4.15	0.05	99.80
31	Pt 31	41.56	0.00	19.12	6.14	0.42	7.57	18.85	5.25	0.02	98.94
32	Pt 32	41.53	0.02	19.08	6.30	0.42	7.54	18.69	5.36	0.03	98.96
33	Pt 33	41.72	0.28	21.02	3.35	0.34	7.62	20.43	3.76	0.06	98.58
34	Pt 34	41.99	0.35	20.61	3.80	0.30	6.30	20.58	4.85	0.05	98.83
35	Pt 35	41.82	0.00	18.65	6.69	0.39	7.67	18.42	5.51	0.02	99.17
36	Pt 36	42.60	0.40	21.74	2.48	0.31	7.71	20.78	3.47	0.10	99.58
37	Pt 37	42.46	0.26	22.62	1.71	0.38	8.69	19.82	3.63	0.05	99.61
38	Pt 38	41.95	0.26	19.78	5.07	0.38	7.80	19.24	4.50	0.06	99.05
39	Pt 39	42.52	0.30	19.99	4.84	0.29	6.68	20.75	4.00	0.04	99.40
40	Pt 40	42.54	0.15	21.90	3.05	0.48	8.57	19.44	4.00	0.03	100.15
41	Pt 41	42.56	0.01	21.30	3.40	0.32	7.39	20.65	3.82	0.03	99.48
42	Pt 42	42.57	0.33	21.75	2.30	0.30	7.77	21.12	3.62	0.07	99.84
43	Pt 43	42.53	0.33	21.42	3.03	0.31	7.36	21.16	3.59	0.08	99.80
44	Pt 44	41.83	0.51	19.16	5.24	0.41	7.41	19.65	4.50	0.05	98.77
45	Pt 45	41.91	0.08	18.77	6.43	0.39	7.28	19.01	5.15	0.02	99.04
46	Pt 46	42.26	0.25	21.02	4.04	0.38	7.54	20.43	3.92	0.04	99.88
47	Pt 47	41.90	0.51	19.21	5.22	0.34	7.43	19.64	4.63	0.07	98.86
48	Pt 48	42.79	0.28	21.02	3.95	0.42	7.51	20.44	3.89	0.07	100.36
49	Pt 49	41.26	0.11	17.66	7.32	0.36	7.07	19.05	4.92	0.01	97.76
50	Pt 50	42.19	0.26	19.97	4.97	0.42	7.94	19.61	4.33	0.04	99.72
51	Pt 51	41.84	0.10	17.78	7.35	0.35	7.11	19.33	4.92	0.03	98.82
52	Pt 52	41.62	0.22	17.43	7.95	0.38	7.19	19.19	4.80	0.04	98.81
53	Pt 53	42.27	0.26	21.31	3.46	0.40	8.26	19.68	3.85	0.05	99.52
54	Pt 54	41.34	0.32	19.28	5.44	0.45	8.24	19.01	4.77	0.06	98.91
55	Pt 55	41.58	0.49	19.19	5.30	0.38	7.63	19.65	4.64	0.06	98.92
56	Pt 56	42.00	0.32	19.75	4.89	0.33	6.90	20.93	4.01	0.03	99.17
57	Pt 57	42.34	0.16	20.05	4.73	0.31	7.22	20.52	4.13	0.05	99.51
58	Pt 58	42.31	0.30	21.24	3.36	0.36	7.58	20.45	3.74	0.08	99.42
59	Pt 59	41.63	0.36	19.45	5.25	0.45	8.03	19.02	4.70	0.03	98.91
60	Pt 60	41.52	0.11	17.89	7.53	0.37	7.15	19.34	5.20	0.03	99.13
61	Pt 61	41.42	0.10	18.74	6.75	0.44	7.91	18.31	5.35	0.03	99.05
62	Pt 62	41.51	0.11	18.30	7.05	0.39	7.37	18.76	5.40	0.02	98.90
63	Pt 63	42.46	0.26	22.72	1.73	0.34	8.31	20.44	3.51	0.07	99.84
64	Pt 64	42.01	0.29	19.85	4.97	0.34	6.75	20.85	4.04	0.06	99.16
65	Pt 65	41.52	0.11	18.60	6.54	0.46	8.05	18.15	5.34	0.03	98.81
66	Pt 66	41.66	0.14	17.69	7.46	0.40	7.36	19.22	5.29	0.09	99.31
67	Pt 67	41.47	0.15	15.76	9.27	0.31	6.96	18.77	6.04	0.03	98.77
68	Pt 68	40.85	0.14	15.74	9.12	0.31	6.92	18.53	5.97	0.03	97.61
69	Pt 69	41.37	0.04	18.18	7.41	0.42	7.59	17.97	5.93	0.02	98.91
70	Pt 70	41.57	0.54	19.09	5.32	0.41	7.66	19.84	4.71	0.05	99.19

71	Pt 71	41.32	0.47	18.22	6.84	0.33	7.06	19.70	4.82	0.08	98.85
72	Pt 72	41.65	0.27	20.71	4.08	0.36	7.36	20.33	4.19	0.06	99.01
73	Pt 73	42.38	0.26	21.68	2.59	0.33	7.89	20.74	3.65	0.04	99.56
74	Pt 74	41.83	0.24	19.06	6.07	0.33	6.94	20.47	4.30	0.04	99.27
75	Pt 75	40.68	0.09	16.05	9.55	0.43	7.35	17.60	6.26	0.00	98.02
76	Pt 76	41.58	0.10	18.01	7.50	0.41	7.23	19.38	5.29	0.03	99.54
77	Pt 77	41.82	0.13	18.30	6.85	0.43	7.98	18.45	5.40	0.03	99.63
78	Pt 78	42.54	0.36	20.02	4.96	0.30	7.11	20.85	4.20	0.08	100.43
79	Pt 79	42.69	0.49	21.08	3.28	0.32	7.58	21.09	3.84	0.07	100.43
80	Pt 80	42.23	0.64	19.30	5.42	0.34	6.84	20.46	4.64	0.07	99.95
81	Pt 81	41.69	0.05	19.69	5.56	0.48	8.00	18.59	5.30	0.03	99.40
82	Pt 82	42.27	0.20	19.96	5.24	0.41	7.89	19.43	4.50	0.04	99.96
83	Pt 83	41.35	0.11	18.42	6.64	0.52	7.90	18.31	5.48	0.02	98.83
84	Pt 84	42.27	0.19	20.58	4.37	0.33	7.35	20.60	3.84	0.04	99.57
85	Pt 85	42.47	0.06	21.05	3.91	0.39	7.57	20.41	4.04	0.03	99.94
86	Pt 86	41.93	0.58	19.26	5.26	0.36	7.05	20.35	4.40	0.07	99.27
87	Pt 87	42.02	0.14	20.84	4.20	0.48	8.61	19.34	4.36	0.02	100.00
88	Pt 88	41.11	0.08	16.98	8.41	0.43	7.58	18.70	5.28	0.03	98.61
89	Pt 89	41.53	0.02	19.09	6.21	0.41	7.56	18.75	5.46	0.01	99.06
90	Pt 90	40.92	0.43	16.68	8.53	0.35	7.44	18.64	5.41	0.09	98.49
91	Pt 91	40.90	0.15	17.42	8.16	0.47	7.82	18.30	5.77	0.02	99.00
92	Pt 92	41.52	0.08	18.82	6.36	0.42	7.33	19.15	5.26	0.02	98.96
93	Pt 93	42.53	0.37	21.15	2.92	0.29	7.64	21.04	3.85	0.05	99.84
94	Pt 94	42.34	0.53	21.75	2.13	0.33	7.27	21.14	3.60	0.10	99.18
95	Pt 95	42.19	0.16	20.93	4.45	0.47	8.02	19.68	4.27	0.05	100.23
96	Pt 96	41.27	0.10	16.30	9.51	0.44	7.29	17.99	6.32	0.03	99.25
97	Pt 97	42.37	0.15	20.10	4.71	0.32	7.38	20.59	4.17	0.02	99.83
98	Pt 98	41.08	0.08	16.96	8.85	0.41	7.33	18.65	5.44	0.05	98.85
99	Pt 99	42.36	0.30	21.96	2.57	0.32	7.88	20.76	3.60	0.06	99.82
100	Pt 100	41.14	0.07	15.53	10.85	0.41	6.76	22.72	1.86	0.00	98.89
101	Pt 101	41.97	0.34	19.42	5.47	0.46	8.15	19.07	4.75	0.03	99.66
102	Pt 102	42.58	0.26	21.21	3.42	0.38	7.49	20.66	3.86	0.08	99.94
103	Pt 103	41.74	0.05	18.47	6.67	0.35	7.39	19.36	4.95	0.02	99.00
104	Pt 104	40.81	0.14	14.44	11.72	0.43	7.36	17.08	6.99	0.03	99.01
105	Pt 105	41.49	0.38	16.22	9.93	0.33	6.70	21.53	2.77	0.08	99.42
106	Pt 106	40.91	0.49	15.24	9.84	0.33	7.08	18.91	6.05	0.04	98.89

TR 2-10668	Point #	SiO2	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	Na2O	Total
1	Pt 1	41.16	0.16	19.15	6.63	0.39	6.97	20.32	5.37	0.05	100.21
2	Pt 2	42.56	0.01	18.74	7.32	0.50	8.21	18.19	6.43	0.01	101.98
3	Pt 3	42.53	0.40	17.45	8.11	0.34	7.32	19.40	5.97	0.07	101.59
4	Pt 4	42.63	0.09	18.11	8.08	0.40	7.50	19.15	5.89	0.04	101.89
5	Pt 5	43.20	0.27	21.12	4.26	0.42	8.55	19.48	4.81	0.08	102.18
6	Pt 6	42.92	0.22	20.57	4.97	0.36	7.74	19.90	4.92	0.06	101.66
7	Pt 7	43.37	0.33	23.19	1.57	0.35	9.10	20.17	4.07	0.08	102.24
8	Pt 8	43.34	0.32	23.02	1.67	0.37	9.49	20.19	4.26	0.10	102.77
9	Pt 9	42.45	0.17	19.12	6.49	0.35	6.81	20.14	5.40	0.04	100.98
10	Pt 10	42.81	0.30	20.78	4.64	0.41	8.61	19.78	4.80	0.06	102.19
11	Pt 11	43.09	0.38	20.45	4.23	0.31	7.12	21.04	4.73	0.08	101.42
12	Pt 12	43.30	0.47	20.53	4.08	0.28	7.19	20.90	4.64	0.07	101.47
13	Pt 13	43.05	0.26	22.09	2.71	0.37	8.48	19.75	4.31	0.07	101.09
14	Pt 14	42.19	0.06	19.16	6.43	0.49	8.52	18.48	6.01	0.04	101.38
15	Pt 15	42.25	0.06	19.44	6.67	0.50	8.03	18.59	5.88	0.03	101.44
16	Pt 16	42.13	0.06	18.99	6.83	0.50	8.14	18.48	6.03	0.03	101.19
17	Pt 17	42.08	0.08	19.03	6.39	0.46	8.26	18.22	5.77	0.01	100.29
18	Pt 18	42.70	0.16	20.84	4.30	0.38	8.95	19.33	4.74	0.05	101.45
19	Pt 19	42.17	0.02	18.93	6.72	0.46	7.76	18.16	6.39	0.04	100.66
20	Pt 20	42.13	0.09	17.56	8.71	0.40	7.39	18.91	6.13	0.02	101.35
21	Pt 21	43.08	0.18	19.50	6.15	0.37	7.81	20.01	5.01	0.04	102.16
22	Pt 22	42.77	0.22	20.09	5.16	0.41	8.15	19.50	4.88	0.07	101.24
23	Pt 23	43.47	0.34	23.04	1.70	0.38	9.46	19.93	4.05	0.08	102.44
24	Pt 24	42.32	0.04	19.00	6.86	0.44	7.92	18.42	5.83	0.04	100.86
25	Pt 25	42.35	0.04	19.44	6.15	0.40	8.48	18.71	5.82	0.04	101.43
26	Pt 26	41.90	0.19	16.79	9.15	0.41	7.36	18.79	5.98	0.06	100.62
27	Pt 27	43.34	0.45	22.16	2.54	0.28	7.00	21.56	4.02	0.10	101.45
28	Pt 28	42.65	0.06	19.31	6.18	0.35	7.36	20.05	4.99	0.06	101.01
29	Pt 29	42.18	0.05	19.29	6.62	0.47	8.05	18.49	5.70	0.03	100.90
30	Pt 30	42.38	0.07	19.22	6.37	0.46	8.40	18.14	5.98	0.03	101.06
31	Pt 31	42.51	0.03	19.65	6.24	0.48	8.08	18.44	5.86	0.04	101.32
32	Pt 32	41.97	0.23	16.21	9.85	0.42	7.40	18.31	6.22	0.02	100.64
33	Pt 33	42.86	0.07	19.49	6.06	0.36	7.39	19.95	5.09	0.04	101.31
34	Pt 34	43.18	0.20	20.43	4.98	0.39	7.62	19.64	4.95	0.07	101.46
35	Pt 35	42.54	0.29	21.35	3.54	0.38	8.06	20.20	4.60	0.07	101.04
36	Pt 36	43.17	0.44	21.44	3.12	0.35	7.27	21.14	4.04	0.07	101.04
37	Pt 37	42.11	0.10	18.11	7.67	0.41	7.51	19.16	5.72	0.04	100.83
38	Pt 38	41.49	0.06	16.57	9.67	0.60	8.20	16.14	8.07	0.02	100.81
39	Pt 39	43.10	0.49	20.80	3.17	0.29	7.67	20.60	4.40	0.09	100.61
40	Pt 40	43.29	0.02	22.66	2.51	0.41	8.29	19.79	4.30	0.03	101.30
41	Pt 41	42.54	0.27	20.95	4.19	0.49	8.67	19.56	4.77	0.07	101.52
42	Pt 42	42.51	0.05	19.06	6.49	0.46	8.44	18.11	5.98	0.04	101.14
43	Pt 43	42.71	0.52	20.87	3.29	0.30	7.84	20.76	4.52	0.07	100.88
44	Pt 44	42.43	0.31	20.31	4.65	0.39	7.16	20.22	4.59	0.09	100.16
45	Pt 45	42.23	0.29	17.26	7.95	0.38	7.39	9.22	5.77	0.04	100.53
46	Pt 46	42.50	0.09	18.41	7.29	0.37	7.24	19.64	5.33	0.04	100.92
47	Pt 47	42.48	0.05	19.74	5.80	0.49	8.08	18.84	5.34	0.05	100.87
48	Pt 48	43.10	0.29	21.40	3.42	0.39	8.07	20.00	4.55	0.09	101.31
49	Pt 49	42.02	0.08	7.45	8.45	0.40	7.30	18.56	5.94	0.06	100.25
50	Pt 50	42.64	0.27	21.20	4.28	0.41	8.48	19.65	4.57	0.09	101.60
51	Pt 51	42.70	0.18	19.44	5.87	0.36	7.05	20.25	4.43	0.07	100.35
52	Pt 52	42.53	0.20	20.31	4.90	0.38	7.68	19.84	4.69	0.06	100.60
53	Pt 53	42.54	0.25	20.70	4.43	0.39	7.84	19.43	4.95	0.06	100.58
54	Pt 54	42.34	0.88	18.98	5.72	0.37	7.46	20.52	4.27	0.15	100.69
55	Pt 55	41.84	0.12	17.32	8.44	0.39	7.49	18.72	5.89	0.04	100.24
56	Pt 56	42.16	0.37	15.26	10.67	0.32	6.99	18.74	6.32	0.04	100.88
57	Pt 57	42.43	0.11	18.74	6.37	0.35	7.45	19.74	5.32	0.06	100.57
58	Pt 58	41.80	0.00	18.14	7.93	0.52	8.29	17.28	6.87	0.04	100.88
59	Pt 59	41.94	0.03	18.24	7.73	0.57	8.35	17.32	6.63	0.05	100.87
60	Pt 60	42.09	0.12	18.66	7.37	0.48	7.69	18.89	5.36	0.05	100.72
61	Pt 61	42.28	0.15	17.86	8.17	0.32	6.33	20.50	4.71	0.07	100.39
62	Pt 62	41.96	0.17	16.57	9.22	0.39	7.46	18.88	5.05	0.04	100.54
63	Pt 63	41.73	0.15	17.01	8.78	0.40	7.10	18.74	5.79	0.06	99.76
64	Pt 64	42.17	0.25	18.46	7.16	0.35	7.54	19.25	5.49	0.07	100.74
65	Pt 65	42.11	0.41	18.92	6.51	0.39	7.51	19.59	5.29	0.06	100.79
66	Pt 66	42.19	0.01	19.26	6.80	0.47	8.22	17.92	6.11	0.05	101.02
67	Pt 67	42.43	0.04	19.32	6.50	0.41	7.37	19.21	5.42	0.04	100.74
68	Pt 68	42.34	0.16	19.11	6.39	0.34	6.84	19.71	5.04	0.07	99.98
69	Pt 69	43.40	0.20	20.73	4.42	0.32	7.20	20.70	4.10	0.06	101.13
70	Pt 70	42.62	0.10	19.96	5.71	0.55	8.40	18.29	5.74	0.04	101.42

71	Pt 71	42.72	0.19	20.32	4.89	0.39	7.81	19.76	4.81	0.06	100.93
72	Pt 72	41.77	0.20	16.84	8.84	0.40	7.34	18.67	6.03	0.04	100.12
73	Pt 73	41.60	0.45	17.79	7.53	0.46	8.27	18.13	5.70	0.09	100.02
74	Pt 74	42.85	0.16	19.28	6.34	0.35	7.08	20.09	5.01	0.05	101.20
75	Pt 75	42.63	0.17	20.36	4.92	0.40	7.68	19.69	4.66	0.06	100.57
76	Pt 76	42.88	0.23	19.44	5.59	0.32	6.61	20.74	4.30	0.09	100.18
77	Pt 77	43.20	0.31	21.48	3.43	0.40	8.06	19.89	4.45	0.09	101.30
78	Pt 78	42.57	0.22	21.23	3.91	0.45	8.24	19.65	4.39	0.06	100.71
79	Pt 79	43.21	0.25	20.94	4.09	0.35	7.73	20.27	4.35	0.06	101.25
80	Pt 80	42.31	0.05	19.09	6.44	0.50	7.93	18.36	5.57	0.01	100.25
81	Pt 81	42.77	0.23	20.35	4.68	0.40	8.09	19.31	4.76	0.06	100.65
82	Pt 82	42.62	0.22	20.39	4.77	0.34	7.65	19.64	4.65	0.05	100.32
83	Pt 83	42.12	0.01	17.01	8.89	0.37	7.36	17.67	6.62	0.04	100.10
84	Pt 84	42.27	0.37	15.25	10.20	0.32	6.89	18.53	6.15	0.06	100.03
85	Pt 85	42.63	0.17	19.79	5.59	0.47	8.46	18.60	5.13	0.07	100.91
86	Pt 86	42.94	0.21	19.53	5.60	0.30	6.54	20.85	4.35	0.08	100.40
87	Pt 87	43.11	0.25	21.24	4.06	0.47	8.07	19.38	4.50	0.04	101.12
88	Pt 88	43.28	0.30	20.49	4.33	0.31	7.13	20.69	4.87	0.04	101.43
89	Pt 89	43.11	0.02	22.53	2.54	0.42	8.07	19.85	4.19	0.03	100.77
90	Pt 90	42.15	0.05	19.17	6.53	0.46	8.26	17.90	5.99	0.02	100.53
91	Pt 91	42.02	0.08	17.67	8.44	0.41	7.53	18.44	5.85	0.03	100.47
92	Pt 92	41.91	0.03	19.23	6.63	0.49	8.07	18.11	6.10	0.04	100.62
93	Pt 93	41.99	0.09	18.13	7.83	0.43	7.56	19.47	4.99	0.04	100.53
94	Pt 94	42.32	0.05	19.15	6.60	0.48	7.93	18.42	5.59	0.04	100.57
95	Pt 95	43.02	0.42	20.65	3.93	0.34	8.06	20.39	4.12	0.08	101.00
96	Pt 97	42.51	0.20	19.32	5.89	0.36	7.86	19.71	4.95	0.05	100.85
97	Pt 98	42.57	0.09	17.84	7.91	0.40	7.45	18.83	5.26	0.05	100.39
98	Pt 99	42.65	0.17	19.66	5.89	0.52	8.36	18.31	5.20	0.08	100.85
99	Pt 100	43.58	0.29	21.43	3.23	0.28	7.62	20.68	3.92	0.08	101.11
100	Pt 101	43.17	0.11	22.01	3.15	0.40	8.85	19.17	4.44	0.06	101.35
101	Pt 102	42.47	0.05	19.14	6.63	0.49	8.17	18.16	5.81	0.03	100.96
102	Pt 103	43.02	0.06	19.91	5.65	0.35	7.07	20.20	4.74	0.03	101.02
103	Pt 104	43.12	0.68	22.68	0.87	0.33	8.27	21.27	3.19	0.17	100.57
104	Pt 105	41.95	0.36	23.20	0.15	0.28	15.94	16.70	2.90	0.11	101.59
105	Pt 106	41.02	0.11	22.72	0.09	0.42	21.20	11.60	4.39	0.03	101.58
106	Pt 107	43.59	0.68	23.03	0.94	0.27	8.34	21.26	3.14	0.16	101.42
107	Pt 108	42.58	0.40	23.32	0.19	0.28	12.73	18.18	3.41	0.12	101.21
108	Pt 109	43.48	0.27	23.66	0.40	0.23	8.95	20.19	3.92	0.09	101.20
109	Pt 110	44.09	0.66	22.93	0.88	0.28	8.14	21.27	3.02	0.15	101.40
110	Pt 111	42.32	0.44	23.45	0.21	0.27	13.18	18.04	3.65	0.13	101.68
111	Pt 112	42.25	0.43	23.26	0.19	0.27	12.26	18.25	3.52	0.14	100.56

TR3-10671	Point #	SiO2	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	Na2O	Total
1	Pt 1	42.11	0.38	22.70	1.55	0.33	9.37	19.86	3.64	0.07	100.03
2	Pt 2	42.37	0.37	22.61	1.57	0.36	9.54	19.93	3.59	0.08	100.42
3	Pt 3	42.54	0.51	21.50	1.73	0.28	7.82	21.21	3.51	0.08	99.82
4	Pt 4	42.13	0.37	22.68	1.53	0.42	9.36	19.84	3.49	0.07	99.90
5	Pt 5	44.79	0.54	23.13	2.14	0.37	7.97	22.07	3.80	0.09	104.90
6	Pt 6	41.60	0.33	22.62	1.53	0.36	9.33	20.03	3.59	0.07	99.47
7	Pt 7	41.95	0.22	23.64	0.26	0.28	10.94	19.55	3.40	0.04	100.27
8	Pt 8	42.26	0.21	23.41	0.66	0.28	9.87	19.82	3.53	0.02	100.05
9	Pt 9	42.50	0.20	23.84	0.28	0.29	10.05	19.05	3.31	0.04	100.36
10	Pt 10	42.33	0.29	21.73	2.35	0.31	7.81	21.08	3.82	0.02	99.73
11	Pt 11	43.05	0.60	23.15	0.61	0.29	7.75	21.72	3.51	0.10	100.79
12	Pt 12	42.84	0.66	23.03	0.74	0.34	7.75	21.52	3.44	0.11	100.42
13	Pt 13	41.85	0.33	21.55	2.75	0.38	8.46	20.35	3.84	0.08	99.58
14	Pt 14	41.99	0.33	21.82	2.84	0.39	8.27	20.35	3.67	0.07	99.72
15	Pt 15	41.38	0.17	18.33	7.22	0.49	7.76	19.10	4.67	0.03	99.15
16	Pt 16	42.34	0.15	20.60	4.43	0.33	7.30	20.39	4.22	0.04	99.81
17	Pt 17	42.32	0.32	21.77	2.69	0.33	8.17	20.26	3.62	0.07	99.57
18	Pt 18	40.81	0.10	16.84	8.89	0.45	7.22	18.42	5.97	0.02	98.73
19	Pt 19	42.59	0.28	21.19	3.33	0.35	7.08	21.33	3.81	0.05	100.01
20	Pt 20	42.40	0.33	21.88	2.73	0.37	8.17	20.38	3.69	0.08	100.03
21	Pt 21	42.25	0.35	18.81	6.35	0.34	6.94	20.96	3.79	0.08	99.86
22	Pt 22	42.86	0.33	21.99	2.76	0.38	8.34	20.17	3.73	0.08	100.64
23	Pt 23	41.97	0.12	21.68	3.33	0.42	8.52	19.61	4.20	0.03	99.89
24	Pt 24	41.00	0.09	17.05	8.87	0.42	7.38	18.34	5.82	0.01	98.98
25	Pt 25	42.14	0.32	21.90	2.73	0.34	8.16	20.36	3.73	0.07	99.76
26	Pt 26	42.10	0.27	20.98	3.39	0.31	7.23	21.28	3.84	0.04	99.44
27	Pt 27	42.22	0.22	21.28	3.29	0.33	7.73	20.76	3.97	0.04	99.83
28	Pt 28	42.38	0.34	21.92	2.71	0.39	8.32	20.43	3.73	0.06	100.30
29	Pt 29	41.38	0.10	16.97	8.93	0.42	7.22	18.37	5.89	0.03	99.31
30	Pt 30	41.71	0.11	15.66	10.89	0.36	6.32	22.06	2.38	0.03	99.51
31	Pt 31	41.75	0.24	20.66	4.12	0.33	7.27	20.80	4.16	0.03	99.35
32	Pt 32	41.70	0.44	18.81	6.19	0.34	7.06	20.10	4.68	0.06	99.37
33	Pt 33	42.37	0.33	18.99	6.11	0.35	6.90	20.95	3.77	0.07	99.84
34	Pt 34	42.65	0.37	22.26	2.35	0.36	7.90	20.75	3.73	0.07	100.42
35	Pt 35	42.23	0.08	21.67	3.28	0.41	8.17	20.04	4.13	0.03	100.06
36	Pt 36	42.47	0.32	21.89	2.73	0.36	7.75	20.86	3.66	0.07	100.12
37	Pt 37	41.56	0.10	15.55	10.84	0.35	6.43	22.07	2.42	0.03	99.35
38	Pt 38	42.05	0.15	18.78	6.41	0.41	7.45	19.58	4.72	0.06	99.61
39	Pt 39	42.50	0.06	20.55	4.58	0.31	7.02	22.41	2.24	0.06	99.73
40	Pt 40	41.78	0.07	16.24	9.87	0.34	6.88	22.63	1.21	0.05	99.06
41	Pt 41	42.21	0.50	20.91	3.33	0.32	7.93	20.81	3.73	0.08	99.82
42	Pt 42	41.80	0.03	16.99	9.55	0.34	6.70	23.36	1.21	0.03	100.01
43	Pt 43	41.21	0.09	17.58	8.12	0.42	7.72	17.71	6.11	0.02	98.99
44	Pt 44	41.51	0.24	19.20	5.64	0.35	7.58	19.95	4.53	0.04	99.05
45	Pt 45	41.43	0.08	17.01	8.80	0.37	6.69	21.30	2.67	0.02	98.37
46	Pt 46	41.20	0.14	16.66	9.24	0.39	7.26	19.40	4.72	0.08	99.08
47	Pt 47	40.96	0.11	16.73	8.94	0.43	7.31	18.29	5.78	0.02	98.56
48	Pt 48	42.26	0.30	22.65	1.66	0.38	8.41	20.27	3.55	0.08	99.57
49	Pt 49	41.67	0.86	19.10	5.11	0.34	7.47	20.62	3.58	0.21	98.95
50	Pt 50	41.33	0.14	16.58	9.12	0.39	7.27	18.56	5.42	0.02	98.83
51	Pt 51	42.22	0.22	20.11	5.18	0.44	7.79	19.84	4.37	0.04	100.22
52	Pt 52	42.30	0.32	21.07	3.50	0.43	8.15	19.76	4.17	0.07	99.78
53	Pt 53	41.57	0.10	15.42	10.48	0.33	6.27	21.65	2.39	0.04	98.24
54	Pt 54	41.45	0.14	16.73	9.30	0.43	7.41	19.16	4.62	0.05	99.30
55	Pt 55	41.96	0.31	20.73	3.52	0.30	7.28	21.02	3.96	0.04	99.12
56	Pt 56	41.53	0.26	20.38	4.65	0.49	8.31	19.22	4.87	0.06	99.79
57	Pt 57	41.52	0.43	18.60	6.03	0.36	6.95	19.99	4.76	0.05	98.68
58	Pt 58	42.47	0.16	18.22	7.45	0.33	6.72	23.10	1.42	0.03	99.89
59	Pt 59	42.13	0.15	19.92	4.97	0.35	7.86	19.64	4.17	0.04	99.24
60	Pt 60	41.86	0.25	16.37	9.11	0.36	6.29	19.33	5.10	0.07	98.73
61	Pt 61	41.55	0.31	19.17	5.96	0.34	6.72	20.51	4.30	0.05	98.89
62	Pt 62	41.72	0.16	18.28	7.67	0.33	6.63	23.05	1.44	0.05	99.32
63	Pt 63	41.34	0.13	17.53	7.70	0.36	7.13	19.24	5.29	0.04	98.77
64	Pt 64	40.92	0.15	16.54	9.37	0.42	7.24	19.26	4.75	0.06	98.73
65	Pt 65	41.65	0.23	20.16	4.85	0.51	8.38	18.70	5.00	0.03	99.49
66	Pt 66	41.10	0.25	17.73	7.47	0.52	8.22	18.33	5.32	0.04	98.98
67	Pt 67	42.76	0.46	22.55	1.83	0.31	7.61	21.46	3.40	0.08	100.46
68	Pt 68	42.42	0.03	20.79	4.50	0.26	7.00	22.67	2.09	0.04	99.80
69	Pt 69	42.47	0.23	18.91	6.09	0.39	7.65	19.79	4.61	0.03	100.18
70	Pt 70	41.49	0.10	17.04	8.72	0.45	7.50	18.56	5.59	0.01	99.47

71	Pt 71	41.99	0.33	21.82	2.70	0.36	8.22	20.26	3.86	0.07	99.60
72	Pt 72	41.98	0.37	21.98	2.49	0.34	7.93	20.65	3.70	0.08	99.51
73	Pt 73	42.12	0.29	21.22	3.34	0.37	7.15	21.30	3.93	0.04	99.76
74	Pt 74	42.97	0.45	22.41	1.84	0.28	7.53	21.20	3.32	0.09	100.09
75	Pt 75	42.81	0.41	21.74	2.59	0.36	7.68	20.96	3.61	0.06	100.21
76	Pt 76	42.17	0.32	21.88	2.76	0.39	8.17	20.25	3.77	0.08	99.79
77	Pt 77	41.40	0.05	18.72	6.75	0.45	7.43	19.15	4.85	0.03	98.84
78	Pt 78	41.44	0.02	17.71	7.95	0.45	7.64	17.58	6.25	0.01	99.05
79	Pt 79	42.87	0.05	20.61	4.59	0.32	6.88	22.43	2.17	0.05	99.98
80	Pt 80	40.95	0.09	16.56	9.22	0.45	7.33	18.27	5.97	0.04	98.88
81	Pt 81	41.63	0.17	20.05	5.12	0.41	8.07	19.78	4.41	0.05	99.70
82	Pt 82	41.95	0.30	18.86	6.62	0.36	6.76	20.66	4.66	0.08	100.25
83	Pt 83	41.34	0.12	16.65	9.86	0.43	7.11	19.31	5.44	0.08	100.36
84	Pt 84	41.49	0.02	20.48	5.12	0.45	8.14	18.59	5.93	0.02	100.23
85	Pt 85	41.47	0.10	18.78	6.66	0.36	7.16	19.25	6.01	0.04	99.83
86	Pt 86	41.42	0.07	15.83	11.16	0.38	6.09	21.96	2.76	0.05	99.72
87	Pt 87	41.01	0.04	16.81	9.27	0.40	7.26	18.46	6.80	0.05	100.10
88	Pt 88	41.06	0.09	15.46	11.38	0.36	6.24	21.84	2.77	0.04	99.25
89	Pt 89	40.57	0.09	17.18	9.31	0.46	7.43	17.48	7.31	0.03	99.86
90	Pt 90	42.16	0.43	21.01	3.66	0.35	7.36	20.91	4.45	0.09	100.43
91	Pt 91	41.96	0.13	20.19	5.46	0.44	7.55	19.20	5.85	0.05	100.84
92	Pt 92	42.27	0.24	21.28	3.91	0.45	8.04	20.01	4.70	0.07	100.97
93	Pt 93	42.25	0.63	19.78	5.11	0.35	7.40	20.70	4.52	0.14	100.87
94	Pt 94	41.21	0.09	16.92	9.43	0.34	7.15	18.41	6.76	0.05	100.37
95	Pt 95	42.08	0.09	17.41	9.27	0.35	6.60	21.77	3.09	0.06	100.72
96	Pt 96	42.60	0.30	21.20	3.86	0.40	8.22	19.90	4.99	0.10	101.57
97	Pt 97	42.30	0.02	16.96	10.18	0.35	6.39	23.24	1.40	0.03	100.94
98	Pt 98	42.67	0.32	21.67	3.00	0.35	7.36	21.21	4.49	0.07	101.16
99	Pt 99	41.72	0.23	18.13	8.22	0.45	8.50	18.38	6.31	0.09	102.03
100	Pt 100	42.35	0.03	19.08	7.17	0.41	7.54	19.42	5.58	0.07	101.64
101	Pt 101	41.56	0.12	16.60	9.99	0.46	7.59	19.01	5.82	0.12	101.27
102	Pt 102	41.38	0.02	17.86	8.48	0.44	7.68	17.64	7.45	0.02	100.98
103	Pt 103	42.58	0.44	18.84	6.63	0.31	7.06	20.33	5.43	0.06	101.67
104	Pt 104	42.03	0.01	18.77	7.41	0.49	8.07	17.81	6.87	0.01	101.48
105	Pt 105	42.70	0.23	20.95	4.16	0.32	7.18	20.72	4.82	0.07	101.15
106	Pt 106	42.15	0.44	18.75	6.48	0.34	7.06	20.17	5.59	0.06	101.05
107	Pt 107	41.84	0.13	17.67	8.37	0.37	7.15	19.52	5.99	0.04	101.06
108	Pt 108	41.97	0.14	16.70	9.86	0.44	7.14	18.55	6.61	0.04	101.46
109	Pt 109	42.83	0.26	21.57	3.88	0.40	8.36	20.13	5.03	0.06	102.51
110	Pt 110	42.43	0.07	17.46	9.37	0.40	6.79	21.98	3.13	0.04	101.68
111	Pt 111	42.73	0.44	18.87	6.50	0.34	6.86	20.42	5.47	0.05	101.69
112	Pt 112	42.51	0.13	21.22	4.18	0.39	7.56	20.23	5.01	0.05	101.29
113	Pt 113	42.56	0.09	16.61	10.44	0.28	6.23	22.18	3.13	0.07	101.59
114	Pt 114	41.81	0.28	16.33	9.97	0.37	7.73	18.58	6.78	0.04	101.88
115	Pt 115	42.10	0.09	16.77	9.39	0.39	7.26	18.39	6.71	0.04	101.14
116	Pt 116	42.18	0.09	17.19	9.23	0.42	7.46	18.68	6.56	0.03	101.82
117	Pt 117	42.14	0.10	16.94	9.60	0.45	7.41	18.65	6.86	0.05	102.19
118	Pt 118	43.24	0.33	21.09	4.11	0.33	7.34	21.32	4.63	0.05	102.45
119	Pt 119	43.09	0.29	21.96	2.90	0.38	8.29	20.48	4.34	0.07	101.79
120	Pt 120	42.59	0.10	15.79	11.41	0.35	6.39	22.10	2.75	0.04	101.51
121	Pt 121	42.17	0.08	17.08	9.37	0.42	7.45	18.41	6.65	0.03	101.67
122	Pt 122	41.83	0.13	16.77	9.81	0.40	7.24	18.63	6.47	0.04	101.32
123	Pt 123	42.61	0.15	20.52	4.76	0.36	7.48	20.43	4.92	0.06	101.29
124	Pt 124	42.33	0.09	17.39	9.19	0.38	6.80	21.82	2.97	0.05	101.01
125	Pt 125	42.54	0.14	16.86	9.78	0.42	7.49	19.55	5.36	0.08	102.21
126	Pt 126	42.55	0.24	19.17	6.57	0.38	7.43	19.69	5.49	0.05	101.57
127	Pt 127	42.26	0.08	17.29	9.26	0.43	7.55	18.39	6.48	0.05	101.81
128	Pt 128	41.79	0.07	17.10	9.48	0.45	7.47	18.45	6.59	0.05	101.46
129	Pt 129	42.17	0.09	16.82	9.30	0.41	7.45	18.39	6.53	0.04	101.20
130	Pt 130	43.21	0.15	22.66	2.70	0.44	9.30	19.82	4.22	0.09	102.59
131	Pt 131	42.49	0.07	16.78	9.55	0.32	6.95	20.90	4.13	0.04	101.22

TR4-10672	Point #	SiO2	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	Na2O	Total
1	Pt 1	43.21	0.41	22.93	1.25	0.30	8.89	21.01	3.01	0.13	101.14
2	Pt 2	43.34	0.63	22.26	1.81	0.31	8.46	21.10	3.17	0.16	101.25
3	Pt 3	42.96	0.52	22.16	1.58	0.31	8.75	20.52	3.57	0.08	100.44
4	Pt 4	42.73	0.69	22.93	0.12	0.37	11.90	18.98	3.34	0.14	101.19
5	Pt 5	42.93	0.58	22.19	1.57	0.33	8.99	20.55	3.58	0.09	100.81
6	Pt 6	44.15	0.13	18.73	8.19	0.40	7.63	19.74	5.76	0.04	104.79
7	Pt 7	42.87	0.37	22.88	1.44	0.34	8.33	20.59	3.89	0.07	100.80
8	Pt 8	43.02	0.09	23.37	1.30	0.43	9.41	19.53	3.78	0.03	100.95
9	Pt 9	43.25	0.32	19.58	5.36	0.34	7.10	20.39	4.45	0.05	100.84
10	Pt 10	43.21	0.32	21.18	3.37	0.29	7.26	20.90	3.99	0.07	100.59
11	Pt 11	41.52	0.35	14.35	11.90	0.37	7.16	18.20	6.28	0.05	100.19
12	Pt 12	42.32	0.04	16.67	9.64	0.33	6.78	20.50	3.96	0.03	100.29
13	Pt 13	43.45	0.35	22.42	1.89	0.30	7.18	21.77	3.80	0.07	101.23
14	Pt 14	42.75	0.12	21.05	3.75	0.35	7.50	20.27	4.34	0.05	100.19
15	Pt 15	43.01	0.30	20.46	4.53	0.33	7.42	20.44	4.40	0.07	100.97
16	Pt 16	42.34	0.11	17.86	7.67	0.36	7.19	18.80	5.49	0.04	99.86
17	Pt 17	43.37	0.29	20.73	4.14	0.31	7.33	20.49	4.10	0.05	100.82
18	Pt 18	43.04	0.35	19.30	5.70	0.31	6.89	20.18	4.50	0.06	100.32
19	Pt 19	43.49	0.29	19.82	5.23	0.36	6.92	20.57	4.38	0.07	101.13
20	Pt 20	43.35	0.29	20.76	4.25	0.31	7.26	20.51	4.15	0.08	100.96
21	Pt 21	42.38	0.12	17.16	8.49	0.45	7.43	18.14	5.80	0.03	100.00
22	Pt 22	42.84	0.21	21.24	3.85	0.33	7.65	20.24	4.29	0.06	100.72
23	Pt 23	43.52	0.16	20.47	4.78	0.33	6.69	21.71	3.20	0.06	100.93
24	Pt 24	43.12	0.26	21.33	3.51	0.38	7.68	20.18	3.99	0.06	100.61
25	Pt 25	42.69	0.27	20.55	4.40	0.33	7.48	20.52	4.28	0.06	100.57
26	Pt 26	42.99	0.36	20.66	4.09	0.31	7.28	20.91	3.95	0.09	100.63
27	Pt 27	42.68	0.36	19.05	5.83	0.35	7.07	20.28	4.65	0.07	100.33
28	Pt 28	42.03	0.01	18.16	7.52	0.41	7.65	18.28	6.11	0.01	100.20
29	Pt 29	42.97	0.44	21.77	2.93	0.32	7.67	20.89	3.69	0.10	100.77
30	Pt 30	42.98	0.29	21.26	3.75	0.35	7.56	20.33	4.04	0.08	100.64
31	Pt 31	42.13	0.10	17.68	8.11	0.39	7.40	18.80	5.49	0.04	100.15
32	Pt 32	43.24	0.36	20.53	4.02	0.30	7.04	21.01	3.96	0.10	100.55
33	Pt 33	42.72	0.24	21.71	3.21	0.35	0.34	20.14	4.07	0.06	100.84
34	Pt 34	42.60	0.33	19.61	5.31	0.28	7.12	20.53	4.34	0.05	100.17
35	Pt 35	42.87	0.30	20.61	4.56	0.32	7.26	20.40	4.33	0.06	100.72
36	Pt 36	42.75	0.41	22.46	1.69	0.31	9.19	19.95	3.72	0.11	100.60
37	Pt 37	42.15	0.00	18.15	7.60	0.41	7.37	18.43	6.01	0.03	100.16
38	Pt 38	42.35	0.09	17.52	0.35	0.35	7.28	19.04	5.47	0.04	100.48
39	Pt 39	42.51	0.00	18.33	7.41	0.37	7.53	18.32	6.03	0.03	100.53
40	Pt 40	42.03	0.02	15.84	10.70	0.38	6.98	21.42	2.60	0.05	100.03
41	Pt 41	42.68	0.28	20.66	4.37	0.30	7.44	20.50	4.28	0.06	100.58
42	Pt 42	42.96	0.40	21.50	2.88	0.30	7.26	21.08	3.75	0.08	100.21
43	Pt 43	42.69	0.16	20.28	4.94	0.29	6.65	21.50	3.38	0.06	99.95
44	Pt 44	42.73	0.28	21.17	2.98	0.27	7.46	20.91	3.89	0.08	99.77
45	Pt 45	41.70	0.12	17.52	8.11	0.37	7.28	18.74	5.52	0.04	99.39
46	Pt 46	41.51	0.12	16.51	9.72	0.43	7.44	17.98	6.29	0.04	100.05
47	Pt 47	42.92	0.31	19.72	5.07	0.35	6.96	20.76	4.41	0.05	100.56
48	Pt 48	41.82	0.18	14.86	11.72	0.34	6.58	21.98	1.90	0.04	99.40
49	Pt 49	43.03	0.28	20.43	4.38	0.32	7.14	20.53	4.25	0.07	100.42
50	Pt 50	42.91	0.28	20.52	4.39	0.31	7.25	20.40	4.24	0.04	100.35
51	Pt 51	41.63	0.10	16.95	8.84	0.41	7.26	18.29	5.87	0.06	99.41
52	Pt 52	41.64	0.10	17.02	8.81	0.38	7.56	18.43	5.99	0.04	99.99
53	Pt 53	42.01	0.14	16.23	9.68	0.44	7.33	17.74	6.26	0.05	99.86
54	Pt 54	42.39	0.06	16.21	10.40	0.35	6.74	22.36	1.79	0.04	100.34
55	Pt 55	43.20	0.28	20.64	4.23	0.36	7.36	20.62	4.25	0.05	100.99
56	Pt 56	42.79	0.23	21.36	3.21	0.42	8.52	19.35	4.17	0.07	100.14
57	Pt 57	42.79	0.12	21.06	4.03	0.34	7.98	19.75	4.20	0.07	100.35
58	Pt 58	42.32	0.01	18.04	7.56	0.42	7.38	18.16	6.16	0.02	100.05
59	Pt 59	41.29	0.10	17.40	7.83	0.35	6.96	18.67	5.46	0.04	98.10
60	Pt 60	42.87	0.31	20.78	3.97	0.35	7.74	20.32	4.25	0.08	100.68
61	Pt 61	42.23	0.06	16.11	10.47	0.36	6.91	22.20	1.81	0.03	100.18
62	Pt 62	42.55	0.35	20.26	3.95	0.32	7.14	20.91	3.92	0.08	99.49
63	Pt 63	42.24	0.08	18.60	6.81	0.33	7.25	19.42	5.16	0.04	99.93
64	Pt 64	42.25	0.11	17.03	8.67	0.42	7.52	18.36	5.95	0.04	100.34
65	Pt 65	42.32	0.10	17.68	7.84	0.41	7.10	18.79	5.51	0.05	99.80
66	Pt 66	42.68	0.26	18.86	6.12	0.33	7.56	19.79	4.67	0.07	100.34
67	Pt 67	41.96	0.07	15.76	10.38	0.33	6.85	21.89	1.73	0.02	99.00
68	Pt 68	42.51	0.25	18.82	5.93	0.27	7.45	19.67	4.75	0.05	99.70
69	Pt 69	42.83	0.25	21.11	3.44	0.34	7.42	20.66	3.88	0.08	100.00
70	Pt 70	42.25	0.01	18.28	7.47	0.39	7.37	18.32	5.89	0.01	99.99

71	Pt 71	42.42	0.06	18.32	7.50	0.40	7.25	18.71	5.42	0.04	100.14
72	Pt 72	42.82	0.01	19.70	5.66	0.38	7.14	19.26	5.13	0.02	100.12
73	Pt 73	42.71	0.26	20.42	4.38	0.35	7.40	20.35	4.16	0.09	100.12
74	Pt 74	42.35	0.33	19.69	5.16	0.35	7.67	19.68	4.48	0.09	99.79
75	Pt 75	42.25	0.20	16.46	9.37	0.35	6.83	20.09	4.35	0.05	99.96
76	Pt 76	41.94	0.18	17.08	8.58	0.41	7.05	18.83	5.44	0.07	99.59
77	Pt 77	42.52	0.26	18.84	5.98	0.33	7.70	19.91	4.69	0.05	100.28
78	Pt 78	41.50	0.35	14.21	11.71	0.40	7.07	17.92	6.05	0.08	99.28
79	Pt 79	42.14	0.09	17.16	8.54	0.41	7.69	18.21	5.72	0.05	100.00
80	Pt 80	43.30	0.26	20.90	4.21	0.37	7.35	20.56	4.14	0.06	101.15
81	Pt 81	43.42	0.45	21.33	3.02	0.33	7.54	20.85	3.63	0.10	100.68
82	Pt 82	41.87	0.05	16.08	10.64	0.37	6.74	22.26	1.78	0.03	99.82
83	Pt 83	43.08	0.40	21.39	2.84	0.33	7.43	20.71	3.66	0.10	99.94
84	Pt 84	43.30	0.28	20.50	4.23	0.36	6.90	20.54	4.19	0.07	100.36
85	Pt 85	43.21	0.28	20.51	4.23	0.35	7.28	20.71	4.23	0.06	100.86
86	Pt 86	42.47	0.04	18.68	7.10	0.41	7.15	18.86	5.50	0.03	100.23
87	Pt 87	42.32	0.05	18.34	7.29	0.35	6.97	19.59	4.80	0.04	99.75
88	Pt 88	42.67	0.00	20.62	4.79	0.46	8.12	18.71	5.22	0.02	100.61
89	Pt 89	43.13	0.29	21.36	3.70	0.34	7.51	20.46	4.01	0.07	100.86
90	Pt 90	41.99	0.12	17.16	8.72	0.37	7.55	18.35	5.96	0.05	100.28
91	Pt 91	42.28	0.38	20.40	4.17	0.33	7.08	21.01	3.96	0.09	99.69
92	Pt 92	43.50	0.29	20.69	4.11	0.31	7.18	20.67	4.08	0.06	100.89
93	Pt 93	43.53	0.15	21.17	3.95	0.34	7.77	20.03	4.19	0.06	101.21
94	Pt 94	42.98	0.04	20.82	4.39	0.38	7.66	19.63	4.57	0.04	100.52
95	Pt 95	42.17	0.88	19.99	3.36	0.34	7.97	19.98	4.54	0.09	99.32
96	Pt 96	41.84	0.11	17.05	8.66	0.45	7.55	18.24	5.78	0.02	99.70
97	Pt 97	41.89	0.11	17.12	8.59	0.42	7.48	18.10	5.93	0.04	99.69
98	Pt 98	42.74	0.62	22.08	1.89	0.31	8.55	21.00	3.10	0.15	100.43
99	Pt 99	42.51	0.34	19.10	5.73	0.33	7.27	20.07	4.63	0.05	100.03
100	Pt 100	42.50	0.30	20.42	4.13	0.29	7.26	20.45	4.17	0.05	99.57
101	Pt 101	42.44	0.20	21.16	3.81	0.33	7.65	20.28	4.30	0.08	100.25
102	Pt 102	41.74	0.13	16.07	9.65	0.44	7.42	17.91	6.36	0.05	99.79
103	Pt 103	42.48	0.20	21.75	3.21	0.40	8.84	19.33	4.39	0.06	100.66
104	Pt 104	43.35	0.65	22.22	1.98	0.28	8.42	21.06	3.12	0.16	101.24
105	Pt 105	41.87	0.11	16.80	8.78	0.40	7.40	18.03	5.76	0.03	99.18
106	Pt 106	42.06	0.00	19.06	6.35	0.48	8.14	18.03	5.42	0.03	99.57
107	Pt 107	41.44	0.13	16.15	9.68	0.41	7.32	17.78	6.36	0.05	99.33
108	Pt 108	41.94	0.00	19.22	6.45	0.47	7.90	18.13	5.53	0.02	99.65
109	Pt 109	42.34	0.00	18.13	7.58	0.40	7.42	18.21	5.96	0.04	100.08
110	Pt 110	41.96	0.01	18.34	7.03	0.39	7.42	18.29	5.83	0.01	99.28
111	Pt 111	42.35	0.03	20.53	4.72	0.46	7.99	19.42	4.74	0.03	100.26
112	Pt 112	42.58	0.04	20.71	4.67	0.41	7.94	19.46	4.78	0.02	100.61
113	Pt 113	40.77	0.12	17.66	8.20	0.42	7.21	18.62	6.18	0.03	99.22

JI410-10669	Point #	SiO2	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	Na2O	Total
1	Pt 1	42.41	0.25	22.56	2.63	0.27	7.07	21.67	3.85	0.07	100.79
2	Pt 2	41.61	0.04	18.84	7.31	0.48	8.19	18.27	6.42	0.02	101.17
3	Pt 3	42.37	0.22	21.37	4.37	0.33	7.11	21.19	4.30	0.06	101.47
4	Pt 4	41.92	0.07	19.25	7.02	0.40	7.39	19.75	5.30	0.04	101.14
5	Pt 5	41.59	0.00	16.98	9.82	0.36	7.33	18.67	6.41	0.03	101.17
6	Pt 6	42.88	0.30	22.32	2.66	0.31	7.14	21.81	3.88	0.10	101.39
7	Pt 7	41.92	0.66	17.67	8.06	0.33	6.52	20.42	4.23	0.09	100.90
8	Pt 8	42.16	0.00	19.94	6.33	0.39	7.18	19.72	5.62	0.02	101.36
9	Pt 9	42.43	0.09	21.71	4.06	0.42	8.31	19.41	5.41	0.06	101.90
10	Pt 10	41.38	0.09	16.68	9.79	0.38	7.25	18.95	6.29	0.07	100.89
11	Pt 11	42.89	0.13	23.76	1.65	0.30	8.09	21.13	4.09	0.06	102.09
12	Pt 12	42.63	0.13	22.39	2.90	0.32	8.84	19.98	4.42	0.04	101.66
13	Pt 13	42.85	0.46	21.63	3.43	0.32	7.69	21.34	4.26	0.11	102.08
14	Pt 14	42.93	0.16	22.06	3.23	0.31	7.60	21.33	4.28	0.06	101.96
15	Pt 15	42.49	0.30	22.88	2.17	0.34	7.92	21.03	3.98	0.08	101.18
16	Pt 16	41.86	0.00	19.89	6.26	0.39	7.45	20.00	5.43	0.03	101.31
17	Pt 18	41.28	0.22	19.24	6.28	0.52	8.19	18.95	5.40	0.05	100.13
18	Pt 19	41.12	0.01	18.99	6.75	0.41	7.63	18.61	6.21	0.03	99.76
19	Pt 20	41.17	0.04	18.76	7.39	0.48	8.19	17.91	6.62	0.01	100.57
20	Pt 21	42.06	0.24	22.71	1.64	0.41	9.45	19.94	4.08	0.03	100.57
21	Pt 22	41.90	0.12	21.66	3.27	0.43	8.77	19.50	4.72	0.05	100.43
22	Pt 23	42.16	0.16	21.60	3.44	0.40	7.62	20.59	4.39	0.06	100.42
23	Pt 24	41.01	0.12	17.34	8.75	0.45	7.49	18.45	6.44	0.02	100.07
24	Pt 25	42.22	0.31	21.63	3.18	0.32	7.14	21.15	4.20	0.07	100.23
25	Pt 26	40.90	0.12	15.49	10.66	0.46	7.53	18.00	6.61	0.02	99.77
26	Pt 27	41.89	0.37	20.00	4.80	0.30	7.08	21.03	4.27	0.06	99.80
27	Pt 28	41.38	0.26	20.40	4.72	0.43	9.15	18.40	5.71	0.03	100.49
28	Pt 29	41.88	0.18	21.29	3.75	0.41	8.35	19.42	4.68	0.04	100.01
29	Pt 30	41.94	0.13	18.33	7.05	0.40	7.42	19.61	5.47	0.02	100.36
30	Pt 31	41.56	0.19	16.20	9.81	0.38	6.58	20.86	4.04	0.05	99.68
31	Pt 32	41.68	0.28	21.77	2.67	0.38	8.47	20.14	4.12	0.05	99.56
32	Pt 33	41.82	0.37	20.43	3.90	0.32	7.51	20.64	4.18	0.07	99.24
33	Pt 34	41.85	0.14	21.61	3.21	0.47	8.25	19.72	4.60	0.03	99.86
34	Pt 35	42.14	0.04	21.50	3.44	0.40	8.24	19.80	4.46	0.03	100.06
35	Pt 36	41.65	0.11	18.51	7.08	0.46	7.37	18.87	5.68	0.03	99.77
36	Pt 37	42.14	0.02	22.12	3.00	0.41	8.60	19.85	4.29	0.00	100.45
37	Pt 38	42.19	0.31	22.05	2.69	0.36	8.21	20.39	4.17	0.08	100.45
38	Pt 39	42.09	0.37	21.21	3.30	0.28	7.15	21.31	3.92	0.06	99.68
39	Pt 40	42.55	0.27	21.57	3.27	0.37	7.68	20.59	4.09	0.07	100.45
40	Pt 41	41.95	0.09	18.99	5.58	0.31	7.21	19.97	4.81	0.03	98.94
41	Pt 42	41.78	0.14	17.49	8.15	0.42	7.18	19.62	4.80	0.04	99.62
42	Pt 43	41.01	0.06	18.67	6.56	0.51	8.48	17.55	6.24	0.02	99.31
43	Pt 44	42.05	0.21	21.00	3.95	0.39	7.85	19.91	4.48	0.04	99.87
44	Pt 45	42.46	0.32	21.86	2.58	0.34	7.53	20.77	3.94	0.06	99.86
45	Pt 46	41.78	0.27	20.22	4.34	0.33	6.84	21.06	4.15	0.05	99.03
46	Pt 47	41.91	0.03	22.63	2.37	0.38	8.37	19.89	4.17	0.01	99.76
47	Pt 48	41.16	0.23	17.16	8.32	0.51	8.19	17.55	5.91	0.07	99.10
48	Pt 49	42.34	0.34	21.72	2.83	0.35	7.91	20.87	3.83	0.06	100.25
49	Pt 50	42.15	0.37	21.03	3.49	0.34	7.27	20.97	3.95	0.07	99.63
50	Pt 51	42.26	0.30	20.79	3.69	0.31	7.07	21.28	3.86	0.06	99.62
51	Pt 52	41.19	0.19	19.70	5.33	0.43	8.58	18.82	5.16	0.03	99.44
52	Pt 53	42.09	0.22	21.20	3.71	0.34	7.67	20.55	4.32	0.05	100.15
53	Pt 54	41.71	0.18	20.00	5.43	0.39	7.50	19.97	4.74	0.04	99.95
54	Pt 55	41.52	0.19	19.66	5.34	0.40	7.60	20.06	4.55	0.05	99.37
55	Pt 56	41.19	0.10	17.81	7.61	0.38	7.40	18.78	5.43	0.03	98.71
56	Pt 57	41.49	0.02	19.44	5.68	0.43	7.98	19.07	5.13	0.00	99.24
57	Pt 58	41.60	0.26	21.73	2.61	0.40	8.33	20.04	4.12	0.04	99.14
58	Pt 59	42.30	0.29	19.26	5.48	0.35	7.38	20.41	4.38	0.05	99.89
59	Pt 60	42.43	0.02	21.94	2.79	0.31	7.42	20.98	3.87	0.02	99.78
60	Pt 61	42.21	0.50	21.69	2.35	0.36	7.85	20.88	3.76	0.10	99.68
61	Pt 62	41.92	0.27	21.75	2.93	0.38	8.42	19.95	4.19	0.05	99.86
62	Pt 63	41.45	0.04	16.31	9.98	0.37	7.12	21.64	2.49	0.03	99.44
63	Pt 64	40.53	0.04	17.29	8.57	0.49	8.10	17.31	6.43	0.03	98.78
64	Pt 65	40.93	0.05	15.31	10.71	0.40	6.71	20.43	3.99	0.02	98.56
65	Pt 66	45.56	0.22	17.93	10.65	0.42	7.09	22.47	4.36	0.05	108.74
66	Pt 67	41.62	0.34	20.49	4.27	0.28	6.82	21.22	4.43	0.05	99.51
67	Pt 68	41.42	0.32	21.59	2.77	0.38	8.32	19.96	4.60	0.07	99.43
68	Pt 69	41.51	0.41	19.91	4.76	0.30	7.17	20.83	4.57	0.08	99.54
69	Pt 70	41.73	0.17	21.62	3.26	0.35	7.42	20.78	4.39	0.07	99.80
70	Pt 73	40.60	0.04	17.54	8.54	0.42	7.44	18.62	6.23	0.02	99.45
71	Pt 74	40.43	0.22	16.59	9.31	0.37	7.03	18.95	6.09	0.03	99.03

72 Pt 75	40.61	0.04	17.99	7.72	0.42	7.25	18.96	6.27	0.06	99.33
73 Pt 76	40.36	0.20	17.11	8.82	0.51	8.23	17.54	7.04	0.05	99.86
74 Pt 77	41.28	0.19	21.34	3.82	0.42	7.99	19.81	4.99	0.05	99.90
75 Pt 78	40.33	0.18	16.41	9.59	0.43	7.22	18.27	6.88	0.06	99.39
76 Pt 79	41.35	0.03	19.90	5.59	0.38	7.79	19.13	5.71	0.02	99.89
77 Pt 80	41.05	0.13	19.05	7.59	0.41	6.62	20.36	6.26	0.03	101.50
78 Pt 81	40.77	0.01	17.48	8.63	0.40	7.52	17.81	7.50	0.00	100.13
79 Pt 82	42.43	0.57	20.68	3.86	0.35	7.15	21.32	4.47	0.07	100.90
80 Pt 83	41.88	0.80	19.46	4.61	0.35	8.16	20.30	5.05	0.13	100.75
81 Pt 84	41.66	0.27	19.81	5.65	0.34	7.23	20.13	5.42	0.04	100.55
82 Pt 85	40.51	0.27	15.18	11.18	0.46	7.49	17.74	7.25	0.05	100.14
83 Pt 86	42.55	0.46	22.52	1.71	0.31	8.08	21.04	4.00	0.08	100.76
84 Pt 87	42.21	0.23	21.79	3.20	0.38	7.72	20.84	4.64	0.06	101.08
85 Pt 88	41.97	0.19	22.10	2.90	0.41	8.53	20.01	4.68	0.05	100.83
86 Pt 89	41.41	0.77	17.57	7.51	0.39	7.21	19.17	6.46	0.07	100.57
87 Pt 90	42.44	0.03	19.28	7.08	0.37	6.79	23.44	1.73	0.03	101.17
88 Pt 91	42.36	0.25	21.39	3.96	0.39	7.85	20.23	4.87	0.05	101.34
89 Pt 92	42.09	0.31	21.19	3.60	0.39	7.79	20.45	4.79	0.06	100.66
90 Pt 93	41.61	0.13	17.95	8.10	0.45	7.52	19.21	5.98	0.04	100.98
91 Pt 94	41.39	0.10	21.34	3.99	0.51	9.03	18.89	5.50	0.03	100.78
92 Pt 95	41.47	0.17	17.72	8.54	0.45	7.55	19.31	5.97	0.05	101.24
93 Pt 96	41.99	0.19	20.54	5.00	0.41	7.40	20.44	5.05	0.05	101.08
94 Pt 97	42.13	0.22	20.99	4.22	0.44	8.37	8.94	5.89	0.06	101.25
95 Pt 98	41.64	0.48	17.85	7.82	0.34	6.62	21.02	4.88	0.06	100.73
96 Pt 99	41.93	0.41	19.48	5.84	0.43	7.69	19.97	5.13	0.08	100.97
97 Pt 100	41.49	0.04	17.60	8.45	0.46	7.59	19.05	6.00	0.05	100.74
98 Pt 101	42.17	0.11	18.81	7.28	0.40	7.53	19.21	6.35	0.03	101.91
99 Pt 102	41.17	0.07	16.76	9.71	0.43	7.08	18.70	6.76	0.03	100.71
100 Pt 103	41.67	0.17	20.03	5.42	0.50	8.40	19.10	5.64	0.04	100.95
101 Pt 104	42.55	0.32	22.54	2.21	0.39	8.34	20.37	4.23	0.08	101.04
102 Pt 105	42.41	0.24	20.84	4.27	0.40	7.44	20.70	4.82	0.06	101.18
103 Pt 106	41.44	0.03	19.82	6.01	0.43	7.58	19.37	5.71	0.03	100.43
104 Pt 107	41.27	0.06	16.16	10.48	0.43	7.15	19.23	5.65	0.01	100.43
105 Pt 108	41.41	0.11	18.47	7.42	0.40	7.36	18.93	6.28	0.03	100.41
106 Pt 109	42.09	0.31	21.84	3.10	0.40	8.26	20.50	4.41	0.05	100.95
107 Pt 110	41.84	0.20	20.13	5.14	0.49	8.30	19.28	5.18	0.03	100.59
108 Pt 111	42.40	0.13	20.86	4.61	0.60	7.81	20.30	4.67	0.04	101.30
109 Pt 112	40.98	0.17	17.44	8.17	0.44	7.30	18.77	5.85	0.06	99.17
110 Pt 113	42.03	0.19	20.10	5.21	0.48	8.27	19.18	5.23	0.05	100.74
111 Pt 114	42.02	0.10	19.00	6.78	0.46	7.21	19.49	5.52	0.02	100.59
112 Pt 115	41.70	0.11	18.71	6.87	0.43	7.20	19.31	5.47	0.02	99.82
113 Pt 116	41.15	0.08	18.82	6.95	0.45	8.11	18.11	6.21	0.03	99.90
114 Pt 117	41.45	0.02	17.97	7.85	0.53	8.26	17.43	6.18	0.03	99.73
115 Pt 118	42.78	0.73	22.64	1.15	0.28	8.44	21.13	3.43	0.13	100.70
116 Pt 119	42.51	0.71	22.30	1.15	0.32	8.40	20.98	3.47	0.12	99.96
117 Pt 120	42.15	0.20	23.50	0.15	0.22	10.76	19.21	3.52	0.05	99.76
118 Pt 121	42.54	0.51	21.38	2.09	0.32	8.16	21.34	3.74	0.08	100.15
119 Pt 122	42.25	0.51	22.34	1.50	0.36	9.79	19.92	3.70	0.09	100.47
120 Pt 123	42.30	0.49	22.56	1.29	0.35	9.45	19.85	3.64	0.09	100.03
121 Pt 124	41.60	1.36	18.97	3.48	0.29	8.82	19.62	4.89	0.06	99.08
122 Pt 125	41.93	0.43	23.48	0.17	0.26	11.15	18.63	3.91	0.13	100.08
123 Pt 126	42.41	0.56	22.13	1.47	0.34	8.87	20.70	3.58	0.09	100.14
124 Pt 127	41.35	0.52	23.31	0.04	0.29	13.93	16.52	4.11	0.16	100.24

JI510-10666	Point #	SiO2	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	Na2O	Total
1	Pt 1	42.71	0.27	21.59	3.13	0.36	7.37	21.16	4.42	0.03	101.04
2	Pt 2	41.95	0.06	18.26	7.63	0.43	7.32	19.21	6.04	0.00	100.89
3	Pt 3	41.73	0.06	16.30	9.96	0.38	7.09	18.60	6.96	0.00	101.09
4	Pt 4	42.35	0.12	21.11	4.33	0.50	8.37	19.25	5.23	0.01	101.28
5	Pt 5	42.82	0.32	20.69	4.39	0.33	6.27	21.63	4.53	0.05	101.01
6	Pt 6	42.44	0.25	20.18	5.09	0.44	7.68	19.78	5.23	0.03	101.13
7	Pt 7	42.60	0.22	20.69	4.36	0.37	7.42	20.43	4.97	0.00	101.05
8	Pt 8	42.38	0.32	20.39	4.56	0.36	7.45	20.37	4.64	0.05	100.53
9	Pt 9	42.97	0.10	17.50	8.71	0.41	7.47	18.76	6.29	0.01	101.22
10	Pt 10	42.28	0.05	18.00	8.22	0.45	7.28	18.89	6.25	0.01	101.43
11	Pt 11	42.18	0.10	20.90	4.31	0.53	8.64	18.82	5.35	0.01	100.84
12	Pt 12	42.98	0.34	21.54	3.35	0.34	8.08	20.31	4.71	0.07	101.71
13	Pt 13	42.32	0.03	19.28	6.58	0.43	7.74	18.96	6.21	0.00	101.54
14	Pt 14	42.41	0.14	17.68	8.53	0.43	7.50	18.84	6.32	0.00	101.85
15	Pt 15	42.33	0.03	16.15	9.53	0.43	6.80	22.27	2.49	0.02	100.05
16	Pt 16	42.05	0.45	16.34	9.59	0.34	6.77	19.86	5.69	0.04	101.14
17	Pt 17	42.07	0.09	16.76	9.85	0.45	7.18	18.91	6.33	0.00	101.63
18	Pt 18	42.65	0.19	19.59	5.92	0.39	7.60	19.64	5.37	0.05	101.39
19	Pt 19	42.56	0.25	18.05	7.53	0.35	6.49	20.69	4.89	0.04	100.85
20	Pt 20	42.37	0.03	19.67	5.89	0.45	7.53	19.26	6.12	0.01	101.32
21	Pt 21	42.72	0.23	20.80	4.42	0.38	7.84	20.35	4.72	0.03	101.50
22	Pt 22	42.12	0.05	17.90	8.46	0.42	7.28	19.30	5.86	0.00	101.40
23	Pt 23	41.65	0.02	17.83	8.33	0.58	8.16	16.73	7.77	0.00	101.08
24	Pt 24	42.80	0.05	16.96	9.65	0.50	7.34	18.10	6.57	0.01	100.98
25	Pt 25	42.02	0.05	19.34	6.57	0.56	8.02	18.09	6.62	0.01	101.27
26	Pt 26	41.78	0.10	16.52	9.84	0.44	7.42	18.11	6.81	0.01	101.03
27	Pt 27	42.36	0.01	19.93	6.02	0.43	8.12	18.69	6.21	0.00	101.77
28	Pt 28	42.94	0.22	21.76	3.52	0.38	7.86	20.67	4.54	0.03	101.94
29	Pt 29	44.71	0.10	18.13	9.85	0.48	7.84	19.29	7.55	0.00	107.96
30	Pt 30	43.04	0.18	21.80	3.96	0.42	8.34	20.12	4.86	0.01	102.72
31	Pt 31	42.72	0.11	19.42	6.35	0.46	8.22	18.83	6.09	0.02	102.22
32	Pt 32	42.26	0.21	18.68	7.36	0.44	7.59	18.73	5.97	0.03	101.28
33	Pt 33	42.12	0.11	17.35	8.91	0.45	7.37	19.26	5.84	0.02	101.44
34	Pt 34	42.01	0.09	18.10	8.09	0.54	8.20	17.18	7.66	0.02	101.88
35	Pt 35	41.80	0.10	16.26	9.98	0.37	6.69	20.89	3.92	0.01	100.01
36	Pt 36	42.33	0.03	16.15	10.83	0.43	6.80	22.27	2.49	0.02	101.36
37	Pt 37	41.83	0.03	18.70	7.14	0.41	7.57	18.44	6.61	0.00	100.74
38	Pt 38	41.51	0.16	16.46	10.12	0.44	7.33	18.25	7.15	0.01	101.44
39	Pt 39	43.18	0.46	22.89	1.47	0.34	8.82	20.65	3.93	0.09	101.84
40	Pt 40	42.45	0.11	19.54	6.14	0.42	7.43	19.65	5.50	0.03	101.27
41	Pt 41	42.59	0.29	23.46	0.16	0.31	14.58	17.36	3.27	0.07	102.08
42	Pt 42	43.44	0.44	22.38	2.30	0.33	6.94	21.72	4.09	0.07	101.69
43	Pt 43	43.59	0.58	22.02	2.25	0.32	8.31	21.16	4.06	0.06	102.35
44	Pt 44	42.88	0.25	21.14	4.02	0.42	8.42	19.78	4.91	0.04	101.85
45	Pt 45	42.29	0.08	18.30	7.91	0.51	7.52	18.66	6.25	0.02	101.54
46	Pt 46	42.65	0.14	19.54	6.44	0.45	7.49	19.78	5.29	0.02	101.81
47	Pt 47	43.33	0.19	23.28	1.76	0.36	9.13	19.82	4.18	0.02	102.07
48	Pt 48	42.88	0.21	20.47	5.03	0.39	7.11	20.77	4.73	0.04	101.64
49	Pt 49	42.14	0.26	17.13	9.30	0.56	7.96	19.03	5.45	0.03	101.86
50	Pt 50	42.89	0.25	20.39	5.17	0.34	7.34	20.55	4.83	0.04	101.82
51	Pt 51	42.68	0.25	20.44	5.19	0.38	8.26	19.69	5.15	0.04	102.08
52	Pt 52	42.70	0.41	21.89	3.08	0.38	7.87	20.79	4.41	0.07	101.60
53	Pt 53	43.65	0.45	22.39	2.30	0.33	7.37	21.57	4.06	0.06	102.18
54	Pt 54	42.57	0.56	19.98	5.13	0.44	8.10	19.74	5.08	0.04	101.65
55	Pt 55	42.78	0.11	19.52	6.51	0.38	7.59	19.70	5.56	0.00	102.14
56	Pt 56	42.41	0.16	17.33	9.03	0.45	7.05	19.14	6.04	0.02	101.63
57	Pt 57	43.13	0.27	22.14	3.14	0.40	8.01	20.34	4.62	0.03	102.10
58	Pt 58	42.84	0.03	19.90	6.35	0.48	7.76	18.97	6.23	0.00	102.55
59	Pt 59	43.12	0.22	21.02	4.47	0.38	7.67	20.17	4.63	0.03	101.71
60	Pt 60	43.05	0.34	19.27	6.43	0.33	6.48	20.95	5.00	0.04	101.90
61	Pt 61	42.62	0.16	19.50	6.63	0.50	7.93	18.98	5.45	0.02	101.79
62	Pt 62	42.56	0.07	19.38	6.69	0.45	7.19	19.54	5.96	0.00	101.84
63	Pt 63	41.88	0.34	14.86	11.68	0.46	7.38	17.92	7.10	0.03	101.64
64	Pt 64	42.74	0.14	17.68	8.46	0.43	7.39	18.82	6.13	0.01	101.80
65	Pt 65	42.83	0.13	17.94	8.48	0.36	6.82	20.03	5.41	0.02	102.02
66	Pt 66	43.18	0.32	20.52	4.68	0.36	7.36	20.49	4.70	0.06	101.67
67	Pt 67	42.09	0.19	16.92	9.45	0.38	7.23	18.91	6.10	0.02	101.29
68	Pt 68	43.12	0.29	21.81	3.60	0.39	7.67	20.42	4.70	0.05	102.05
69	Pt 69	42.26	0.07	16.96	9.55	0.44	7.17	18.47	6.74	0.00	101.66
70	Pt 70	42.82	0.16	19.64	6.37	0.40	7.18	20.18	5.23	0.01	102.00
71	Pt 71	41.87	0.13	15.48	11.30	0.43	7.26	17.56	7.51	0.00	101.53

72	Pt 72	42.41	0.13	22.12	3.53	0.45	8.47	20.05	4.65	0.04	101.86
73	Pt 73	41.85	0.00	19.73	6.36	0.38	7.43	19.38	5.72	0.04	100.89
74	Pt 74	41.54	0.14	20.15	5.64	0.39	8.52	19.02	5.26	0.07	100.73
75	Pt 75	41.76	0.00	19.98	5.90	0.53	8.20	18.22	6.29	0.05	100.93
76	Pt 76	41.64	0.00	18.48	7.71	0.38	7.51	19.11	5.89	0.06	100.78
77	Pt 77	41.63	0.00	18.90	7.60	0.47	7.88	18.33	6.39	0.02	101.22
78	Pt 78	42.05	0.04	19.81	6.28	0.41	7.48	19.76	5.35	0.05	101.23
79	Pt 79	41.88	0.00	18.61	7.65	0.38	6.97	19.68	5.52	0.05	100.75
80	Pt 80	41.70	0.00	18.68	7.62	0.43	7.58	19.69	5.35	0.05	101.11
81	Pt 81	41.46	0.00	18.43	8.12	0.52	8.01	18.55	5.84	0.05	100.98
82	Pt 82	42.22	0.36	21.48	3.54	0.34	7.33	21.05	4.36	0.09	100.77
83	Pt 83	42.31	0.00	22.98	2.56	0.46	8.17	20.10	4.56	0.01	101.16
84	Pt 84	41.28	0.00	20.80	4.91	0.47	7.90	18.94	5.46	0.05	99.80
85	Pt 85	41.40	0.11	21.62	3.97	0.42	8.05	19.86	4.80	0.06	100.29
86	Pt 86	40.61	0.00	16.06	10.46	0.44	7.20	17.93	6.88	0.04	99.61
87	Pt 87	41.93	0.34	23.14	1.84	0.34	9.00	20.26	3.90	0.10	100.86
88	Pt 88	41.47	0.00	21.88	3.69	0.51	8.53	19.17	4.80	0.04	100.08
89	Pt 89	42.06	0.24	22.50	2.36	0.33	8.13	20.96	3.90	0.09	100.57
90	Pt 90	41.07	0.00	20.39	5.03	0.56	8.69	18.21	5.65	0.03	99.63
91	Pt 92	41.74	0.00	20.35	6.07	0.36	7.45	19.77	4.56	0.03	100.32
92	Pt 93	40.82	0.00	16.18	10.68	0.39	7.33	18.24	5.84	0.06	99.56
93	Pt 94	41.40	0.02	18.15	8.30	0.41	7.34	19.39	4.59	0.07	99.68
94	Pt 95	41.28	0.07	19.07	6.91	0.43	8.85	18.77	4.39	0.07	99.85
95	Pt 96	41.51	0.02	19.21	7.12	0.43	7.73	19.55	4.55	0.04	100.14
96	Pt 97	41.19	0.00	18.30	8.12	0.42	7.64	19.00	5.30	0.03	100.00
97	Pt 98	41.48	0.00	18.51	7.47	0.39	7.33	19.50	5.00	0.02	99.70
98	Pt 99	41.74	0.10	20.89	4.63	0.41	7.24	20.73	3.89	0.05	99.70
99	Pt 100	41.50	0.00	19.18	7.02	0.38	7.66	19.63	4.51	0.02	99.90

JI610-10667	Point #	SiO2	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	Na2O	Total
1	Pt 1	40.63	0.28	16.73	8.92	0.52	7.52	17.61	5.89	0.06	98.16
2	Pt 2	42.22	0.68	21.29	2.67	0.28	7.53	21.11	3.69	0.12	99.59
3	Pt 3	41.91	0.29	19.91	4.95	0.34	7.39	20.33	4.42	0.07	99.60
4	Pt 4	42.49	0.11	21.04	3.94	0.39	7.60	20.16	4.33	0.03	100.09
5	Pt 5	41.94	0.30	19.22	5.76	0.36	7.21	20.03	4.50	0.04	99.37
6	Pt 6	41.46	0.10	18.08	7.38	0.43	7.64	18.58	5.61	0.02	99.29
7	Pt 7	41.12	0.07	15.87	10.03	0.40	7.38	18.27	5.91	0.00	99.07
8	Pt 8	41.48	0.11	17.57	8.04	0.40	7.40	18.89	5.36	0.02	99.27
9	Pt 9	42.53	0.28	21.10	3.45	0.33	7.32	20.93	3.73	0.07	99.72
10	Pt 10	41.57	0.19	20.93	3.51	0.32	7.42	20.36	4.15	0.06	98.51
11	Pt 11	41.59	0.11	15.70	10.47	0.36	6.67	22.48	1.68	0.02	99.07
12	Pt 12	41.36	0.11	17.91	7.20	0.36	7.47	18.89	5.32	0.05	98.67
13	Pt 13	41.99	0.28	21.21	3.70	0.42	7.96	20.10	4.26	0.07	99.98
14	Pt 14	42.21	0.06	20.97	4.11	0.32	6.88	20.67	4.11	0.03	99.36
15	Pt 15	41.75	0.09	19.23	6.19	0.41	7.38	19.49	4.92	0.03	99.47
16	Pt 16	42.12	0.30	21.67	2.77	0.48	8.99	19.17	4.37	0.02	99.90
17	Pt 17	43.15	0.31	22.28	2.01	0.34	7.86	21.20	3.69	0.05	100.88
18	Pt 18	42.39	0.26	22.89	1.60	0.34	8.71	20.36	3.63	0.06	100.24
19	Pt 19	42.63	0.22	23.06	1.20	0.29	7.98	20.95	3.51	0.05	99.89
20	Pt 20	42.17	0.19	20.37	4.65	0.36	7.03	20.50	4.09	0.06	99.42
21	Pt 21	42.27	0.20	22.80	1.61	0.28	8.99	19.81	4.04	0.05	100.06
22	Pt 22	42.28	0.51	22.08	1.47	0.30	8.84	20.65	3.55	0.10	99.78
23	Pt 23	41.98	0.40	19.63	5.08	0.34	7.60	20.50	4.19	0.09	99.81
24	Pt 24	41.57	0.17	19.64	5.45	0.34	7.77	19.81	4.66	0.04	99.45
25	Pt 25	41.57	0.07	19.51	5.83	0.41	7.35	19.75	4.72	0.04	99.25
26	Pt 26	42.44	0.17	21.34	3.50	0.31	7.31	20.73	3.95	0.05	99.79
27	Pt 27	42.23	0.21	20.43	4.35	0.37	7.80	19.99	4.28	0.04	99.70
28	Pt 28	42.24	0.49	20.94	3.28	0.31	7.46	21.26	3.60	0.11	99.70
29	Pt 29	42.21	0.15	22.38	2.15	0.34	9.10	20.03	3.42	0.05	99.85
30	Pt 30	41.97	0.34	20.12	4.60	0.33	6.93	20.96	4.07	0.06	99.38
31	Pt 31	41.88	0.40	21.02	3.43	0.35	8.64	19.82	4.02	0.09	99.63
32	Pt 32	42.37	0.42	21.14	3.27	0.38	7.58	20.73	3.68	0.09	99.67
33	Pt 33	41.51	0.18	16.92	8.67	0.41	7.35	18.43	5.49	0.03	98.98
34	Pt 34	41.75	0.13	21.51	3.39	0.44	9.11	18.89	4.35	0.04	99.60
35	Pt 35	42.40	0.20	21.50	3.33	0.36	8.13	20.08	3.90	0.05	99.95
36	Pt 36	42.25	0.15	21.24	3.42	0.44	8.28	19.57	4.27	0.02	99.65
37	Pt 37	41.77	0.17	19.87	5.24	0.37	7.46	19.82	4.62	0.04	99.36
38	Pt 38	42.24	0.06	21.85	3.20	0.41	8.52	19.99	4.08	0.01	100.36
39	Pt 39	42.17	0.38	20.73	3.94	0.35	7.58	20.56	4.20	0.07	99.97
40	Pt 40	42.63	0.39	21.59	2.75	0.36	7.64	21.02	3.62	0.09	100.08
41	Pt 41	41.96	0.45	21.20	2.98	0.36	8.46	20.25	3.87	0.07	99.60
42	Pt 42	42.31	0.23	19.68	5.18	0.33	7.36	20.84	4.08	0.07	100.07
43	Pt 43	42.13	0.23	21.32	3.54	0.34	7.09	20.69	3.91	0.05	99.30
44	Pt 44	42.26	0.16	21.10	3.55	0.37	8.02	20.17	3.95	0.04	99.63
45	Pt 45	41.91	0.26	21.62	3.09	0.34	7.40	20.84	3.92	0.07	99.46
46	Pt 46	41.35	0.03	18.11	7.35	0.51	8.31	17.14	6.29	0.01	99.09
47	Pt 47	43.05	0.34	21.84	2.26	0.30	17.50	21.32	3.60	0.05	100.28
48	Pt 48	42.61	0.25	20.82	3.62	0.38	7.43	21.01	3.75	0.07	99.95
49	Pt 49	42.22	0.21	20.18	4.84	0.39	7.62	20.20	4.13	0.04	99.83
50	Pt 50	41.04	0.09	16.95	8.73	0.46	7.41	17.78	6.08	0.04	98.57
51	Pt 51	42.23	0.33	20.71	3.91	0.33	7.18	20.69	3.95	0.05	99.38
52	Pt 52	41.56	0.20	17.21	8.00	0.34	7.38	19.49	5.19	0.04	99.43
53	Pt 53	41.28	0.24	16.52	9.19	0.37	7.10	18.89	5.43	0.05	99.07
54	Pt 54	41.95	0.31	18.85	6.32	0.35	6.99	19.98	4.58	0.08	99.42
55	Pt 55	41.26	0.09	16.26	9.60	0.42	7.40	18.64	5.50	0.04	99.22
56	Pt 56	41.16	0.07	18.11	7.22	0.42	7.48	18.92	5.07	0.02	98.49
57	Pt 57	41.03	0.02	16.98	8.72	0.47	7.50	17.90	6.11	0.02	98.74
58	Pt 58	41.71	0.13	18.15	7.09	0.40	7.56	18.79	5.32	0.03	99.17
59	Pt 59	40.62	0.01	17.32	8.72	0.44	7.88	17.28	6.16	0.01	98.46
60	Pt 60	41.51	0.16	17.94	7.56	0.37	7.14	19.31	4.98	0.03	98.99
61	Pt 61	41.54	0.09	18.74	6.68	0.39	7.38	19.30	5.37	0.02	99.51
62	Pt 62	41.06	0.07	17.38	8.03	0.49	8.06	17.26	5.98	0.02	98.35
63	Pt 63	40.77	0.06	15.49	10.44	0.43	7.20	17.55	6.31	0.03	98.29
64	Pt 64	42.34	0.45	20.52	4.26	0.31	6.36	21.88	3.61	0.09	99.81
65	Pt 65	40.87	0.12	16.01	9.64	0.44	7.32	18.30	5.66	0.02	98.38
66	Pt 66	42.23	0.23	18.20	7.35	0.31	6.57	22.95	1.68	0.03	99.55
67	Pt 67	41.98	0.21	19.35	5.72	0.41	7.82	19.11	4.79	0.05	99.45
68	Pt 68	42.10	0.31	21.90	2.90	0.43	8.21	19.81	4.03	0.07	99.76
69	Pt 69	41.89	0.08	18.97	6.09	0.43	7.61	19.16	4.98	0.03	99.25
70	Pt 70	42.57	0.41	21.04	3.11	0.31	7.13	21.29	3.58	0.01	99.55
71	Pt 71	42.37	0.12	20.96	3.95	0.37	7.46	19.97	4.29	0.02	99.51

72	Pt 72	42.23	0.35	21.20	3.27	0.37	8.09	20.12	4.03	0.06	99.73
73	Pt 73	42.64	0.35	21.05	3.35	0.35	7.44	21.10	3.81	0.04	100.14
74	Pt 74	41.59	0.02	19.51	5.62	0.53	8.09	18.28	5.37	0.03	99.03
75	Pt 75	42.18	0.46	19.13	5.36	0.33	7.36	20.57	3.97	0.07	99.43
76	Pt 76	41.97	0.08	16.29	9.78	0.33	6.23	22.54	1.62	0.00	98.84
77	Pt 77	41.29	0.10	16.37	9.12	0.42	7.44	17.97	5.85	0.01	98.58
78	Pt 78	42.06	0.17	20.74	4.32	0.36	6.94	20.91	4.01	0.07	99.59
79	Pt 79	42.06	0.16	21.52	3.13	0.40	8.29	19.91	3.73	0.05	99.26
80	Pt 80	42.59	0.21	21.40	3.27	0.30	7.36	20.71	3.80	0.05	99.70
81	Pt 81	42.25	0.19	21.50	2.98	0.33	7.23	21.14	3.80	0.05	99.47
82	Pt 82	42.37	0.11	21.27	3.65	0.34	7.46	20.32	4.17	0.02	99.72
83	Pt 83	42.08	0.09	19.10	6.10	0.38	7.52	19.29	4.70	0.05	99.30
84	Pt 84	42.22	0.37	20.07	4.49	0.30	6.97	20.82	3.95	0.08	99.26
85	Pt 85	42.29	0.33	21.04	3.41	0.33	7.46	20.84	3.87	0.10	99.68
86	Pt 86	41.79	0.10	18.65	6.48	0.37	7.35	19.50	4.89	0.03	99.15
87	Pt 87	41.62	0.06	19.81	5.59	0.42	8.07	19.06	4.74	0.04	99.41
88	Pt 88	42.04	0.35	21.19	3.31	0.34	7.73	20.51	3.97	0.05	99.49
89	Pt 89	41.79	0.30	20.19	4.63	0.46	8.43	18.83	4.84	0.07	99.54
90	Pt 90	42.10	0.20	20.55	4.04	0.34	7.20	20.52	4.12	0.06	99.14
91	Pt 91	42.22	0.41	21.24	3.20	0.38	7.81	20.36	3.98	0.07	99.68
92	Pt 92	41.72	0.21	19.84	4.78	0.33	7.38	20.13	4.14	0.05	98.58
93	Pt 93	40.95	0.13	16.44	9.29	0.44	7.56	18.98	4.87	0.05	98.71
94	Pt 94	41.42	0.07	17.90	7.55	0.43	7.33	18.84	5.15	0.00	98.70
95	Pt 95	41.16	0.08	16.55	9.31	0.40	6.98	18.68	5.43	0.03	98.63
96	Pt 96	40.78	0.14	15.41	10.49	0.44	7.34	17.78	6.04	0.03	98.45
97	Pt 97	42.33	0.12	20.04	5.32	0.27	5.99	21.91	3.18	0.03	99.20
98	Pt 98	42.58	0.19	21.39	3.06	0.28	7.18	21.03	3.70	0.06	99.48
99	Pt 99	41.50	0.02	19.91	5.38	0.58	8.59	18.27	5.42	0.01	99.69

JI7-10663	Point #	SiO2	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	Na2O	Total
1	Pt 1	40.98	0.32	20.97	2.47	0.31	7.32	20.46	4.25	0.08	97.15
2	Pt 2	41.15	0.33	20.89	2.57	0.33	7.84	20.71	4.32	0.08	98.20
3	Pt 3	41.02	0.31	21.00	2.54	0.33	7.89	20.63	4.22	0.06	98.00
4	Pt 4	40.91	0.33	20.96	2.41	0.27	7.97	20.60	4.35	0.05	97.85
5	Pt 5	40.63	0.40	19.99	3.98	0.32	7.24	20.46	4.54	0.06	97.62
6	Pt 6	40.89	0.34	21.11	2.48	0.32	7.74	20.52	4.26	0.05	97.72
7	Pt 7	41.00	0.42	20.69	3.07	0.35	7.19	20.94	4.40	0.07	98.12
8	Pt 8	41.20	0.45	20.76	3.13	0.32	7.06	20.80	4.41	0.09	98.20
9	Pt 9	40.94	0.37	21.24	2.50	0.38	7.67	20.69	4.30	0.06	98.15
10	Pt 10	41.03	0.40	20.47	3.76	0.60	7.13	20.64	4.64	0.05	98.47
11	Pt 11	40.47	0.26	20.36	4.08	0.38	7.16	19.66	4.90	0.08	97.37
12	Pt 12	41.25	0.45	20.86	3.08	0.33	7.15	20.79	4.24	0.06	98.21
13	Pt 13	41.32	0.46	21.54	2.17	0.37	7.45	20.63	4.04	0.10	98.08
14	Pt 14	41.36	0.50	21.51	2.12	0.32	7.20	20.87	4.05	0.08	98.01
15	Pt 15	41.23	0.68	21.56	2.20	0.30	6.87	21.19	3.95	0.11	98.09
16	Pt 16	41.05	0.43	23.08	0.09	0.37	10.79	18.80	3.75	0.11	98.48
17	Pt 17	41.15	0.43	20.82	3.14	0.35	6.99	20.95	4.36	0.08	98.27
18	Pt 18	41.22	0.42	20.69	3.19	0.27	6.99	20.72	4.39	0.06	97.95
19	Pt 19	41.36	0.44	20.73	3.21	0.30	6.83	20.66	4.36	0.05	97.94
20	Pt 20	40.97	0.40	20.16	3.87	0.33	7.02	20.47	4.46	0.07	97.75
21	Pt 21	40.81	0.18	22.62	1.11	0.34	10.78	18.13	4.41	0.05	98.42
22	Pt 22	41.50	0.43	20.99	3.05	0.29	7.07	20.84	4.27	0.07	98.51
23	Pt 23	41.45	0.36	21.09	2.51	0.33	7.90	20.55	4.24	0.06	98.48
24	Pt 24	41.11	0.26	20.51	4.13	0.32	7.17	20.04	4.85	0.06	98.46
25	Pt 25	41.37	0.43	20.86	2.99	0.33	6.98	20.69	4.24	0.09	97.98
26	Pt 26	41.22	0.34	21.27	2.48	0.35	7.70	20.56	4.22	0.06	98.21
27	Pt 27	41.47	0.49	21.61	2.12	0.31	7.38	20.68	3.95	0.09	99.11
28	Pt 28	41.75	0.63	21.36	2.25	0.33	7.12	21.16	4.02	0.10	98.71
29	Pt 29	41.37	0.35	21.04	2.56	0.30	7.61	20.35	4.26	0.06	97.90
30	Pt 30	41.62	0.47	21.64	2.13	0.32	7.49	20.77	3.97	0.09	98.50
31	Pt 31	41.29	0.42	21.00	3.15	0.31	6.79	20.86	4.24	0.08	98.13
32	Pt 32	41.21	0.44	20.94	3.00	0.35	6.91	20.96	4.32	0.06	98.18
33	Pt 33	41.27	0.46	21.43	2.26	0.33	7.53	20.53	4.08	0.09	97.98
34	Pt 34	41.52	0.42	20.98	2.97	0.31	7.14	20.66	4.29	0.08	98.37
35	Pt 35	41.41	0.34	21.31	2.50	0.30	7.62	20.80	4.32	0.05	98.64
36	Pt 36	39.99	0.06	14.29	10.96	0.32	6.23	18.04	7.27	0.01	97.17
37	Pt 37	41.55	0.41	20.39	3.76	0.34	6.89	20.79	4.43	0.06	98.62
38	Pt 38	41.15	0.38	20.96	2.53	0.33	7.65	20.70	4.17	0.06	97.93
39	Pt 39	41.33	0.36	21.01	2.52	0.30	7.87	20.50	4.31	0.07	98.26
40	Pt 40	41.53	0.33	21.10	2.55	0.33	7.79	20.61	4.16	0.05	98.45
41	Pt 41	41.66	0.46	21.91	2.13	0.33	7.48	21.03	3.96	0.12	99.08
42	Pt 42	41.28	0.45	21.67	2.17	0.31	7.61	20.67	4.04	0.08	98.28
43	Pt 43	41.41	0.33	21.03	2.47	0.31	7.70	20.61	4.26	0.05	98.18
44	Pt 44	41.33	0.33	21.08	2.54	0.30	7.87	20.68	4.21	0.07	98.42
45	Pt 45	41.00	0.38	20.24	3.68	0.30	6.90	20.57	4.42	0.05	97.54
46	Pt 46	41.27	0.34	21.11	2.48	0.30	7.63	20.75	4.18	0.06	98.13
47	Pt 47	40.71	0.32	21.17	2.49	0.31	7.65	20.56	4.15	0.07	97.43
48	Pt 48	41.36	0.48	21.82	2.08	0.31	7.45	20.83	3.91	0.09	98.32
49	Pt 49	40.98	0.06	21.94	2.68	0.41	8.19	19.36	4.75	0.02	98.37
50	Pt 50	40.08	0.52	22.53	2.29	0.34	8.32	22.27	4.29	0.10	100.74
51	Pt 51	41.44	0.45	21.68	2.16	0.31	7.52	20.91	4.04	0.08	98.60
52	Pt 52	41.14	0.48	21.80	2.18	0.31	7.42	20.99	4.02	0.09	98.42
53	Pt 53	41.23	0.32	21.24	2.51	0.32	7.64	20.61	4.33	0.07	98.28
54	Pt 54	41.23	0.32	21.18	2.53	0.30	7.60	20.45	4.30	0.05	97.96
55	Pt 55	41.21	0.33	21.03	3.49	0.40	8.07	19.64	4.79	0.06	99.01
56	Pt 56	41.94	0.34	21.39	2.49	0.29	7.77	20.71	4.38	0.05	99.36
57	Pt 57	42.55	0.35	21.25	2.63	0.33	7.79	20.53	4.27	0.06	98.77
58	Pt 58	41.69	0.42	21.00	3.07	0.33	6.87	20.92	4.31	0.11	98.72
59	Pt 59	41.61	0.49	21.83	2.17	0.29	7.48	21.20	4.00	0.10	99.14
60	Pt 60	41.09	0.38	20.42	3.88	0.35	7.13	20.79	4.39	0.09	98.50
61	Pt 61	41.33	0.40	20.67	3.70	0.32	6.99	20.71	4.42	0.06	98.61
62	Pt 62	41.51	0.36	20.95	2.72	0.29	7.54	20.79	4.15	0.07	98.38
63	Pt 63	41.94	0.50	21.75	2.15	0.29	7.39	20.94	3.97	0.10	99.04
64	Pt 64	41.11	0.27	19.97	4.83	0.40	7.87	19.61	5.02	0.05	99.13
65	Pt 65	41.65	0.35	21.19	2.49	0.32	7.85	20.54	4.33	0.06	98.78
66	Pt 66	41.75	0.67	21.62	2.18	0.29	7.55	21.24	3.66	0.15	99.11
67	Pt 67	41.55	0.39	20.49	3.82	0.33	7.11	20.87	4.51	0.50	99.13
68	Pt 68	41.50	0.43	20.94	3.18	0.35	7.05	20.77	4.36	0.06	98.65
69	Pt 69	41.51	0.39	20.49	3.79	0.37	7.15	20.79	4.51	0.04	99.03
70	Pt 70	41.72	0.68	21.41	2.22	0.30	7.05	21.28	3.95	0.12	98.74
71	Pt 71	41.60	0.47	20.87	3.10	0.33	7.13	21.15	4.39	0.09	99.13

72	Pt 72	41.52	0.34	21.27	2.55	0.30	7.81	20.78	4.16	0.07	98.81
73	Pt 73	41.87	0.49	21.79	2.12	0.36	7.45	21.01	3.99	0.11	99.19
74	Pt 74	41.73	0.33	21.45	2.50	0.32	7.67	20.76	4.37	0.07	99.20
75	Pt 75	41.51	0.40	20.49	3.85	0.35	6.97	20.79	4.58	0.08	99.04
76	Pt 77	41.71	0.42	20.21	3.90	0.32	7.09	20.82	4.49	0.07	99.03
77	Pt 78	41.49	0.49	21.54	2.34	0.31	7.60	20.83	4.02	0.12	98.76
78	Pt 79	41.73	0.42	21.07	3.11	0.33	7.10	20.94	4.48	0.07	99.26
79	Pt 80	41.65	0.44	21.03	3.02	0.33	6.99	21.13	4.35	0.06	98.99
80	Pt 81	42.08	0.46	21.16	3.09	0.30	7.02	21.08	4.41	0.06	99.69
81	Pt 82	41.86	0.34	21.37	2.49	0.29	7.82	20.86	4.38	0.08	99.49
82	Pt 83	41.88	0.44	21.88	2.06	0.30	7.40	21.03	4.07	0.08	99.15
83	Pt 84	41.82	0.44	21.13	3.11	0.33	7.12	21.09	4.34	0.08	99.45
84	Pt 85	41.91	0.43	21.01	3.14	0.33	7.00	20.94	4.33	0.07	99.16
85	Pt 86	41.87	0.35	21.30	2.58	0.33	7.62	20.71	4.22	0.06	99.05
86	Pt 87	41.43	0.29	20.19	4.46	0.33	7.17	20.36	4.70	0.06	98.99
87	Pt 88	41.68	0.35	21.41	2.50	0.31	7.70	20.77	4.31	0.07	99.09
88	Pt 89	41.62	0.43	20.21	3.88	0.33	7.32	20.75	4.50	0.07	99.10
89	Pt 90	41.76	0.42	21.19	3.09	0.33	6.83	21.02	4.30	0.07	99.03
90	Pt 91	41.88	0.33	21.41	2.54	0.33	7.66	20.81	4.31	0.07	99.33
91	Pt 92	41.60	0.42	21.19	3.10	0.32	7.04	20.86	4.30	0.07	98.91
92	Pt 93	41.47	0.45	21.28	3.03	0.33	7.09	21.09	4.26	0.08	99.08
93	Pt 94	41.39	0.46	23.11	0.06	0.36	10.98	18.80	3.87	0.09	99.13
94	Pt 95	41.65	0.46	21.79	2.15	0.30	7.45	20.94	4.05	0.09	98.89
95	Pt 96	41.56	0.49	21.64	2.14	0.30	7.51	20.92	4.06	0.08	98.69
96	Pt 97	41.71	0.47	21.92	2.14	0.29	7.24	21.13	4.06	0.08	99.05
97	Pt 98	41.52	0.18	22.20	2.35	0.31	7.08	21.00	4.09	0.05	98.78
98	Pt 99	41.74	0.25	20.73	4.16	0.38	7.32	20.17	5.02	0.05	99.83
99	Pt 100	40.93	0.43	19.91	3.96	0.33	6.87	20.54	4.53	0.08	97.57
100	Pt 101	41.26	0.41	20.99	2.86	0.32	7.45	20.65	4.28	0.07	98.29
101	Pt 102	40.86	0.25	20.32	4.20	0.39	7.23	19.78	4.89	0.08	98.00
102	Pt 103	40.76	0.23	20.29	4.31	0.36	7.28	19.85	4.76	0.05	97.89
103	Pt 104	45.02	0.52	23.26	2.35	0.33	8.02	21.97	4.41	0.12	105.99
104	Pt 105	41.24	0.47	21.59	2.15	0.32	7.39	20.91	4.02	0.08	98.17
105	Pt 106	40.88	0.25	20.23	4.17	0.35	7.21	19.88	4.86	0.04	97.86
106	Pt 107	40.97	0.43	23.14	0.08	0.34	11.02	18.82	3.76	0.10	98.65
107	Pt 108	41.13	0.34	21.09	2.52	0.31	7.61	20.76	4.27	0.06	98.10
108	Pt 109	40.94	0.41	20.92	2.99	0.30	6.92	20.90	4.37	0.08	97.84
109	Pt 110	41.13	0.36	21.00	2.58	0.32	7.73	20.52	4.22	0.07	97.91
110	Pt 111	41.07	0.44	21.70	2.14	0.35	7.39	20.90	3.91	0.11	98.01
111	Pt 112	41.04	0.37	20.96	2.67	0.30	7.70	20.65	4.23	0.07	97.99
112	Pt 113	41.14	0.32	21.04	2.61	0.37	7.81	20.66	4.18	0.05	98.19
113	Pt 114	41.00	0.34	21.10	2.59	0.30	7.49	20.61	4.21	0.07	97.70
114	Pt 115	41.04	0.47	21.52	2.16	0.30	7.29	20.81	4.02	0.10	97.72
115	Pt 116	40.71	0.42	20.53	3.04	0.31	6.95	20.51	4.29	0.07	96.84
116	Pt 117	41.37	0.60	22.03	1.48	0.36	7.82	20.53	4.46	0.08	98.74
117	Pt 118	41.33	0.40	20.12	3.95	0.31	7.07	20.72	4.54	0.08	98.51
118	Pt 119	41.14	0.35	21.23	2.52	0.32	7.50	20.82	4.33	0.06	98.26
119	Pt 120	41.41	0.36	21.06	2.51	0.32	7.54	20.50	4.41	0.07	98.17
120	Pt 121	40.59	0.02	0.00	0.00	0.10	8.24	48.83	0.03	0.06	97.88
121	Pt 122	40.33	0.00	0.00	0.02	0.08	7.84	49.59	0.02	0.03	97.91
122	Pt 123	42.13	0.27	20.84	4.20	0.36	7.59	20.24	4.98	0.05	100.66
123	Pt 124	42.41	0.38	21.60	2.51	0.34	7.84	21.07	4.33	0.05	100.53
124	Pt 125	42.09	0.42	20.65	3.85	0.38	6.97	20.82	4.64	0.05	99.87
125	Pt 126	42.49	0.40	21.68	2.61	0.28	7.66	20.94	4.34	0.06	100.48
126	Pt 127	42.20	0.25	20.97	4.17	0.40	7.33	20.20	4.90	0.05	100.48
127	Pt 128	42.23	0.44	21.41	3.00	0.33	7.02	21.11	4.35	0.09	99.98
128	Pt 129	42.34	0.49	22.22	2.12	0.30	7.46	21.15	4.08	0.11	100.28
129	Pt 130	42.31	0.43	20.50	3.90	0.35	7.14	20.68	4.67	0.06	100.03
130	Pt 131	42.18	0.36	21.45	2.61	0.29	7.67	20.68	4.40	0.04	99.69
131	Pt 132	42.64	0.49	22.06	2.13	0.31	7.54	21.07	4.06	0.09	100.38
132	Pt 133	42.34	0.40	20.60	3.83	0.32	7.08	20.75	4.61	0.05	99.96
133	Pt 134	41.71	0.15	17.02	8.31	0.29	6.74	19.16	6.45	0.03	99.86

JI9-10664	Point #	SiO2	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	Na2O	Total
1	Pt 1	40.33	0.13	19.52	6.69	0.42	7.17	19.24	4.28	0.06	97.84
2	Pt 2	40.32	0.02	18.72	6.80	0.43	7.76	18.59	4.48	0.05	97.17
3	Pt 3	41.12	0.19	21.18	3.53	0.40	7.87	19.57	3.72	0.08	97.65
4	Pt 4	41.00	0.21	19.58	5.27	0.26	6.76	20.36	3.66	0.06	97.16
5	Pt 5	41.04	0.21	21.29	3.44	0.43	7.94	19.69	3.82	0.06	97.93
6	Pt 6	41.18	0.06	21.00	4.19	0.37	8.27	19.19	4.28	0.02	98.56
7	Pt 7	41.79	0.55	21.75	2.54	0.25	7.35	21.32	2.99	0.18	98.71
8	Pt 8	41.16	0.21	21.26	3.54	0.40	8.09	19.82	3.92	0.07	98.47
9	Pt 9	41.25	0.17	21.40	3.57	0.37	7.90	19.81	3.72	0.07	98.26
10	Pt 10	41.45	0.15	21.47	3.64	0.35	8.12	19.81	0.80	0.07	98.87
11	Pt 11	40.22	0.23	16.28	9.48	0.38	6.94	18.72	5.23	0.06	97.53
12	Pt 12	40.19	0.00	15.55	10.44	0.35	6.86	17.93	5.93	0.03	97.27
13	Pt 13	41.00	0.13	18.63	6.92	0.43	7.41	19.27	4.37	0.04	98.18
14	Pt 14	41.02	0.34	19.05	5.94	0.33	7.68	19.60	4.33	0.05	98.33
15	Pt 15	41.42	0.62	21.49	2.70	0.31	7.43	20.92	3.07	0.18	98.13
16	Pt 16	40.74	0.02	18.61	6.85	0.38	7.96	18.68	4.77	0.04	98.04
17	Pt 17	40.76	0.00	16.37	10.31	0.36	6.53	22.58	1.61	0.04	98.55
18	Pt 18	40.83	0.35	19.06	5.79	0.35	7.74	19.64	4.23	0.06	98.06
19	Pt 19	41.33	0.16	21.59	3.42	0.39	7.98	19.84	4.01	0.05	98.76
20	Pt 20	40.73	0.00	14.26	12.99	0.36	6.34	21.63	2.29	0.02	98.62
21	Pt 21	41.36	0.06	21.92	3.29	0.33	7.46	20.03	4.01	0.04	98.50
22	Pt 22	40.86	0.01	18.27	7.47	0.36	7.26	19.53	4.72	0.06	98.54
23	Pt 23	41.30	0.20	21.72	3.43	0.38	7.98	9.88	4.05	0.07	99.01
24	Pt 24	41.43	0.17	21.65	3.34	0.40	7.86	19.87	4.06	0.06	98.84
25	Pt 25	40.62	0.24	16.22	9.40	0.38	6.98	18.64	5.46	0.06	98.00
26	Pt 26	40.78	0.00	15.23	11.44	0.34	6.66	21.05	2.92	0.01	98.43
27	Pt 27	41.09	0.00	16.38	10.48	0.36	6.44	22.46	1.65	0.05	98.90
28	Pt 28	41.61	0.19	21.45	3.51	0.36	8.01	19.71	4.10	0.06	98.99
29	Pt 29	40.95	0.00	20.37	4.92	0.41	8.01	18.79	5.01	0.01	98.47
30	Pt 30	41.48	0.19	21.44	3.49	0.39	7.87	9.93	4.18	0.07	99.04
31	Pt 31	40.82	0.03	18.35	7.36	0.40	7.24	19.32	4.56	0.04	98.10
32	Pt 32	41.36	0.18	21.54	3.54	0.36	8.00	19.88	4.13	0.07	99.07
33	Pt 33	40.28	0.00	16.15	9.81	0.42	6.92	18.51	5.51	0.06	97.65
34	Pt 34	41.21	0.38	19.26	5.64	0.35	7.59	19.57	4.87	0.08	98.96
35	Pt 35	41.01	0.00	17.77	7.67	0.28	6.53	19.28	5.85	0.02	98.42
36	Pt 36	41.24	0.01	16.07	10.68	0.34	6.46	22.36	1.71	0.03	98.90
37	Pt 37	40.23	0.00	16.51	9.75	0.46	7.66	16.89	6.75	0.01	98.28
38	Pt 38	42.30	0.27	22.29	2.64	0.32	7.01	21.47	3.70	0.10	100.11
39	Pt 39	41.74	0.16	21.94	3.13	0.41	8.01	19.95	4.10	0.05	99.49
40	Pt 40	41.63	0.19	21.71	3.42	0.34	7.91	20.00	4.09	0.06	99.36
41	Pt 41	40.63	0.00	16.83	9.05	0.39	7.06	18.51	5.68	0.03	98.18
42	Pt 42	41.61	0.00	18.08	8.37	0.32	6.49	22.49	1.91	0.03	99.30
43	Pt 43	41.11	0.00	19.55	6.31	0.43	7.41	18.56	5.63	0.03	99.02
44	Pt 44	41.29	0.40	19.25	5.71	0.37	7.39	19.77	4.65	0.07	98.90
45	Pt 45	41.70	0.17	21.55	3.52	0.39	7.95	19.86	4.12	0.07	99.33
46	Pt 46	41.97	0.54	22.47	1.93	0.27	7.28	21.70	3.12	0.15	99.42
47	Pt 47	40.88	0.02	18.21	7.36	0.41	7.16	19.38	4.93	0.03	98.41
48	Pt 48	41.41	0.19	21.90	3.31	0.40	7.97	19.79	4.28	0.07	99.32
49	Pt 49	40.89	0.01	16.26	9.83	0.42	7.00	18.47	5.59	0.06	98.52
50	Pt 50	40.57	0.03	18.33	7.29	0.39	7.32	19.34	4.68	0.03	97.97
51	Pt 51	41.37	0.17	21.22	3.66	0.41	7.82	19.68	4.20	0.06	98.59
52	Pt 52	41.30	0.01	20.62	4.52	0.32	7.37	20.37	4.36	0.04	98.90
53	Pt 53	41.72	0.17	22.14	2.93	0.36	7.53	20.36	4.14	0.06	99.41
54	Pt 54	41.60	0.16	20.02	4.95	0.35	6.79	20.56	4.17	0.07	98.65
55	Pt 55	41.01	0.00	15.91	10.53	0.34	6.21	22.40	2.16	0.02	98.57
56	Pt 56	41.84	0.05	20.69	3.98	0.25	6.66	20.97	4.21	0.03	98.68
57	Pt 57	41.32	0.00	17.85	8.53	0.32	6.49	22.46	1.86	0.02	98.86
58	Pt 58	41.41	0.00	18.08	6.92	0.33	6.91	19.42	5.37	0.01	98.44
59	Pt 59	41.24	0.00	16.05	10.57	0.32	5.93	22.13	2.30	0.05	98.59
60	Pt 60	41.02	0.14	18.89	6.62	0.41	7.30	19.52	4.84	0.03	98.78
61	Pt 61	40.59	0.12	14.60	10.92	0.27	6.69	18.78	5.93	0.02	97.92
62	Pt 62	42.02	0.26	21.69	2.62	0.28	7.07	21.24	3.82	0.06	99.06
63	Pt 63	41.32	0.00	22.76	2.37	0.40	8.41	19.71	4.05	0.04	99.08
64	Pt 64	41.42	0.19	19.49	5.49	0.32	6.66	20.39	4.50	0.05	98.51
65	Pt 65	40.51	0.14	17.72	7.76	0.48	7.87	16.78	7.05	0.04	98.35
66	Pt 66	40.50	0.01	15.64	10.10	0.38	6.86	18.21	6.44	0.05	98.20
67	Pt 67	40.64	0.00	16.36	9.55	0.40	6.94	18.29	5.87	0.03	98.08
68	Pt 68	40.71	0.00	17.14	8.76	0.35	6.87	18.41	6.08	0.05	98.39
69	Pt 69	41.19	0.01	15.98	10.52	0.34	6.27	22.57	1.82	0.05	98.75
70	Pt 70	41.01	0.01	16.09	10.39	0.38	6.28	22.45	1.76	0.04	98.40
71	Pt 71	41.44	0.05	19.20	6.22	0.40	7.38	19.31	5.01	0.03	99.03

72	Pt 72	41.61	0.17	21.41	3.52	0.39	7.92	19.56	4.39	0.08	99.05
73	Pt 73	41.00	0.00	6.15	10.39	0.38	6.29	22.30	1.73	0.04	98.28
74	Pt 74	41.86	0.23	22.09	2.41	0.30	7.99	20.20	4.26	0.05	99.39
75	Pt 75	41.30	0.13	18.80	6.61	0.36	7.30	19.49	4.95	0.08	99.02
76	Pt 76	40.73	0.00	16.55	9.36	0.42	6.94	18.03	6.28	0.06	98.36
77	Pt 77	41.46	0.00	16.01	10.21	0.37	6.34	22.37	1.83	0.04	98.64
78	Pt 78	41.03	0.14	18.95	6.66	0.43	7.13	19.41	5.05	0.05	98.85
79	Pt 79	41.50	0.18	21.46	3.52	0.40	7.86	19.81	4.43	0.05	99.21
80	Pt 80	41.12	0.13	18.75	6.72	0.46	7.25	19.41	4.93	0.06	98.82
81	Pt 81	40.54	0.16	21.20	3.53	0.42	7.99	19.49	3.81	0.06	97.20
82	Pt 82	40.28	0.00	16.74	10.46	0.31	6.37	22.50	1.60	0.05	98.31
83	Pt 83	40.26	0.00	15.90	10.45	0.38	6.47	22.09	1.67	0.05	97.28
84	Pt 84	40.50	0.00	17.92	9.19	0.38	6.99	18.05	5.15	0.03	98.21
85	Pt 85	40.77	0.00	17.51	8.66	0.31	6.65	22.24	1.77	0.03	97.94
86	Pt 86	41.13	0.19	20.41	4.49	0.27	6.47	21.05	3.80	0.08	97.89
87	Pt 87	40.58	0.37	15.09	11.06	0.31	6.92	17.93	6.09	0.03	98.38
88	Pt 88	39.88	0.14	17.25	8.35	0.56	8.18	16.40	6.46	0.03	97.25
89	Pt 89	40.56	0.01	16.00	10.45	0.32	6.62	22.26	1.62	0.03	97.88
90	Pt 90	41.49	0.00	16.35	10.10	0.32	6.27	22.27	2.16	0.02	98.99
91	Pt 91	41.93	0.20	21.74	3.20	0.33	7.77	19.87	4.46	0.07	99.58
92	Pt 92	41.19	0.00	19.39	6.29	0.42	7.17	18.57	5.76	0.01	98.80
93	Pt 93	41.51	0.00	16.07	10.46	0.32	6.04	22.28	2.21	0.02	98.92
94	Pt 94	41.66	0.20	21.84	3.24	0.36	7.79	19.70	4.40	0.06	99.25
95	Pt 95	39.55	0.12	18.42	6.36	0.36	7.02	19.00	6.77	0.05	97.66
96	Pt 96	41.46	0.11	18.95	6.46	0.43	7.19	19.65	5.07	0.06	99.38
97	Pt 97	41.31	0.00	16.55	10.00	0.34	6.29	22.60	1.88	0.05	99.03
98	Pt 98	41.50	0.19	21.51	3.51	0.40	7.73	19.83	4.44	0.06	99.17
99	Pt 99	41.35	0.05	19.19	6.16	0.34	7.31	19.21	4.99	0.05	98.67
100	Pt 100	41.69	0.19	21.58	3.29	0.38	7.82	19.77	4.50	0.05	99.19
101	Pt 101	41.09	0.40	19.08	5.70	0.30	7.53	19.64	4.93	0.09	98.76
102	Pt 102	40.36	0.00	16.24	9.60	0.47	7.45	16.38	7.62	0.03	98.15
103	Pt 103	41.05	0.02	16.38	10.12	0.35	6.25	22.36	1.75	0.04	98.32
104	Pt 104	41.21	0.14	18.93	6.53	0.38	7.20	19.52	4.89	0.07	98.86
105	Pt 105	40.25	0.00	16.32	9.47	0.44	7.54	16.76	7.08	0.02	97.87
106	Pt 106	41.97	0.26	21.91	2.57	0.25	7.30	21.32	3.96	0.07	99.60
107	Pt 107	41.47	0.21	21.55	3.39	0.42	7.85	19.69	4.46	0.07	99.11
108	Pt 108	41.09	0.19	23.57	0.05	0.33	15.22	16.13	3.21	0.07	99.85
109	Pt 109	41.91	0.32	23.85	0.00	0.26	10.33	19.32	3.61	0.08	99.68
110	Pt 110	40.20	0.10	23.49	0.00	0.44	17.50	12.34	5.52	0.08	99.68
111	Pt 111	42.01	0.61	21.38	2.86	0.31	7.33	21.11	3.46	0.16	99.23
112	Pt 112	40.65	0.19	23.40	0.06	0.30	15.48	16.10	3.16	0.10	99.44
113	Pt 113	41.91	0.08	24.14	0.11	0.26	10.58	19.00	3.49	0.07	99.66
114	Pt 114	40.81	0.19	23.29	0.05	0.28	15.34	16.02	3.26	0.08	99.32
115	Pt 115	40.87	0.20	23.53	0.06	0.29	15.38	16.28	3.29	0.08	99.98
116	Pt 116	41.21	0.18	23.77	0.05	0.32	15.31	16.23	3.22	0.09	100.38
117	Pt 117	41.84	0.21	22.96	1.53	0.60	8.88	19.83	3.81	0.08	99.49
118	Pt 118	42.20	0.55	22.67	1.76	0.34	7.34	21.50	3.24	0.17	99.76
119	Pt 119	41.81	0.67	20.74	3.59	0.28	7.50	20.89	3.64	0.16	99.26
120	Pt 120	42.15	0.54	21.90	2.52	0.30	7.27	21.23	3.40	0.15	99.46
121	Pt 121	41.75	0.62	21.55	2.60	0.30	7.26	21.02	3.42	0.14	98.65
122	Pt 122	42.01	0.60	21.65	2.68	0.29	7.20	21.13	3.54	0.14	99.26

JI10-10665	Point #	SiO2	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	Na2O	Total
1	Pt 1	41.34	0.18	21.41	3.09	0.29	7.37	20.21	4.37	0.05	98.31
2	Pt 2	41.42	0.21	21.56	3.28	0.33	7.29	20.33	4.36	0.04	98.82
3	Pt 3	40.47	0.18	20.84	3.46	0.28	7.33	20.14	4.57	0.04	97.31
4	Pt 4	40.70	0.45	19.97	4.11	0.31	7.49	20.24	4.63	0.06	97.95
5	Pt 5	40.48	0.06	17.32	7.71	0.26	6.40	20.55	4.50	0.03	97.31
6	Pt 6	40.89	0.33	20.58	3.45	0.29	6.95	20.10	4.56	0.04	97.20
7	Pt 7	40.99	0.33	20.64	3.33	0.33	7.23	20.34	4.47	0.07	97.73
8	Pt 8	40.59	0.33	20.70	3.33	0.33	7.01	20.38	4.52	0.06	97.24
9	Pt 9	41.42	0.57	21.32	1.82	0.25	7.99	20.68	4.15	0.07	98.26
10	Pt 10	40.99	0.17	21.18	3.03	0.31	7.36	20.29	4.31	0.03	97.69
11	Pt 11	39.84	0.10	15.93	9.40	0.50	6.77	17.96	6.83	0.02	97.20
12	Pt 12	39.61	0.32	16.11	9.28	0.37	7.00	18.27	6.14	0.05	97.14
13	Pt 13	40.79	0.33	20.89	3.55	0.33	7.09	20.48	4.52	0.06	98.05
14	Pt 14	41.53	0.16	21.19	3.07	0.32	7.55	20.12	4.31	0.03	98.29
15	Pt 15	41.07	0.20	21.16	3.49	0.33	7.54	20.07	4.50	0.05	98.39
16	Pt 16	41.18	0.52	21.33	1.83	0.28	7.92	20.64	4.10	0.07	97.85
17	Pt 17	40.28	0.14	18.66	6.18	0.40	7.15	19.20	5.18	0.03	97.25
18	Pt 18	41.13	0.33	20.69	3.41	0.32	7.09	20.28	4.36	0.05	97.67
19	Pt 19	39.67	0.01	16.01	9.83	0.46	7.50	16.13	8.12	0.00	97.73
20	Pt 20	40.28	0.10	16.03	9.40	0.36	6.69	17.71	6.95	0.02	97.52
21	Pt 21	41.33	0.33	20.85	3.54	0.27	7.21	20.33	4.38	0.05	98.28
22	Pt 22	41.01	0.19	20.73	3.67	0.33	7.36	19.91	4.50	0.04	97.73
23	Pt 23	41.20	0.36	20.70	3.55	0.31	6.99	20.24	4.47	0.08	97.91
24	Pt 24	41.16	0.20	20.93	3.45	0.33	7.42	20.22	4.38	0.04	98.14
25	Pt 25	41.45	0.32	20.86	3.39	0.30	6.96	20.42	4.54	0.06	98.31
26	Pt 26	41.06	0.45	20.26	3.85	0.33	7.58	20.27	4.53	0.06	98.39
27	Pt 27	41.25	0.54	21.38	1.79	0.30	7.89	20.27	4.12	0.06	97.59
28	Pt 28	41.31	0.42	20.31	3.83	0.36	7.33	20.15	4.57	0.05	98.34
29	Pt 29	40.57	0.32	17.15	8.18	0.33	6.99	19.78	4.67	0.06	98.04
30	Pt 30	41.09	0.21	21.63	2.65	0.32	9.06	18.86	4.73	0.02	98.59
31	Pt 31	40.94	0.34	20.64	3.51	0.31	7.04	20.38	4.50	0.03	97.69
32	Pt 32	41.13	0.18	21.30	3.10	0.31	7.32	20.15	4.39	0.03	97.90
33	Pt 33	41.29	0.45	19.89	4.05	0.36	7.47	20.18	4.68	0.04	98.41
34	Pt 34	41.24	0.34	20.80	3.43	0.31	7.12	20.43	4.41	0.06	98.13
35	Pt 35	41.35	0.17	21.27	3.07	0.31	7.52	20.27	4.28	0.04	98.27
36	Pt 36	41.24	0.33	20.59	3.43	0.31	7.03	20.14	4.44	0.06	97.57
37	Pt 38	41.66	0.19	20.95	3.46	0.30	7.34	20.00	4.45	0.05	98.41
38	Pt 39	41.13	0.47	20.17	3.95	0.31	7.42	19.95	4.62	0.04	98.07
39	Pt 40	41.68	0.34	21.02	3.34	0.26	7.03	20.44	4.35	0.06	98.51
40	Pt 41	40.95	0.12	18.07	6.66	0.31	6.52	19.44	5.51	0.02	97.59
41	Pt 42	41.72	0.45	20.67	3.66	0.33	7.50	20.39	4.48	0.05	99.23
42	Pt 43	41.15	0.15	18.05	6.83	0.33	6.49	19.41	5.54	0.03	97.98
43	Pt 44	40.53	0.33	16.08	9.19	0.41	7.19	18.34	6.12	0.05	98.23
44	Pt 45	41.84	0.17	21.33	3.27	0.33	7.30	20.44	4.40	0.05	99.14
45	Pt 46	41.39	0.45	20.09	4.04	0.32	7.66	20.27	4.46	0.04	98.73
46	Pt 47	41.38	0.19	21.72	2.57	0.38	9.05	18.65	4.77	0.05	98.77
47	Pt 48	41.39	0.29	20.97	3.53	0.36	7.03	20.43	4.42	0.04	98.45
48	Pt 49	41.75	0.30	21.02	3.37	0.33	7.29	20.54	4.38	0.05	99.03
49	Pt 50	40.86	0.13	18.62	6.41	0.36	7.25	19.24	5.27	0.03	98.17
50	Pt 51	41.30	0.43	20.19	3.92	0.32	7.45	20.41	4.49	0.04	98.55
51	Pt 52	40.39	0.33	16.08	9.24	0.38	7.00	18.50	6.20	0.05	98.16
52	Pt 53	41.79	0.34	21.10	3.35	0.31	7.12	20.47	4.42	0.05	98.95
53	Pt 54	41.14	0.22	21.61	2.73	0.41	9.26	18.68	4.84	0.03	98.92
54	Pt 55	40.96	0.13	19.92	4.99	0.47	0.13	18.33	5.75	0.03	90.71
55	Pt 56	41.06	0.13	18.92	6.11	0.39	7.14	19.54	5.16	0.01	98.46
56	Pt 57	41.72	0.32	20.97	3.34	0.35	7.07	20.27	4.36	0.02	98.40
57	Pt 58	40.10	0.17	13.29	12.32	0.32	6.77	18.29	6.52	0.00	97.79
58	Pt 59	40.59	0.32	16.39	9.17	0.37	6.94	18.47	6.10	0.04	98.39
59	Pt 60	41.49	0.40	20.35	3.73	0.32	7.35	20.26	4.44	0.06	98.41
60	Pt 61	41.37	0.09	18.27	7.19	0.28	6.37	20.71	4.33	0.04	98.65
61	Pt 62	41.55	0.34	21.04	3.36	0.28	7.07	20.35	4.50	0.05	98.53
62	Pt 63	41.31	0.30	20.85	3.57	0.30	7.09	20.67	4.57	0.04	98.69
63	Pt 64	41.09	0.12	15.61	10.69	0.35	6.47	22.05	2.29	0.03	98.71
64	Pt 65	41.63	0.21	21.20	3.36	0.36	7.28	19.90	4.40	0.03	98.37
65	Pt 66	41.68	0.32	20.95	3.51	0.29	6.92	20.58	4.43	0.06	98.74
66	Pt 67	40.49	0.11	14.94	11.76	0.34	6.23	19.53	5.36	0.02	98.78
67	Pt 68	41.57	0.34	20.77	3.45	0.30	7.06	20.30	4.44	0.07	98.29
68	Pt 69	41.39	0.39	20.87	3.17	0.29	7.51	20.40	4.28	0.07	98.37
69	Pt 70	41.43	0.31	20.79	3.35	0.34	7.06	20.49	4.39	0.07	98.23
70	Pt 71	41.38	0.12	18.62	6.36	0.38	7.14	19.26	5.24	0.02	98.52
71	Pt 72	40.52	0.32	16.21	9.24	0.39	6.90	18.51	6.18	0.04	98.29

72	Pt 73	41.36	0.35	20.94	3.34	0.30	6.95	20.41	4.44	0.04	98.12
73	Pt 74	41.53	0.53	21.54	1.83	0.28	7.90	20.76	4.12	0.07	98.56
74	Pt 75	42.08	0.18	21.28	3.19	0.34	7.45	20.35	5.35	0.04	99.26
75	Pt 76	41.41	0.44	20.24	3.84	0.34	7.55	20.12	4.48	0.03	98.44
76	Pt 77	41.12	0.12	20.05	4.91	0.40	8.24	18.48	5.79	0.03	99.13
77	Pt 78	40.18	0.02	16.04	9.92	0.45	7.48	16.25	8.24	0.01	98.59
78	Pt 79	41.44	0.16	21.43	3.16	0.32	7.48	20.07	4.31	0.02	98.39
79	Pt 80	41.59	0.51	20.81	3.22	0.31	6.50	20.81	4.62	0.10	98.46
80	Pt 81	41.11	0.43	20.01	3.96	0.33	7.42	20.20	4.51	0.04	98.01
81	Pt 82	41.74	0.56	21.66	1.78	0.28	7.78	20.87	4.05	0.08	98.80
82	Pt 83	41.51	0.49	21.01	3.38	0.28	6.62	20.86	4.59	0.09	98.82
83	Pt 84	41.69	0.31	20.98	3.38	0.32	6.93	20.46	4.40	0.04	98.52
84	Pt 85	41.80	0.32	21.09	3.46	0.33	7.06	20.53	4.42	0.07	99.09
85	Pt 86	41.86	0.31	21.09	3.55	0.32	7.20	20.62	4.50	0.06	99.52
86	Pt 87	41.71	0.31	20.96	3.44	0.26	7.15	20.34	4.44	0.04	98.65
87	Pt 88	41.56	0.20	20.91	3.67	0.31	7.27	20.20	4.42	0.07	98.60
88	Pt 89	41.41	0.32	20.98	3.31	0.32	7.14	20.48	4.44	0.07	98.47
89	Pt 90	40.96	0.18	20.91	3.43	0.31	7.41	20.11	4.46	0.03	97.80
90	Pt 91	40.38	0.30	16.28	9.15	0.35	7.11	18.44	6.09	0.05	98.14
91	Pt 92	41.79	0.17	21.11	3.39	0.31	7.44	20.10	4.45	0.04	98.81
92	Pt 93	41.80	0.27	21.59	2.71	0.32	7.68	19.75	4.33	0.05	98.49
93	Pt 94	40.98	0.18	23.41	0.24	0.22	10.11	14.62	9.74	0.07	99.55
94	Pt 95	41.34	0.17	23.26	0.24	0.19	9.83	14.63	9.68	0.04	99.39
95	Pt 96	42.00	0.31	20.88	3.59	0.29	7.06	20.31	4.29	0.07	98.70
96	Pt 97	41.62	0.32	20.80	3.45	0.30	7.20	20.54	4.44	0.04	98.72
97	Pt 98	40.96	0.15	23.11	0.24	0.24	10.01	14.49	9.64	0.04	98.88
98	Pt 99	41.12	0.16	23.23	0.23	0.21	9.84	14.41	9.73	0.05	98.99
99	Pt 100	41.01	0.16	18.33	6.78	0.33	6.68	19.66	5.49	0.02	98.47
100	Pt 101	41.49	0.33	20.61	3.81	0.33	7.10	20.35	4.45	0.05	98.51
101	Pt 102	41.61	0.24	22.51	1.49	0.39	9.40	19.09	4.36	0.04	99.11
102	Pt 104	40.95	0.33	19.96	3.73	0.33	7.63	19.80	4.51	0.00	97.23
103	Pt 105	40.51	0.24	17.03	9.17	0.33	7.11	18.51	6.09	0.00	98.99
104	Pt 106	40.90	0.35	20.62	3.43	0.33	7.29	20.21	4.42	0.04	97.58
105	Pt 107	41.37	0.09	17.63	7.57	0.33	6.43	20.25	4.36	0.00	98.03
106	Pt 108	42.04	0.20	20.98	3.30	0.34	7.56	20.03	4.34	0.01	98.79
107	Pt 109	41.46	0.20	20.65	3.53	0.30	7.47	20.01	4.44	0.02	98.09
108	Pt 110	41.84	0.34	20.90	3.48	0.37	7.28	20.28	4.43	0.03	98.95
109	Pt 111	41.11	0.19	23.08	0.26	0.24	10.04	14.38	9.74	0.02	99.05
110	Pt 113	41.22	0.15	18.02	7.03	0.37	6.88	19.27	5.49	0.00	98.43
111	Pt 114	41.53	0.45	19.95	4.09	0.38	7.57	20.15	4.58	0.04	98.74
112	Pt 115	41.53	0.14	18.06	7.05	0.32	6.84	19.40	5.55	0.00	98.89
113	Pt 116	41.06	0.15	15.66	10.75	0.36	6.69	21.71	2.28	0.01	98.67
114	Pt 117	41.66	0.36	20.74	3.37	0.37	7.14	20.39	4.42	0.04	98.84
115	Pt 118	41.54	0.22	20.74	3.55	0.36	7.42	19.81	4.50	0.03	98.18
116	Pt 119	41.82	0.35	20.78	3.43	0.33	7.13	20.25	4.44	0.05	98.58
117	Pt 120	41.70	0.34	20.46	3.67	0.33	7.46	20.22	4.43	0.02	98.62
118	Pt 121	41.49	0.22	20.70	3.43	0.32	7.68	19.77	4.36	0.03	98.01
119	Pt 122	41.84	0.55	21.20	1.79	0.33	8.26	20.44	4.15	0.03	98.60
120	Pt 123	41.90	0.23	20.47	3.84	0.35	7.41	19.86	4.55	0.02	98.62
121	Pt 124	41.35	0.45	19.90	3.98	0.36	7.57	19.85	4.55	0.05	98.06
122	Pt 125	41.21	0.08	19.01	6.09	0.50	7.96	17.93	5.96	0.00	98.74
123	Pt 126	41.74	0.21	20.89	3.26	0.38	7.57	20.29	4.33	0.01	98.68
124	Pt 127	41.99	0.20	21.54	3.12	0.35	7.32	20.18	4.31	0.00	99.02
125	Pt 128	41.08	0.14	15.31	10.86	0.33	6.48	21.53	2.24	0.01	97.99
126	Pt 129	41.36	0.16	18.99	6.18	0.38	7.24	19.25	5.25	0.02	98.82
127	Pt 130	42.21	0.53	21.62	1.86	0.34	8.12	20.77	4.12	0.06	99.62
128	Pt 131	41.90	0.21	20.90	3.44	0.35	7.61	19.98	4.41	0.02	98.82

Appendix C: Table of Oxide Compositions

Note 1: The term chromite has been applied to all spinel containing significant Cr-contents and includes aluminous magnesian chromite (AMC), magnesian aluminous chromite (MAC) and titaniferous magnesium aluminous chromite (Ti-MAC).
Note 2: The term Ti-magnetite has been applied to all members of the magnesium alvospinel -ulvospinel-magnetite solid solution series including magnetite with low Ti contents.
Note 3: Low analytical totals for ilmenite are the result of the presence of Fe^{3+}; Recalculating the composition and partitioning Fe between Fe^{2+} and Fe^{3+} would increase the analytical total to close to 100%.

TR1-10670		Point #	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	NiO	Nb2O5	ZnO	Total
1	Chromite	Pt 1	0.52	7.21	62.52	0.29	17.66	11.30	0.01	0.07	n.a.	99.58
2	Chromite	Pt 2	0.57	10.25	58.95	0.26	18.61	11.34	0.07	0.08	n.a.	100.13
3	Chromite	Pt 3	0.09	7.30	61.54	0.24	17.96	12.46	0.15	0.05	n.a.	99.79
4	Chromite	Pt 4	0.12	25.27	45.43	0.25	15.11	13.77	0.08	0.00	n.a.	100.03
5	Chromite	Pt 5	1.44	4.81	64.43	0.28	17.49	11.94	0.11	0.10	n.a.	100.60
6	Chromite	Pt 6	0.00	38.70	31.69	0.17	14.06	15.33	0.05	0.00	n.a.	100.00
7	Chromite	Pt 7	0.00	37.45	32.86	0.14	14.15	15.16	0.02	0.00	n.a.	99.78
8	Chromite	Pt 8	0.20	6.08	64.76	0.28	17.90	10.97	0.07	0.07	n.a.	100.33
9	Chromite	Pt 9	2.08	6.52	52.71	0.28	27.54	10.08	0.11	0.08	n.a.	99.40
10	Chromite	Pt 10	2.59	7.26	55.05	0.30	23.25	11.82	0.18	0.12	n.a.	100.57
11	Chromite	Pt 11	0.00	38.98	31.61	0.16	13.69	15.39	0.03	0.00	n.a.	99.86
12	Chromite	Pt 12	0.00	38.29	32.29	0.17	13.82	15.26	0.00	0.00	n.a.	99.83
13	Chromite	Pt 13	0.54	12.77	56.40	0.26	19.13	10.94	0.07	0.05	n.a.	100.16
14	Chromite	Pt 14	0.16	6.54	65.00	0.33	17.23	11.48	0.07	0.09	n.a.	100.90
15	Chromite	Pt 15	0.00	39.41	31.79	0.12	13.48	15.75	0.04	0.00	n.a.	100.59
16	Chromite	Pt 16	0.28	12.66	57.25	0.29	19.29	11.38	0.07	0.08	n.a.	101.30
17	Chromite	Pt 17	0.21	4.79	65.58	0.28	18.34	11.76	0.08	0.10	n.a.	101.12
18	Chromite	Pt 18	0.00	38.65	31.98	0.12	13.63	15.08	0.04	0.00	n.a.	99.60
19	Chromite	Pt 19	0.00	38.85	32.13	0.20	14.16	15.26	0.04	0.00	n.a.	100.64
20	Chromite	Pt 20	0.00	39.29	31.78	0.17	13.67	15.49	0.03	0.00	n.a.	100.43
21	Chromite	Pt 21	0.00	38.85	31.68	0.17	13.96	15.41	0.02	0.00	n.a.	100.09
22	Chromite	Pt 22	1.45	11.13	56.54	0.28	20.75	11.07	0.08	0.10	n.a.	101.40
23	Chromite	Pt 23	0.00	39.22	32.10	0.13	13.91	15.51	0.01	0.00	n.a.	100.88
24	Chromite	Pt 24	0.65	20.13	46.16	0.21	20.22	13.65	0.15	0.07	n.a.	101.24
25	Chromite	Pt 25	0.00	37.31	33.70	0.13	14.15	14.89	0.00	0.00	n.a.	100.18
26	Chromite	Pt 26	0.00	8.78	32.30	0.11	13.15	15.58	0.08	0.00	n.a.	70.00
27	Chromite	Pt 27	0.00	39.31	32.46	0.16	12.95	15.69	0.03	0.00	n.a.	100.60
28	Chromite	Pt 28	0.00	35.99	34.31	0.17	15.30	4.34	0.00	0.00	n.a.	90.11
29	Chromite	Pt 29	0.00	39.95	31.40	0.17	13.40	15.63	0.04	0.00	n.a.	100.59
30	Chromite	Pt 30	0.00	38.49	32.24	0.20	14.87	14.93	0.12	0.00	n.a.	100.85
31	Chromite	Pt 31	0.00	39.43	31.71	0.15	14.20	15.49	0.06	0.00	n.a.	101.04
32	Chromite	Pt 32	0.00	38.24	32.78	0.14	14.25	15.35	0.01	0.00	n.a.	100.77
33	Chromite	Pt 33	0.14	6.40	65.14	0.32	17.02	11.53	0.08	0.07	n.a.	100.70
34	Chromite	Pt 34	0.00	37.45	33.59	0.15	14.28	15.15	0.01	0.00	n.a.	100.63
35	Chromite	Pt 35	0.10	12.67	58.60	0.28	16.54	12.09	0.04	0.03	n.a.	100.35
36	Chromite	Pt 36	0.00	37.16	33.62	0.14	14.51	15.00	0.05	0.00	n.a.	100.48
37	Chromite	Pt 37	0.00	37.92	32.78	0.19	13.99	15.33	0.05	0.00	n.a.	100.26
38	Chromite	Pt 38	0.00	36.28	34.44	0.18	14.94	14.66	0.04	0.00	n.a.	100.54
39	Chromite	Pt 39	0.00	39.09	31.89	0.15	13.85	15.61	0.04	0.00	n.a.	100.63
40	Chromite	Pt 41	0.00	38.69	31.92	0.13	13.65	15.34	0.01	0.00	n.a.	99.74
41	Chromite	Pt 42	0.00	38.09	32.25	0.14	14.26	15.15	0.09	0.00	n.a.	99.98
42	Chromite	Pt 43	0.00	38.58	32.56	0.10	13.91	15.22	0.04	0.00	n.a.	100.41
43	Chromite	Pt 44	0.00	39.07	31.46	0.14	13.53	15.61	0.00	0.00	n.a.	99.81
44	Chromite	Pt 45	0.42	10.25	62.09	0.29	16.51	11.15	0.03	0.04	n.a.	100.78
45	Chromite	Pt 46	0.00	39.66	31.26	0.21	13.60	15.72	0.05	0.00	n.a.	100.50
46	Chromite	Pt 47	0.00	38.84	32.47	0.12	13.94	15.24	0.03	0.00	n.a.	100.64
47	Chromite	Pt 48	0.00	37.71	33.47	0.19	14.26	14.94	0.00	0.00	n.a.	100.57
48	Chromite	Pt 49	0.00	38.68	32.42	0.15	13.93	15.40	0.06	0.00	n.a.	100.64
49	Chromite	Pt 50	0.00	38.55	32.32	0.16	14.13	15.03	0.02	0.00	n.a.	100.21
50	Chromite	Pt 52	0.00	38.57	32.01	0.16	14.20	15.13	0.02	0.00	n.a.	100.09
51	Chromite	Pt 53	0.00	38.26	32.45	0.15	13.81	15.13	0.05	0.00	n.a.	99.85
52	Chromite	Pt 54	0.00	38.41	32.27	0.14	13.88	15.30	0.05	0.00	n.a.	100.05
53	Chromite	Pt 55	1.16	5.29	62.95	0.35	18.30	11.64	0.04	0.13	n.a.	99.86
54	Chromite	Pt 56	0.00	38.72	32.51	0.19	14.39	15.07	0.05	0.00	n.a.	100.93
55	Chromite	Pt 57	0.00	39.39	31.76	0.14	13.65	15.49	0.04	0.00	n.a.	100.47
56	Chromite	Pt 59	0.19	10.84	57.83	0.26	19.90	11.45	0.06	0.09	n.a.	100.62
57	Chromite	Pt 60	0.00	37.92	32.35	0.16	14.75	15.14	0.33	0.00	n.a.	100.65
58	Chromite	Pt 61	0.07	38.02	32.19	0.16	15.86	14.57	0.01	0.00	n.a.	100.88
59	Chromite	Pt 62	0.13	15.64	56.99	0.25	15.44	11.90	0.04	0.02	n.a.	100.41
60	Chromite	Pt 63	0.00	38.78	31.73	0.14	14.35	14.93	0.00	0.00	n.a.	99.93

61	Chromite	Pt 64	0.31	5.71	64.55	0.31	17.27	12.03	0.11	0.04	n.a.	100.33
62	Chromite	Pt 65	0.00	38.65	32.46	0.17	14.25	15.26	0.04	0.00	n.a.	100.83
63	Chromite	Pt 66	0.00	39.35	31.57	0.18	13.68	15.53	0.00	0.00	n.a.	100.31
64	Chromite	Pt 67	0.00	39.27	32.13	0.17	13.93	15.47	0.04	0.00	n.a.	101.01
65	Chromite	Pt 69	0.00	38.93	32.09	0.14	13.14	15.66	0.01	0.00	n.a.	99.97
66	Chromite	Pt 70	0.00	38.20	31.99	0.16	14.28	14.87	0.01	0.00	n.a.	99.51
67	Chromite	Pt 71	0.00	38.89	32.44	0.13	13.62	15.41	0.05	0.00	n.a.	100.54
68	Chromite	Pt 72	0.05	43.55	21.97	0.13	19.64	15.10	0.11	0.00	n.a.	100.55
69	Chromite	Pt 73	0.66	10.88	60.82	0.27	15.93	12.40	0.01	0.11	n.a.	101.08
70	Chromite	Pt 75	1.27	11.22	58.86	0.25	16.88	12.18	0.10	0.05	n.a.	100.81
71	Chromite	Pt 76	0.00	38.92	31.83	0.19	13.99	15.50	0.04	0.00	n.a.	100.47
72	Chromite	Pt 77	0.00	39.20	31.66	0.15	13.67	15.49	0.03	0.00	n.a.	100.20
73	Chromite	Pt 78	0.00	38.10	32.28	0.18	14.55	14.73	0.00	0.00	n.a.	99.84
74	Chromite	Pt 79	0.00	38.00	32.59	0.16	14.21	14.84	0.00	0.00	n.a.	99.80
75	Chromite	Pt 80	0.00	38.57	32.45	0.15	13.73	15.09	0.02	0.00	n.a.	100.01
76	Chromite	Pt 81	0.36	5.78	65.36	0.24	16.35	11.89	0.07	0.13	n.a.	100.18
77	Chromite	Pt 82	0.00	36.81	33.66	0.15	14.81	14.18	0.00	0.00	n.a.	99.61
78	Chromite	Pt 83	0.28	6.16	64.44	0.34	18.00	10.85	0.07	0.05	n.a.	100.19
79	Chromite	Pt 84	0.00	38.45	32.01	0.14	13.74	15.14	0.04	0.00	n.a.	99.52
80	Chromite	Pt 85	0.26	11.88	58.31	0.23	17.98	10.98	0.10	0.06	n.a.	99.80
81	Chromite	Pt 86	0.00	38.53	32.58	0.15	13.77	15.26	0.02	0.00	n.a.	100.31
82	Chromite	Pt 87	0.00	39.24	32.20	0.17	13.63	15.24	0.02	0.00	n.a.	100.50
83	Chromite	Pt 89	0.00	35.18	35.44	0.21	15.26	14.07	0.03	0.00	n.a.	100.19
84	Chromite	Pt 90	0.70	11.71	57.99	0.31	18.94	11.19	0.05	0.04	n.a.	100.93
85	Chromite	Pt 91	0.00	38.75	32.02	0.16	13.61	15.28	0.04	0.00	n.a.	99.86
86	Chromite	Pt 92	0.00	41.84	23.25	0.11	20.01	14.74	0.16	0.00	n.a.	100.11
87	Chromite	Pt 93	0.00	38.26	32.70	0.14	13.61	15.37	0.00	0.00	n.a.	100.08
88	Chromite	Pt 94	0.00	38.20	32.30	0.13	13.66	15.28	0.03	0.00	n.a.	99.60
89	Chromite	Pt 95	0.00	37.65	33.27	0.15	14.29	15.00	0.02	0.00	n.a.	100.38
90	Chromite	Pt 96	0.00	37.48	33.15	0.16	14.50	14.63	0.01	0.00	n.a.	99.93
91	Chromite	Pt 97	0.00	37.12	33.35	0.16	14.42	14.60	0.00	0.00	n.a.	99.65
92	Chromite	Pt 98	0.00	35.97	34.44	0.16	14.26	14.53	0.02	0.00	n.a.	99.38
1	Ilmenite	Pt 99	46.25	0.07	0.03	4.42	48.30	0.28	0.00	1.26	n.a.	100.61
1	Rutile*	Pt 88	93.50	0.18	0.31	0.00	0.17	0.01	0.00	0.09	n.a.	94.26
2	Rutile*	Pt 58	93.99	0.17	0.26	0.00	0.20	0.01	0.00	0.07	n.a.	94.70
3	Rutile*	Pt 40	95.01	0.14	0.29	0.00	0.40	0.06	0.00	0.37	n.a.	96.27
4	Rutile*	Pt 51	95.06	0.18	0.30	0.00	0.15	0.01	0.00	0.07	n.a.	95.77

* - low totals due to poor calibration for Ti.

TR 2-10668		Point #	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	NiO	ZnO	Total
1	Chromite	Pt 1	0.08	6.56	65.35	0.29	16.93	11.18	0.01	0.15	0.14	100.69
2	Chromite	Pt 2	0.04	5.01	65.28	0.30	17.21	12.16	0.01	0.18	0.15	100.34
3	Chromite	Pt 3	0.17	6.34	64.76	0.28	17.63	10.94	0.01	0.12	0.16	100.41
4	Chromite	Pt 4	0.11	11.20	59.70	0.32	17.93	10.71	0.01	0.13	0.18	100.29
5	Chromite	Pt 5	0.05	42.29	25.35	0.17	15.41	14.95	0.01	0.15	0.19	98.57
6	Chromite	Pt 6	0.35	27.38	41.52	0.27	15.69	13.13	0.00	0.12	0.17	98.63
7	Chromite	Pt 7	0.12	34.68	33.62	0.24	14.56	14.97	0.00	0.14	0.05	98.38
8	Chromite	Pt 8	0.20	17.07	53.24	0.35	17.35	11.63	0.02	0.12	0.19	100.17
9	Chromite	Pt 9	0.38	19.35	45.31	0.24	18.56	14.16	0.00	0.24	0.07	98.31
10	Chromite	Pt 10	0.00	24.10	47.53	0.28	15.24	12.78	0.01	0.08	0.21	100.23
11	Chromite	Pt 11	0.28	5.65	65.59	0.30	16.80	11.28	0.02	0.13	0.15	100.20
12	Chromite	Pt 13	0.34	11.22	57.11	0.33	20.47	10.75	0.01	0.08	0.19	100.50
13	Chromite	Pt 14	0.10	7.30	62.02	0.29	18.13	12.44	0.01	0.17	0.10	100.56
14	Chromite	Pt 15	0.08	6.41	64.76	0.32	17.64	10.84	0.01	0.14	0.15	100.35
15	Chromite	Pt 16	0.14	6.76	64.43	0.32	17.46	11.04	0.00	0.14	0.18	100.47
16	Chromite	Pt 17	0.03	10.03	63.01	0.29	15.02	11.62	0.02	0.09	0.18	100.29
17	Chromite	Pt 18	0.06	7.06	64.32	0.32	17.22	11.18	0.01	0.13	0.11	100.41
18	Chromite	Pt 19	0.87	8.75	57.73	0.25	19.50	12.14	0.01	0.17	0.14	99.56
19	Chromite	Pt 21	0.00	21.03	50.35	0.30	15.17	12.55	0.05	0.07	0.16	99.68
20	Chromite	Pt 23	0.02	33.84	35.47	0.21	14.95	14.51	0.00	0.14	0.07	99.21
21	Chromite	Pt 25	0.00	54.54	14.97	0.09	11.23	18.75	0.00	0.15	0.01	99.74
22	Chromite	Pt 26	0.00	22.88	47.95	0.25	16.63	11.82	0.01	0.07	0.22	99.83
23	Chromite	Pt 27	0.00	12.97	58.92	0.33	16.31	10.96	0.01	0.05	0.19	99.74
24	Chromite	Pt 28	2.01	4.95	59.21	0.31	22.37	11.21	0.02	0.20	0.19	100.47
25	Chromite	Pt 29	0.45	5.32	64.78	0.26	17.04	12.01	0.00	0.07	0.05	99.98
26	Chromite	Pt 30	0.00	23.91	47.41	0.30	15.85	12.70	0.01	0.06	0.22	100.46
27	Ti-magnetite	Pt 31	0.05	0.00	0.09	0.36	89.34	0.69	0.10	0.10	0.16	90.89
28	Chromite	Pt 32	0.57	10.16	60.40	0.28	17.71	10.70	0.02	0.15	0.19	100.18
29	Chromite	Pt 33	0.00	22.22	49.01	0.31	16.80	11.67	0.01	0.04	0.20	100.26
30	Chromite	Pt 34	0.00	22.79	48.13	0.26	17.34	11.55	0.00	0.07	0.30	100.44
31	Chromite	Pt 35	0.00	44.81	18.97	0.24	21.70	13.45	0.00	0.22	0.20	99.59
32	Chromite	Pt 36	0.19	33.74	35.63	0.27	15.78	13.88	0.00	0.08	0.17	99.74
33	Chromite	Pt 37	0.19	26.07	41.89	0.26	19.51	11.71	0.01	0.10	0.29	100.03
34	Chromite	Pt 38	0.02	10.13	60.64	0.35	18.98	10.26	0.01	0.12	0.18	100.69
35	Chromite	Pt 40	1.26	11.75	56.49	0.30	18.77	10.97	0.01	0.14	0.14	99.83
36	Chromite	Pt 42	0.11	10.31	62.65	0.31	15.69	11.31	0.00	0.11	0.19	100.68
37	Chromite	Pt 43	0.09	10.84	61.75	0.30	15.62	11.18	0.01	0.11	0.17	100.07
38	Chromite	Pt 44	0.04	14.42	57.89	0.29	15.08	11.95	0.01	0.11	0.22	100.01
39	Chromite	Pt 45	0.00	45.35	19.48	0.19	20.99	13.87	0.00	0.23	0.12	100.23
40	Chromite	Pt 46	0.74	10.45	56.72	0.32	18.55	10.73	0.00	0.11	0.19	99.81
41	Chromite	Pt 47	0.05	6.58	64.87	0.29	17.52	10.76	0.01	0.16	0.16	100.40
42	Chromite	Pt 48	0.04	43.61	19.16	0.21	22.88	12.94	0.00	0.25	0.15	99.24
43	Chromite	Pt 49	0.32	6.28	64.37	0.30	16.98	11.65	0.02	0.17	0.11	100.20
44	Chromite	Pt 51	0.10	9.76	63.03	0.34	15.56	11.11	0.01	0.11	0.13	100.15
45	Chromite	Pt 52	0.04	45.74	19.25	0.16	20.68	13.89	0.00	0.26	0.14	100.16
46	Ti-magnetite	Pt 53	0.06	0.00	0.08	0.34	90.38	0.28	0.07	0.13	0.15	91.49
47	Ti-magnetite	Pt 54	0.05	0.00	0.04	0.53	89.93	0.36	0.09	0.09	0.12	91.21
48	Ti-magnetite	Pt 56	9.36	3.87	0.11	0.25	83.96	0.22	0.02	0.09	0.22	98.10
49	Chromite	Pt 58	0.00	42.10	27.00	0.16	13.98	15.70	0.00	0.11	0.09	99.14
50	Chromite	Pt 61	0.06	6.57	64.77	0.27	18.04	10.95	0.01	0.02	0.15	100.84
51	Chromite	Pt 62	0.97	6.53	61.97	0.26	18.08	10.25	0.03	0.13	0.16	98.38
52	Chromite	Pt 63	0.11	5.96	64.06	0.25	17.72	12.03	0.01	0.06	0.05	100.25
53	Chromite	Pt 64	0.01	12.06	57.36	0.34	20.09	9.97	0.02	0.09	0.22	100.16
54	Chromite	Pt 67	0.03	44.72	19.24	0.16	21.87	13.41	0.00	0.20	0.16	99.79
55	Chromite	Pt 70	0.10	5.55	65.95	0.30	16.91	11.40	0.02	0.16	0.13	100.52
56	Chromite	Pt 71	0.00	37.12	34.02	0.17	13.12	15.41	0.00	0.06	0.15	100.05
57	Chromite	Pt 73	0.01	33.81	35.26	0.26	15.08	14.43	0.00	0.17	0.07	99.09
58	Chromite	Pt 74	0.11	12.12	60.09	0.31	16.62	10.61	0.03	0.11	0.23	100.23
59	Chromite	Pt 75	0.13	45.20	18.42	0.17	20.24	13.91	0.00	0.23	0.16	98.46
60	Chromite	Pt 76	0.05	44.72	19.53	0.19	21.63	13.52	0.00	0.25	0.13	100.02
61	Ti-magnetite	Pt 77	0.05	0.00	0.07	0.30	89.25	1.03	0.06	0.07	0.17	91.00
62	Chromite	Pt 78	2.19	12.62	53.10	0.26	17.54	13.86	0.02	0.28	0.12	99.99
63	Chromite	Pt 79	0.03	7.15	64.31	0.34	17.19	11.15	0.00	0.11	0.12	100.40
64	Chromite	Pt 82	0.00	23.05	48.27	0.25	16.21	12.26	0.01	0.06	0.23	100.34
65	Chromite	Pt 83	0.00	32.73	38.01	0.19	13.68	14.68	0.00	0.23	0.20	99.72
66	Ti-magnetite	Pt 85	0.07	0.00	0.07	0.20	90.64	0.58	0.10	0.10	0.18	91.94
67	Ti-magnetite	Pt 86	0.41	0.86	0.20	0.05	88.81	0.17	0.03	0.12	0.23	90.88
68	Chromite	Pt 88	0.00	33.19	36.14	0.20	13.19	14.84	0.02	0.08	0.24	97.90
69	Ti-magnetite	Pt 90	0.10	0.00	0.05	0.23	91.17	0.11	0.04	0.14	0.20	92.04
70	Chromite	Pt 91	0.06	14.32	57.88	0.27	15.68	11.67	0.01	0.02	0.15	100.06

71	Ti-magnetite	Pt 92	0.06	0.00	0.07	0.29	91.17	0.59	0.07	0.15	0.24	92.64
72	Ti-magnetite	Pt 93	9.23	3.38	0.12	0.21	84.67	0.25	0.03	0.14	0.29	98.32
73	Chromite	Pt 94	0.26	5.47	63.92	0.33	17.99	11.42	0.02	0.18	0.11	99.70
74	Chromite	Pt 95	0.00	6.22	65.16	0.34	18.49	10.37	0.03	0.12	0.15	100.88
75	Chromite	Pt 100	0.14	5.49	65.90	0.33	17.06	11.46	0.01	0.19	0.13	100.71
76	Ti-magnetite	Pt 101	9.99	2.99	0.05	0.17	84.13	0.25	0.03	0.08	0.28	97.97
77	Chromite	Pt 102	0.00	23.64	47.09	0.28	15.87	12.72	0.00	0.08	0.23	99.91
78	Ti-magnetite	Pt 103	0.13	0.00	0.07	0.19	94.83	0.19	0.03	0.04	0.24	95.72
79	Chromite	Pt 105	0.09	38.93	29.58	0.16	16.03	14.60	0.00	0.09	0.20	99.68
80	Chromite	Pt 107	0.13	10.00	62.89	0.30	15.12	11.48	0.01	0.12	0.15	100.20
81	Chromite	Pt 108	0.09	5.91	64.22	0.25	17.80	11.97	0.00	0.08	0.07	100.39
82	Chromite	Pt 109	0.00	22.56	48.45	0.22	16.37	12.09	0.00	0.00	0.09	99.78
1	Ilmenite	Pt 12	50.04	0.10	0.01	0.60	50.35	0.04	0.02	0.09	0.12	101.37
2	Ilmenite	Pt 24	49.34	0.14	0.00	0.50	50.04	0.82	0.04	0.07	0.17	101.12
3	Ilmenite	Pt 39	50.53	0.09	0.04	0.39	44.55	2.12	0.04	0.05	0.13	97.94
4	Ilmenite	Pt 41	49.10	0.07	0.00	0.55	50.53	0.17	0.01	0.09	0.07	100.59
5	Ilmenite	Pt 55	49.97	0.00	0.00	0.55	49.60	0.98	0.03	0.06	0.13	101.32
6	Ilmenite	Pt 57	49.89	0.10	0.03	0.53	49.70	0.95	0.04	0.10	0.09	101.43
7	Ilmenite	Pt 59	50.29	0.19	0.00	0.45	49.35	0.84	0.03	0.06	0.11	101.32
8	Ilmenite	Pt 60	49.36	0.07	0.00	0.42	49.64	0.93	0.05	0.07	0.11	100.65
9	Ilmenite	Pt 65	49.21	0.00	0.03	0.50	48.86	0.75	0.04	0.06	0.09	99.54
10	Ilmenite	Pt 66	48.54	0.60	0.02	0.45	48.40	0.89	0.04	0.05	0.12	98.51
11	Ilmenite	Pt 68	48.73	0.00	0.04	0.55	46.59	1.06	0.02	0.07	0.10	97.16
12	Ilmenite	Pt 69	48.09	0.00	0.05	0.55	48.39	0.28	0.02	0.06	0.09	97.53
13	Ilmenite	Pt 72	49.13	0.03	0.01	0.50	47.06	0.49	0.06	0.08	0.10	97.46
14	Ilmenite	Pt 80	48.94	0.06	0.03	0.54	48.72	0.68	0.03	0.07	0.13	99.20
15	Ilmenite	Pt 81	48.50	0.08	0.04	0.55	48.61	0.48	0.05	0.10	0.09	98.50
16	Ilmenite	Pt 84	48.19	0.04	0.04	0.47	48.49	0.79	0.04	0.08	0.11	98.25
17	Ilmenite	Pt 87	50.06	0.02	0.00	0.48	48.87	1.35	0.04	0.07	0.11	101.00
18	Ilmenite	Pt 89	49.18	0.05	0.04	0.48	46.14	0.94	0.04	0.09	0.17	97.13
19	Ilmenite	Pt 96	50.05	0.08	0.01	0.42	48.59	1.70	0.04	0.11	0.12	101.12
20	Ilmenite	Pt 98	50.16	0.15	0.01	0.46	49.90	0.82	0.07	0.07	0.15	101.79
21	Ilmenite	Pt 99	49.12	0.27	0.03	0.54	49.77	0.05	0.05	0.07	0.14	100.04
22	Ilmenite	Pt 104	49.53	0.01	0.03	0.40	49.20	0.66	0.03	0.07	0.11	100.04
23	Ilmenite	Pt 106	47.71	0.00	0.01	0.46	49.96	0.59	0.02	0.10	0.11	98.96

TR 3-10671		Point #	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	NiO	ZnO	Total
1	Chromite	Pt 1	1.34	11.14	48.65	0.32	27.14	10.87	0.00	0.17	0.10	99.73
2	Chromite	Pt 2	0.30	6.51	64.46	0.33	16.30	11.57	0.00	0.08	0.06	99.61
3	Chromite	Pt 3	1.40	6.17	60.39	0.28	19.38	12.34	0.01	0.11	0.03	100.11
4	Chromite	Pt 4	0.36	5.45	64.67	0.30	17.50	12.20	0.01	0.11	0.02	100.62
5	Chromite	Pt 5	0.51	7.14	63.80	0.28	15.66	12.30	0.00	0.09	0.08	99.86
6	Chromite	Pt 7	0.48	6.01	64.41	0.30	18.13	11.00	0.00	0.03	0.06	100.42
7	Chromite	Pt 8	0.22	5.78	64.49	0.29	17.63	11.70	0.00	0.10	0.08	100.29
8	Chromite	Pt 9	0.22	12.48	57.70	0.31	17.53	11.45	0.00	0.04	0.09	99.82
9	Chromite	Pt 10	0.12	10.42	62.46	0.29	15.92	11.22	0.00	0.06	0.13	100.62
10	Chromite	Pt 11	0.95	5.23	63.55	0.32	17.77	11.99	0.00	0.14	0.03	99.98
11	Chromite	Pt 12	0.28	6.32	64.42	0.35	18.27	11.08	0.00	0.06	0.03	100.81
12	Chromite	Pt 13	0.36	10.99	60.57	0.30	16.85	11.32	0.00	0.08	0.09	100.56
13	Chromite	Pt 14	0.28	6.37	64.76	0.33	17.34	11.34	0.01	0.10	0.06	100.59
14	Chromite	Pt 15	0.27	6.29	64.55	0.33	18.10	10.72	0.00	0.11	0.05	100.42
15	Chromite	Pt 16	0.23	5.86	64.16	0.26	17.94	11.98	0.00	0.03	0.10	100.56
16	Chromite	Pt 17	0.75	11.14	59.41	0.32	17.92	11.01	0.00	0.05	0.10	100.70
17	Chromite	Pt 18	0.28	6.26	64.34	0.33	17.96	11.10	0.01	0.11	0.05	100.44
18	Chromite	Pt 19	0.30	6.64	64.31	0.35	17.71	10.85	0.00	0.09	0.08	100.33
19	Chromite	Pt 20	3.28	5.41	56.12	0.33	22.27	11.89	0.00	0.18	0.04	99.52
20	Chromite	Pt 21	0.16	11.89	58.08	0.36	18.85	10.93	0.00	0.08	0.04	100.39
21	Chromite	Pt 22	1.77	5.26	61.71	0.34	18.68	12.38	0.00	0.14	0.05	100.33
22	Chromite	Pt 23	0.32	6.19	63.80	0.34	18.70	10.63	0.00	0.11	0.02	100.11
23	Chromite	Pt 24	0.10	7.61	61.77	0.31	18.11	12.22	0.00	0.13	0.06	100.31
24	Chromite	Pt 25	0.12	6.10	65.20	0.35	17.47	11.23	0.00	0.09	0.03	100.59
25	Chromite	Pt 26	0.80	11.91	49.56	0.35	27.33	9.50	0.00	0.14	0.02	99.61
26	Chromite	Pt 27	0.30	11.00	56.99	0.34	20.92	10.93	0.00	0.07	0.12	100.67
27	Chromite	Pt 28	0.69	11.63	57.70	0.34	19.45	10.65	0.00	0.12	0.08	100.66
28	Chromite	Pt 29	0.23	23.24	40.93	0.26	21.88	13.01	0.00	0.16	0.00	99.71
29	Chromite	Pt 31	0.00	45.78	23.73	0.10	12.61	16.90	0.00	0.02	0.02	99.36
30	Chromite	Pt 32	0.09	6.16	65.05	0.32	17.05	11.02	0.01	0.10	0.07	99.87
31	Chromite	Pt 33	0.32	6.47	64.92	0.36	16.08	11.94	0.00	0.13	0.05	100.27
32	Chromite	Pt 34	0.35	5.56	64.59	0.31	17.02	12.04	0.00	0.08	0.00	99.95
33	Chromite	Pt 36	0.00	13.38	58.95	0.30	16.20	11.07	0.00	0.05	0.15	100.10
34	Chromite	Pt 37	0.03	13.84	58.74	0.33	16.28	11.48	0.00	0.03	0.17	100.90
35	Chromite	Pt 39	0.05	7.00	64.81	0.31	16.04	12.09	0.00	0.10	0.03	100.43
36	Chromite	Pt 40	0.30	10.37	62.59	0.27	14.88	11.79	0.00	0.05	0.12	100.37
37	Chromite	Pt 41	0.02	40.28	30.32	0.17	14.04	15.68	0.00	0.02	0.19	100.72
38	Chromite	Pt 43	0.09	10.06	62.86	0.32	15.20	11.40	0.00	0.06	0.15	100.14
39	Chromite	Pt 44	0.26	6.44	64.34	0.29	18.21	11.29	0.00	0.12	0.06	101.01
40	Chromite	Pt 45	0.03	9.82	62.90	0.29	16.31	10.50	0.00	0.02	0.13	100.00
41	Chromite	Pt 47	0.01	6.19	65.50	0.35	18.47	10.71	0.00	0.08	0.11	101.42
42	Chromite	Pt 48	0.27	6.31	64.61	0.29	18.11	10.78	0.00	0.06	0.09	100.52
43	Chromite	Pt 49	0.44	7.13	64.34	0.30	15.44	12.48	0.00	0.12	0.06	100.31
44	Chromite	Pt 50	0.02	16.36	56.09	0.33	15.44	12.14	0.00	0.05	0.10	100.53
45	Chromite	Pt 52	0.23	12.55	58.37	0.33	17.63	11.05	0.00	0.07	0.15	100.38
46	Chromite	Pt 53	2.57	5.89	59.08	0.43	19.49	12.36	0.04	0.08	0.03	99.97
47	Chromite	Pt 54	0.04	9.82	60.97	0.33	17.99	10.57	0.00	0.11	0.09	99.92
48	Chromite	Pt 55	0.32	6.00	63.93	0.35	18.75	10.44	0.00	0.04	0.02	99.85
49	Chromite	Pt 56	0.42	10.84	59.27	0.27	17.29	11.95	0.00	0.09	0.06	100.19
50	Chromite	Pt 57	0.01	12.98	57.61	0.33	18.28	10.56	0.00	0.08	0.07	99.92
51	Chromite	Pt 58	0.01	13.32	59.13	0.33	16.43	11.01	0.00	0.07	0.16	100.46
52	Chromite	Pt 59	0.43	12.22	58.18	0.28	17.13	11.39	0.00	0.04	0.08	99.75
53	Chromite	Pt 60	0.06	13.66	58.45	0.31	15.64	11.45	0.00	0.04	0.18	99.79
54	Chromite	Pt 61	0.39	5.71	64.91	0.33	18.05	10.86	0.00	0.14	0.08	100.47
55	Chromite	Pt 62	0.30	10.06	60.86	0.30	17.38	10.93	0.00	0.03	0.07	99.93
56	Chromite	Pt 63	0.64	14.70	43.93	0.30	29.45	9.78	0.00	0.22	0.07	99.09
57	Chromite	Pt 64	2.34	4.91	60.11	0.26	19.17	12.04	0.00	0.16	0.00	98.99
58	Chromite	Pt 67	3.43	7.45	55.56	0.26	19.24	13.00	0.00	0.22	0.04	99.20
59	Chromite	Pt 68	0.64	10.67	56.94	0.29	20.89	10.32	0.00	0.10	0.14	99.99
60	Chromite	Pt 69	0.11	9.98	62.58	0.36	15.75	10.90	0.00	0.05	0.13	99.86
61	Chromite	Pt 70	0.18	12.05	58.29	0.33	18.08	10.94	0.00	0.14	0.00	100.01
62	Chromite	Pt 71	0.63	5.15	64.60	0.37	18.05	10.52	0.00	0.09	0.00	99.41
63	Chromite	Pt 73	2.66	4.45	57.65	0.36	23.30	10.65	0.00	0.11	0.00	99.18
64	Chromite	Pt 74	0.17	9.84	61.23	0.35	17.78	10.50	0.00	0.06	0.00	99.93
65	Chromite	Pt 75	0.09	5.78	65.15	0.29	17.55	10.79	0.00	0.06	0.00	99.71
66	Chromite	Pt 76	0.49	6.38	63.88	0.31	17.58	10.84	0.00	0.07	0.00	99.55
67	Chromite	Pt 77	0.34	5.97	64.09	0.31	18.75	10.27	0.00	0.11	0.00	99.84
68	Chromite	Pt 78	0.32	5.99	64.93	0.33	17.56	11.15	0.00	0.07	0.00	100.35
69	Chromite	Pt 79	0.19	6.11	64.73	0.30	17.75	10.64	0.00	0.07	0.00	99.79
70	Chromite	Pt 80	0.20	12.98	57.66	0.29	17.89	11.03	0.00	0.05	0.00	100.10

71	Chromite	Pt 81	1.72	7.48	60.16	0.35	18.10	12.19	0.00	0.15	0.00	100.15
72	Chromite	Pt 82	0.25	12.87	56.83	0.35	18.90	10.71	0.00	0.01	0.00	99.92
73	Chromite	Pt 83	3.04	6.09	57.26	0.26	19.83	12.57	0.00	0.13	0.00	99.18
74	Chromite	Pt 84	3.59	6.20	54.26	0.34	21.72	12.44	0.00	0.08	0.00	98.63
75	Chromite	Pt 85	0.50	7.13	64.47	0.24	15.25	12.13	0.00	0.14	0.00	99.86
76	Chromite	Pt 87	0.01	13.21	58.92	0.26	14.88	11.89	0.00	0.06	0.00	99.23
77	Chromite	Pt 88	0.13	6.32	64.58	0.29	17.94	10.32	0.00	0.06	0.00	99.64
78	Chromite	Pt 89	0.19	14.23	55.70	0.32	17.78	11.03	0.00	0.02	0.00	99.27
79	Chromite	Pt 90	0.01	41.37	26.55	0.17	15.30	15.15	0.00	0.05	0.00	98.60
80	Chromite	Pt 91	0.18	12.85	58.08	0.32	17.94	11.28	0.01	0.10	0.11	100.87
81	Chromite	Pt 93	0.40	12.17	57.97	0.07	18.18	10.99	0.00	0.07	0.20	100.05
82	Chromite	Pt 95	0.45	5.65	65.48	0.33	17.69	10.94	0.00	0.14	0.04	100.72
83	Chromite	Pt 98	0.83	16.32	52.69	0.27	18.54	11.15	0.00	0.12	0.20	100.12
84	Chromite	Pt 99	0.15	12.32	59.99	0.21	14.81	12.72	0.00	0.07	0.07	100.34
85	Ti-magnetite	Pt 30	0.05	0.00	0.00	0.50	92.73	0.97	0.18	0.05	0.12	94.60
86	Ti-magnetite	Pt 35	0.06	0.28	0.07	0.05	97.08	0.04	0.01	0.04	0.13	97.76
87	Ti-magnetite	Pt 38	0.04	0.02	0.02	0.05	97.39	0.00	0.02	0.05	0.12	97.71
88	Ti-magnetite	Pt 46	16.05	2.78	0.05	0.33	77.77	0.45	0.01	0.09	0.17	97.70
89	Ti-magnetite	Pt 51	17.94	1.65	0.16	0.39	77.10	0.28	0.02	0.06	0.29	97.89
90	Ti-magnetite	Pt 86	15.47	2.25	0.08	0.39	75.37	0.29	0.00	0.03	0.00	93.88
91	Ti-magnetite	Pt 92	17.08	2.77	0.05	0.37	76.24	0.46	0.01	0.10	0.10	97.18
92	Ti-magnetite	Pt 96	5.24	1.19	0.22	0.22	91.18	0.11	0.02	0.08	0.30	98.56
93	Ti-magnetite	Pt 97	0.08	0.21	0.05	0.09	97.37	0.00	0.01	0.06	0.15	98.02
94	Chromite	Pt 100	1.62	4.96	62.13	0.27	18.54	12.22	0.00	0.18	0.08	100.00
95	Chromite	Pt 101	0.12	10.21	63.08	0.32	15.44	11.45	0.00	0.07	0.17	100.86
96	Chromite	Pt 102	0.51	6.10	64.34	0.33	17.87	11.13	0.01	0.13	0.02	100.44
97	Chromite	Pt 103	0.17	6.41	64.15	0.37	17.21	10.89	0.00	0.08	0.10	99.38
98	Chromite	Pt 104	0.47	12.08	57.76	0.32	17.74	11.25	0.00	0.05	0.13	99.80
99	Chromite	Pt 106	0.20	5.82	64.99	0.27	16.36	12.00	0.00	0.13	0.02	99.79
100	Chromite	Pt 107	0.17	6.27	63.85	0.33	18.06	11.20	0.01	0.09	0.10	100.08
101	Chromite	Pt 109	0.00	20.63	49.83	0.27	18.24	11.16	0.00	0.06	0.20	100.39
1	Ilmenite	Pt 6	45.18	0.07	0.01	0.59	47.81	1.85	0.08	0.01	0.03	95.63
2	Ilmenite	Pt 42	41.27	0.11	0.00	0.63	51.86	1.22	0.05	0.03	0.02	95.19
3	Ilmenite	Pt 65	49.88	0.02	1.66	0.51	29.43	12.50	0.02	0.12	0.00	94.14
4	Ilmenite	Pt 66	40.63	0.15	0.09	2.08	40.38	2.29	0.13	0.46	0.00	86.21
5	Ilmenite	Pt 72	48.09	0.03	0.01	0.53	48.22	1.21	0.00	0.00	0.00	98.09
6	Ilmenite	Pt 105	53.16	0.05	0.97	0.52	31.09	12.53	0.05	0.15	0.00	98.52
7	Ilmenite	Pt 108	49.53	0.05	0.03	0.67	47.01	1.75	0.14	0.00	0.05	99.23

TR4-10672		Point #	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	NiO	ZnO	Total
1	Chromite	Pt 1	0.09	6.25	64.12	0.29	17.44	11.17	0.00	0.08	0.11	99.55
2	Chromite	Pt 2	0.96	18.43	48.55	0.20	16.50	15.07	0.00	0.14	0.00	99.87
3	Chromite	Pt 3	0.37	12.10	55.21	0.26	18.36	13.36	0.00	0.13	0.06	99.85
4	Chromite	Pt 4	0.34	5.65	64.87	0.27	17.34	12.26	0.00	0.10	0.02	100.85
5	Chromite	Pt 5	0.38	4.63	63.58	0.35	18.47	11.59	0.00	0.11	0.09	99.20
6	Chromite	Pt 6	0.10	5.75	64.78	0.29	17.91	11.15	0.00	0.07	0.07	100.12
7	Chromite	Pt 7	0.49	5.51	65.39	0.32	15.99	12.15	0.00	0.10	0.13	100.08
8	Chromite	Pt 8	0.49	7.55	61.07	0.28	18.25	12.48	0.00	0.11	0.01	100.24
9	Chromite	Pt 9	0.45	5.41	65.12	0.27	16.19	12.12	0.01	0.11	0.05	99.73
10	Chromite	Pt 10	0.44	4.98	64.96	0.33	17.50	11.31	0.00	0.09	0.06	99.67
11	Chromite	Pt 11	0.06	26.82	43.65	0.28	16.17	13.58	0.00	0.04	0.00	100.60
12	Ti-magnetite	Pt 13	2.00	1.41	0.10	0.12	92.61	0.22	0.00	0.05	0.18	96.69
13	Chromite	Pt 14	0.51	5.86	64.42	0.32	16.68	12.27	0.00	0.11	0.04	100.21
14	Chromite	Pt 15	0.24	12.01	58.15	0.28	17.94	11.27	0.00	0.10	0.14	100.13
15	Chromite	Pt 17	0.05	6.76	64.36	0.31	17.39	11.36	0.00	0.05	0.00	100.28
16	Chromite	Pt 18	7.32	9.00	37.95	0.38	31.31	12.96	0.01	0.21	0.02	99.16
17	Chromite	Pt 19	1.21	7.69	59.76	0.27	17.93	13.00	0.00	0.11	0.06	100.03
18	Chromite	Pt 20	0.08	13.15	58.93	0.29	14.97	12.37	0.00	0.03	0.10	99.92
19	Chromite	Pt 21	0.29	9.88	62.48	0.28	16.17	11.42	0.00	0.07	0.16	100.75
20	Chromite	Pt 22	0.11	10.39	62.06	0.29	16.07	11.43	0.00	0.04	0.06	100.45
21	Chromite	Pt 25	0.32	5.94	64.71	0.30	16.56	11.79	0.00	0.09	0.05	99.76
22	Chromite	Pt 27	0.04	6.86	64.80	0.31	16.89	11.40	0.00	0.07	0.03	100.40
23	Chromite	Pt 28	2.65	7.43	56.47	0.34	19.02	12.79	0.00	0.17	0.02	98.89
24	Chromite	Pt 29	0.33	6.06	64.94	0.34	16.08	12.17	0.00	0.07	0.10	100.09
25	Chromite	Pt 30	0.16	7.16	63.86	0.32	17.80	11.32	0.00	0.08	0.11	100.81
26	Chromite	Pt 31	0.28	24.47	40.46	0.27	20.79	13.58	0.00	0.15	0.02	100.02
27	Chromite	Pt 32	0.46	9.77	62.15	0.32	15.84	11.73	0.00	0.06	0.08	100.41
28	Chromite	Pt 33	0.44	10.33	59.85	0.36	19.76	10.31	0.01	0.09	0.16	101.31
29	Ti-magnetite	Pt 34	0.03	0.00	0.00	0.45	94.16	0.62	0.16	0.04	0.06	95.52
30	Chromite	Pt 35	0.10	6.35	64.92	0.31	17.35	11.24	0.00	0.11	0.07	100.45
31	Chromite	Pt 36	1.56	4.44	61.17	0.32	20.24	11.57	0.02	0.15	0.06	99.53
32	Chromite	Pt 37	1.57	4.48	61.34	0.29	20.29	11.16	0.00	0.13	0.07	99.33
33	Chromite	Pt 38	2.82	4.96	57.92	0.27	21.69	12.06	0.00	0.19	0.00	99.91
34	Chromite	Pt 39	0.83	14.55	46.38	0.20	22.52	14.18	0.00	0.22	0.00	98.88
35	Chromite	Pt 40	2.15	4.48	61.72	0.33	18.53	12.33	0.00	0.13	0.06	99.73
36	Chromite	Pt 41	0.45	10.51	60.34	0.31	17.03	11.29	0.00	0.10	0.30	100.33
37	Chromite	Pt 42	5.30	10.27	45.59	0.23	23.77	14.14	0.00	0.28	0.01	99.59
38	Ti-magnetite	Pt 43	16.78	3.50	0.04	0.36	76.71	0.84	0.00	0.08	0.16	98.47
39	Chromite	Pt 44	1.28	11.02	47.31	0.33	28.45	10.38	0.00	0.23	0.09	99.09
40	Chromite	Pt 45	0.06	6.82	64.22	0.33	17.12	11.14	0.00	0.07	0.03	99.81
41	Chromite	Pt 46	0.07	10.24	62.68	0.30	16.42	11.05	0.00	0.06	0.01	100.83
42	Chromite	Pt 47	2.39	5.76	59.65	0.31	18.98	12.46	0.00	0.10	0.04	99.69
43	Chromite	Pt 48	0.61	10.49	60.29	0.25	15.57	12.19	0.01	0.10	0.07	99.58
44	Ti-magnetite	Pt 49	0.07	0.35	0.05	0.04	96.09	0.02	0.01	0.03	0.15	96.81
45	Chromite	Pt 50	0.81	10.92	59.41	0.32	17.08	11.68	0.00	0.06	0.14	100.42
46	Chromite	Pt 51	0.18	12.11	59.01	0.29	17.65	11.28	0.00	0.09	0.09	100.70
47	Chromite	Pt 52	0.40	11.16	60.48	0.31	15.57	11.68	0.00	0.06	0.11	99.77
48	Chromite	Pt 54	0.07	12.13	57.32	0.33	18.54	11.39	0.00	0.09	0.07	99.94
49	Chromite	Pt 56	0.08	6.40	64.73	0.29	17.48	10.77	0.00	0.06	0.04	99.85
50	Chromite	Pt 58	0.23	14.73	51.12	0.25	19.55	13.58	0.00	0.16	0.02	99.64
51	Ti-magnetite	Pt 59	0.04	0.00	0.00	0.37	93.27	0.63	0.15	0.04	0.09	94.59
52	Chromite	Pt 61	0.03	36.10	33.04	0.23	16.26	14.50	0.00	0.09	0.05	100.30
53	Ti-magnetite	Pt 62	0.35	0.32	0.06	0.06	95.88	0.12	0.01	0.05	0.21	97.06
54	Chromite	Pt 63	0.15	12.86	58.44	0.32	16.90	11.79	0.00	0.05	0.12	100.63
55	Chromite	Pt 64	0.66	5.42	64.37	0.31	16.72	11.90	0.00	0.11	0.00	99.49
56	Chromite	Pt 65	0.33	5.69	64.73	0.26	17.53	11.99	0.01	0.10	0.09	100.73
57	Chromite	Pt 66	0.39	6.22	64.63	0.32	17.03	11.33	0.01	0.08	0.08	100.09
58	Ti-magnetite	Pt 69	15.29	2.73	0.02	0.30	79.78	0.04	0.01	0.05	0.23	98.45
59	Chromite	Pt 71	1.65	14.70	41.82	0.30	28.01	12.56	0.00	0.24	0.03	99.33
60	Chromite	Pt 72	0.09	6.16	65.59	0.24	15.99	12.07	0.01	0.09	0.06	100.30
61	Chromite	Pt 73	1.49	10.44	54.49	0.28	21.93	10.90	0.00	0.15	0.02	99.70
62	Chromite	Pt 74	0.42	5.45	65.32	0.30	16.05	11.98	0.00	0.08	0.08	99.68
63	Chromite	Pt 75	0.19	28.52	39.31	0.23	18.24	13.64	0.00	0.09	0.05	100.27
64	Chromite	Pt 76	0.15	6.78	64.74	0.33	16.78	11.55	0.00	0.07	0.07	100.47
65	Ti-magnetite	Pt 77	0.09	0.03	0.03	0.07	96.78	0.18	0.01	0.04	0.12	97.35
66	Chromite	Pt 78	0.19	6.68	65.17	0.30	15.82	11.96	0.00	0.07	0.00	100.19
67	Ti-magnetite	Pt 79	15.13	2.72	0.06	0.37	78.98	0.41	0.04	0.09	0.14	97.94
68	Ti-magnetite	Pt 80	0.02	0.00	0.00	0.40	93.80	0.56	0.12	0.06	0.04	95.00
69	Ti-magnetite	Pt 82	0.05	0.00	0.00	0.21	95.12	0.83	0.02	0.06	0.11	96.40
70	Chromite	Pt 83	1.17	10.55	59.81	0.32	16.67	11.38	0.00	0.07	0.06	100.03

71	Ti-magnetite	Pt 84	0.10	0.19	0.13	0.07	96.13	0.00	0.01	0.04	0.09	96.76
72	Chromite	Pt 85	0.55	19.74	46.62	0.23	16.60	15.18	0.00	0.19	0.00	99.11
73	Chromite	Pt 86	2.72	8.21	56.78	0.29	18.96	13.64	0.00	0.08	0.03	100.71
74	Chromite	Pt 87	0.33	5.83	64.96	0.28	16.07	12.06	0.00	0.12	0.09	99.74
75	Chromite	Pt 88	0.01	7.18	64.19	0.35	17.22	11.01	0.01	0.07	0.13	100.17
76	Chromite	Pt 89	0.07	12.05	59.26	0.32	16.74	11.54	0.00	0.07	0.14	100.19
77	Ti-magnetite	Pt 90	15.52	2.97	0.07	0.34	78.47	0.41	0.02	0.11	0.19	98.10
78	Chromite	Pt 91	0.30	12.82	58.58	0.28	16.81	11.73	0.00	0.04	0.07	100.63
79	Chromite	Pt 92	2.23	7.34	58.20	0.25	19.10	12.54	0.00	0.20	0.05	99.91
80	Ti-magnetite	Pt 93	0.08	0.73	0.07	0.06	95.78	0.18	0.02	0.05	0.14	97.11
81	Ti-magnetite	Pt 94	13.97	2.07	0.04	0.48	79.21	1.32	0.06	0.06	0.36	97.57
82	Chromite	Pt 95	0.03	13.52	58.93	0.29	15.02	12.36	0.00	0.07	0.07	100.29
83	Ti-magnetite	Pt 96	11.87	0.31	0.08	0.33	83.83	0.76	0.02	0.02	0.03	97.25
84	Chromite	Pt 97	0.04	9.61	62.43	0.39	17.13	10.42	0.00	0.07	0.08	100.17
85	Chromite	Pt 98	0.19	10.75	59.23	0.32	17.47	11.55	0.00	0.07	0.12	99.70
86	Ti-magnetite	Pt 99	16.37	2.22	0.09	0.65	76.90	0.96	0.02	0.06	0.43	97.70
87	Chromite	Pt 100	0.19	12.00	58.56	0.30	18.03	10.92	0.00	0.06	0.15	100.21
88	Chromite	Pt 101	0.34	10.53	58.99	0.31	16.65	12.48	0.00	0.10	0.03	99.43
89	Chromite	Pt 102	0.10	6.94	63.95	0.29	17.66	11.02	0.00	0.07	0.07	100.10
90	Chromite	Pt 103	7.82	6.35	39.32	0.41	31.27	13.16	0.00	0.08	0.00	98.41
91	Chromite	Pt 104	0.00	56.39	8.50	0.10	17.08	17.24	0.00	0.47	0.00	99.78
92	Chromite	Pt 105	1.96	6.43	59.09	0.33	19.23	12.13	0.00	0.08	0.10	99.35
93	Chromite	Pt 106	1.07	11.76	54.84	0.26	17.46	13.59	0.00	0.12	0.02	99.12
94	Chromite	Pt 107	0.02	13.02	58.95	0.28	14.99	12.68	0.00	0.06	0.08	100.08
95	Chromite	Pt 108	1.62	9.22	56.22	0.27	19.08	12.94	0.00	0.15	0.08	99.58
1	Ilmenite	Pt 23	47.52	0.08	0.01	0.83	50.10	0.06	0.03	0.05	0.03	98.71
2	Ilmenite	Pt 24	49.32	0.06	0.00	0.61	47.32	1.87	0.14	0.01	0.04	99.37
3	Ilmenite	Pt 26	47.21	0.04	0.01	0.92	49.33	0.28	0.01	0.04	0.04	97.88
4	Ilmenite	Pt 53	45.62	0.01	0.07	0.35	48.97	1.56	0.01	0.04	0.05	96.68
5	Ilmenite	Pt 55	50.59	0.01	1.44	0.53	29.83	12.72	0.02	0.17	0.00	95.31
6	Ilmenite	Pt 57	45.85	0.08	0.00	0.80	48.66	0.73	0.04	0.00	0.09	96.25
7	Ilmenite	Pt 60	45.63	0.02	0.01	1.18	50.36	0.15	0.00	0.00	0.01	97.36
8	Ilmenite	Pt 67	48.46	0.06	1.24	0.50	30.79	12.31	0.01	0.15	0.00	93.52
9	Ilmenite	Pt 68	51.27	0.08	0.96	0.44	27.68	14.22	0.04	0.12	0.00	94.81
10	Ilmenite	Pt 70	41.11	0.05	0.01	0.55	52.96	1.32	0.06	0.03	0.02	96.11
11	Ilmenite	Pt 81	45.08	0.04	0.04	0.80	48.48	1.40	0.03	0.05	0.06	95.98

J1410-10869		Point #	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	NiO	Nb2O5	ZnO	Total
1	Chromite	Pt 1	0.65	7.52	63.84	0.26	15.42	12.62	0.09	0.00	n.a.	100.40
2	Chromite	Pt 2	0.64	5.14	65.29	0.25	17.47	11.37	0.06	0.00	n.a.	100.22
3	Chromite	Pt 3	0.22	27.69	39.03	0.21	19.54	13.53	0.09	0.00	n.a.	100.31
4	Chromite	Pt 4	0.87	5.04	63.91	0.30	18.33	11.98	0.06	0.00	n.a.	100.49
5	Chromite	Pt 5	0.37	5.73	65.37	0.23	15.95	12.32	0.08	0.00	n.a.	100.05
6	Chromite	Pt 6	0.44	5.37	64.36	0.25	17.40	12.07	0.08	0.00	n.a.	99.97
7	Chromite	Pt 7	0.07	6.26	64.56	0.22	16.66	12.30	0.05	0.03	n.a.	100.15
8	Chromite	Pt 8	0.27	6.21	64.83	0.32	18.30	10.96	0.09	0.01	n.a.	100.99
9	Chromite	Pt 10	0.40	5.69	65.07	0.24	16.66	12.09	0.03	0.00	n.a.	100.18
10	Chromite	Pt 11	0.27	5.82	65.79	0.26	15.60	12.27	0.06	0.00	n.a.	100.07
11	Chromite	Pt 12	9.84	10.13	30.35	0.37	33.49	14.78	0.12	0.00	n.a.	99.08
12	Chromite	Pt 13	0.08	5.43	64.63	0.27	18.03	11.82	0.08	0.00	n.a.	100.34
13	Chromite	Pt 14	0.18	23.73	40.82	0.19	21.29	13.21	0.12	0.00	n.a.	99.54
14	Ti-magnetite	Pt 15	22.76	2.76	1.15	0.70	58.21	13.43	0.09	0.13	n.a.	99.23
15	Chromite	Pt 16	0.42	5.33	64.77	0.25	16.97	12.15	0.10	0.06	n.a.	100.05
16	Chromite	Pt 17	1.02	4.94	64.17	0.29	17.29	12.45	0.10	0.00	n.a.	100.26
17	Chromite	Pt 18	0.27	11.35	57.05	0.29	20.01	11.67	0.05	0.02	n.a.	100.71
18	Chromite	Pt 19	0.00	24.11	47.55	0.25	14.32	14.17	0.00	0.00	n.a.	100.40
19	Chromite	Pt 20	0.73	11.25	57.78	0.23	18.96	11.27	0.05	0.00	n.a.	100.27
20	Chromite	Pt 21	0.32	7.99	58.83	0.28	20.72	11.71	0.08	0.00	n.a.	99.93
21	Chromite	Pt 22	0.66	5.31	64.87	0.28	17.35	11.59	0.11	0.00	n.a.	100.17
22	Chromite	Pt 23	0.21	5.95	65.22	0.28	17.66	11.32	0.05	0.00	n.a.	100.69
23	Chromite	Pt 24	0.24	22.94	47.54	0.27	17.45	12.01	0.01	0.00	n.a.	100.46
24	Chromite	Pt 25	3.30	5.92	58.24	0.29	19.35	13.18	0.15	0.00	n.a.	100.43
25	Chromite	Pt 26	2.98	8.00	56.37	0.27	19.23	13.12	0.15	0.00	n.a.	100.12
26	Chromite	Pt 27	0.01	9.63	63.31	0.30	15.39	11.68	0.03	0.00	n.a.	100.35
27	Chromite	Pt 28	0.22	23.64	41.09	0.22	20.96	13.04	0.08	0.00	n.a.	99.25
28	Chromite	Pt 29	0.01	10.01	62.91	0.26	16.22	11.14	0.04	0.00	n.a.	100.59
29	Chromite	Pt 30	0.10	13.23	56.89	0.29	19.04	11.30	0.00	0.00	n.a.	100.85
30	Ti-magnetite	Pt 31	20.22	3.26	8.83	0.66	51.73	14.35	0.14	0.12	n.a.	99.31
31	Chromite	Pt 32	1.51	11.80	46.80	0.23	28.26	10.91	0.15	0.02	n.a.	99.68
32	Ti-magnetite	Pt 33	17.46	2.53	0.10	0.39	78.68	0.50	0.06	0.37	n.a.	100.09
33	Chromite	Pt 35	0.00	10.96	60.79	0.26	17.73	11.00	0.06	0.00	n.a.	100.80
34	Chromite	Pt 36	0.00	9.54	63.22	0.25	15.55	11.95	0.03	0.00	n.a.	100.54
35	Chromite	Pt 37	0.49	4.79	65.65	0.24	16.84	12.05	0.06	0.00	n.a.	100.12
36	Chromite	Pt 38	0.21	6.15	65.84	0.29	15.77	12.41	0.10	0.00	n.a.	100.77
37	Chromite	Pt 39	0.03	28.04	39.99	0.19	17.56	13.60	0.07	0.00	n.a.	99.48
38	Chromite	Pt 40	0.00	9.48	63.74	0.28	15.99	11.39	0.04	0.00	n.a.	100.92
39	Chromite	Pt 41	1.56	11.55	55.81	0.26	20.51	10.76	0.06	0.03	n.a.	100.54
40	Chromite	Pt 42	0.71	17.22	51.24	0.22	19.67	11.24	0.04	0.00	n.a.	100.34
41	Chromite	Pt 43	0.20	6.03	65.44	0.28	15.53	12.10	0.05	0.00	n.a.	99.63
42	Chromite	Pt 44	0.13	10.27	62.46	0.24	14.70	12.15	0.04	0.00	n.a.	99.99
43	Chromite	Pt 45	2.78	8.09	56.12	0.28	18.62	13.02	0.11	0.00	n.a.	99.02
44	Chromite	Pt 46	0.00	9.38	63.51	0.30	16.22	11.00	0.00	0.00	n.a.	100.41
45	Chromite	Pt 47	0.00	46.47	21.22	0.03	9.93	20.99	0.16	0.00	n.a.	98.80
46	Chromite	Pt 49	5.43	15.65	38.01	0.15	24.85	15.06	0.30	0.00	n.a.	99.45
47	Chromite	Pt 50	0.04	36.98	32.11	0.11	15.06	15.16	0.01	0.00	n.a.	99.47
48	Chromite	Pt 51	2.59	4.54	61.09	0.37	19.49	12.31	0.06	0.01	n.a.	100.46
49	Chromite	Pt 52	0.44	10.08	60.05	0.26	18.44	10.89	0.06	0.00	n.a.	100.22
50	Ti-magnetite	Pt 53	0.00	0.01	0.03	0.32	93.86	0.78	0.02	0.40	n.a.	95.42
51	Chromite	Pt 54	0.16	11.72	58.98	0.26	18.33	11.06	0.06	0.00	n.a.	100.57
52	Chromite	Pt 55	0.00	41.70	27.26	0.14	14.82	15.89	0.03	0.00	n.a.	99.84
1	Ilmenite	Pt 34	47.70	0.05	0.01	0.38	52.75	0.63	0.01	0.20	n.a.	101.73
2	Ilmenite	Pt 56	45.75	0.04	0.03	4.41	48.70	0.27	0.00	1.41	n.a.	100.61

JI510-10666		Point #	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	NiO	Nb2O5	ZnO	Total
1	Chromite	Pt 1	0.15	6.38	64.63	0.30	17.91	11.16	0.06	0.08	n.a.	100.67
2	Chromite	Pt 2	0.37	5.74	65.10	0.27	16.76	12.02	0.01	0.04	n.a.	100.31
3	Chromite	Pt 3	0.13	6.28	65.00	0.27	17.11	11.64	0.02	0.04	n.a.	100.49
4	Chromite	Pt 4	0.46	5.17	62.01	0.32	21.59	10.90	0.09	0.11	n.a.	100.65
5	Chromite	Pt 5	0.29	5.35	65.36	0.29	17.41	11.59	0.03	0.03	n.a.	100.35
6	Chromite	Pt 6	0.04	6.03	65.95	0.31	17.38	0.82	0.05	0.10	n.a.	90.68
7	Chromite	Pt 7	0.95	6.45	61.06	0.22	19.06	12.02	0.05	0.02	n.a.	99.83
8	Chromite	Pt 8	0.40	13.33	55.82	0.31	19.91	10.56	0.03	0.00	n.a.	100.36
9	Chromite	Pt 9	0.05	44.44	20.20	0.12	19.34	14.80	0.18	0.00	n.a.	99.13
10	Chromite	Pt 10	0.16	10.39	62.28	0.30	15.85	11.69	0.02	0.00	n.a.	100.69
11	Chromite	Pt 11	0.41	6.97	61.90	0.23	17.45	12.93	0.07	0.05	n.a.	100.01
12	Chromite	Pt 12	0.08	6.54	64.74	0.29	17.12	11.30	0.09	0.05	n.a.	100.21
13	Chromite	Pt 13	0.03	13.14	59.37	0.32	15.97	11.45	0.00	0.02	n.a.	100.30
14	Chromite	Pt 14	0.28	5.28	64.99	0.22	17.27	12.10	0.09	0.13	n.a.	100.36
15	Chromite	Pt 15	0.16	6.50	64.72	0.25	17.22	11.51	0.05	0.01	n.a.	100.42
16	Chromite	Pt 16	0.29	5.04	65.55	0.32	17.22	11.67	0.04	0.06	n.a.	100.19
17	Chromite	Pt 17	0.44	5.36	63.51	0.27	18.20	11.75	0.09	0.05	n.a.	99.67
18	Chromite	Pt 18	0.41	5.48	63.84	0.26	17.59	12.04	0.08	0.01	n.a.	99.71
19	Chromite	Pt 19	1.17	10.70	57.34	0.30	20.12	10.64	0.07	0.07	n.a.	100.41
20	Chromite	Pt 20	0.04	5.53	66.19	0.26	17.63	11.46	0.08	0.02	n.a.	101.21
21	Chromite	Pt 21	0.02	12.58	58.50	0.27	17.33	11.32	0.00	0.02	n.a.	100.04
22	Chromite	Pt 23	0.09	5.53	64.85	0.27	17.55	11.92	0.10	0.08	n.a.	100.39
23	Chromite	Pt 24	0.21	5.18	66.35	0.29	16.82	11.70	0.08	0.06	n.a.	100.69
24	Chromite	Pt 25	0.09	5.50	64.46	0.28	18.03	11.75	0.07	0.05	n.a.	100.23
25	Chromite	Pt 26	0.19	5.40	53.80	0.30	18.01	10.95	0.07	0.05	n.a.	88.77
26	Chromite	Pt 27	0.10	15.82	56.19	0.23	15.61	11.80	0.00	0.00	n.a.	99.75
27	Chromite	Pt 28	0.45	12.43	57.80	0.26	18.41	11.30	0.04	0.03	n.a.	100.72
28	Chromite	Pt 29	0.05	6.37	64.66	0.31	18.41	10.73	0.08	0.03	n.a.	100.64
29	Chromite	Pt 31	0.31	12.49	58.37	0.23	17.95	11.39	0.00	0.02	n.a.	100.76
30	Chromite	Pt 32	0.05	10.26	62.62	0.25	15.48	11.72	0.00	0.03	n.a.	100.41
31	Chromite	Pt 34	0.00	41.48	28.18	0.12	13.40	16.26	0.10	0.00	n.a.	99.54
32	Chromite	Pt 35	0.00	7.06	64.37	0.27	17.36	11.05	0.07	0.08	n.a.	100.26
33	Chromite	Pt 36	0.28	31.16	34.10	0.27	23.26	10.60	0.02	0.00	n.a.	99.69
34	Chromite	Pt 37	0.00	13.56	59.15	0.24	16.33	11.20	0.03	0.00	n.a.	100.51
35	Chromite	Pt 38	2.17	14.11	51.12	0.21	17.95	14.12	0.14	0.02	n.a.	99.84
36	Chromite	Pt 39	0.12	33.59	33.40	0.20	20.08	12.41	0.00	0.00	n.a.	99.80
37	Chromite	Pt 40	0.45	5.70	65.41	0.29	16.25	12.33	0.06	0.10	n.a.	100.59
38	Chromite	Pt 41	0.00	36.91	33.42	0.11	12.36	16.20	0.00	0.00	n.a.	99.00
39	Chromite	Pt 42	0.06	12.39	59.06	0.25	17.68	11.16	0.02	0.00	n.a.	100.62
40	Chromite	Pt 43	0.00	35.13	34.39	0.13	16.42	14.28	0.00	0.00	n.a.	100.35
41	Chromite	Pt 44	0.20	10.12	60.85	0.24	17.28	11.48	0.00	0.07	n.a.	100.24
42	Chromite	Pt 45	0.44	8.08	61.43	0.30	19.13	10.70	0.01	0.02	n.a.	100.11
43	Chromite	Pt 46	0.64	9.55	60.22	0.25	18.02	11.22	0.03	0.00	n.a.	99.93
44	Chromite	Pt 48	0.56	15.90	52.54	0.23	19.19	11.41	0.02	0.00	n.a.	99.85
45	Chromite	Pt 49	0.34	11.88	58.19	0.25	17.97	11.31	0.02	0.03	n.a.	99.99
46	Chromite	Pt 50	0.18	12.79	58.00	0.24	17.60	11.10	0.00	0.07	n.a.	99.98
47	Chromite	Pt 51	0.26	6.08	64.38	0.26	18.35	10.69	0.07	0.03	n.a.	100.12
48	Chromite	Pt 53	0.14	6.10	64.69	0.32	17.85	11.07	0.06	0.00	n.a.	100.23
49	Chromite	Pt 54	1.11	12.29	56.17	0.21	19.68	10.90	0.03	0.07	n.a.	100.46
50	Chromite	Pt 55	0.28	5.34	64.94	0.19	17.19	11.97	0.06	0.06	n.a.	100.03
51	Chromite	Pt 58	0.04	12.29	58.46	0.27	17.85	11.13	0.03	0.01	n.a.	100.08
52	Chromite	Pt 59	0.62	16.08	50.79	0.18	17.12	14.61	0.09	0.02	n.a.	99.51
53	Chromite	Pt 60	0.61	9.83	61.59	0.20	16.94	10.98	0.05	0.05	n.a.	100.25
54	Chromite	Pt 61	0.20	11.49	58.36	0.24	18.52	11.24	0.00	0.00	n.a.	100.05
55	Chromite	Pt 62	1.64	5.33	63.03	0.23	16.89	12.29	0.10	0.02	n.a.	99.53
56	Ti-magnetite	Pt 63	0.01	0.30	0.11	0.03	95.85	0.03	0.02	0.57	n.a.	96.92
57	Chromite	Pt 64	0.06	16.31	56.17	0.24	15.54	12.06	0.01	0.00	n.a.	100.39
58	Chromite	Pt 65	1.36	4.41	63.95	0.23	17.77	12.21	0.12	0.09	n.a.	100.14
59	Chromite	Pt 66	0.08	12.02	57.28	0.24	18.93	10.63	0.03	0.03	n.a.	99.24
60	Chromite	Pt 67	0.08	10.42	62.51	0.25	15.68	11.42	0.00	0.01	n.a.	100.37
61	Chromite	Pt 68	0.35	14.02	55.98	0.26	17.09	11.74	0.02	0.00	n.a.	99.46
62	Chromite	Pt 69	0.00	9.70	63.12	0.24	15.70	11.31	0.03	0.01	n.a.	100.11
63	Chromite	Pt 70	0.10	20.27	49.85	0.21	15.95	13.04	0.00	0.00	n.a.	99.42
64	Chromite	Pt 71	0.53	23.22	46.28	0.22	15.91	13.36	0.06	0.00	n.a.	99.58
65	Chromite	Pt 72	0.10	39.92	27.47	0.09	16.75	14.54	0.04	0.00	n.a.	98.91
66	Chromite	Pt 73	1.53	4.94	62.60	0.21	18.14	12.34	0.13	0.08	n.a.	99.97
67	Chromite	Pt 74	0.10	40.95	27.97	0.10	14.04	15.91	0.04	0.00	n.a.	99.11
68	Chromite	Pt 75	0.00	38.04	29.76	0.14	16.22	15.16	0.03	0.00	n.a.	99.35
69	Chromite	Pt 76	0.16	34.99	31.07	0.19	19.72	13.49	0.08	0.00	n.a.	99.70
70	Chromite	Pt 77	1.27	4.72	62.88	0.30	18.82	11.66	0.08	0.07	n.a.	99.80

71	Chromite	Pt 78	0.00	13.13	59.62	0.21	15.70	11.51	0.01	0.05	n.a.	100.23
72	Chromite	Pt 79	0.21	11.66	58.77	0.22	18.62	10.73	0.04	0.09	n.a.	100.34
73	Ti-magnetite	Pt 80	5.23	0.61	0.02	0.04	86.86	0.04	0.00	0.45	n.a.	93.25
74	Chromite	Pt 81	0.17	5.71	64.63	0.28	17.78	10.96	0.04	0.03	n.a.	99.60
75	Chromite	Pt 82	0.04	11.97	58.07	0.25	18.50	10.56	0.01	0.01	n.a.	99.41
76	Chromite	Pt 83	0.07	40.63	23.65	0.13	22.66	12.88	0.13	0.00	n.a.	100.15
77	Chromite	Pt 84	0.00	6.33	64.90	0.31	17.74	10.51	0.05	0.03	n.a.	99.87
78	Chromite	Pt 85	1.41	11.13	56.39	0.30	20.16	10.50	0.07	0.03	n.a.	99.99
79	Chromite	Pt 86	0.10	6.19	64.33	0.25	17.86	11.14	0.06	0.08	n.a.	100.01
80	Chromite	Pt 87	0.33	13.16	56.98	0.28	17.68	11.53	0.03	0.06	n.a.	100.05
81	Chromite	Pt 88	0.53	17.88	49.69	0.20	16.23	14.79	0.06	0.00	n.a.	99.38
82	Chromite	Pt 89	0.01	10.50	62.52	0.26	14.87	11.44	0.02	0.02	n.a.	99.64
83	Chromite	Pt 90	0.26	14.89	49.74	0.23	20.01	13.65	0.17	0.00	n.a.	98.95
84	Chromite	Pt 92	0.30	6.52	64.00	0.27	18.37	10.89	0.08	0.03	n.a.	100.46
85	Chromite	Pt 93	0.10	10.35	62.41	0.31	15.95	10.99	0.00	0.02	n.a.	100.13
86	Chromite	Pt 94	0.02	46.07	17.95	0.11	20.27	14.36	0.16	0.00	n.a.	98.94
1	Ilmenite	Pt 47	43.64	0.17	0.00	0.95	51.77	1.50	0.00	0.31	n.a.	98.34
2	Ilmenite	Pt 95	45.88	0.03	0.00	4.39	48.55	0.27	0.00	1.38	n.a.	100.50
3	Ilmenite	Pt 30	49.72	0.01	0.09	0.75	46.73	1.84	0.00	0.31	n.a.	99.45
4	Ilmenite	Pt 33	51.65	0.09	0.09	0.18	47.27	1.24	0.00	0.36	n.a.	100.88
5	Ilmenite	Pt 56	51.96	0.00	0.02	0.21	49.31	0.04	0.00	0.33	n.a.	101.87
6	Ilmenite	Pt 57	98.28	0.01	0.16	0.00	0.02	0.00	0.00	0.32	n.a.	98.79
7	Ilmenite	Pt 91	98.83	0.11	0.15	0.00	0.34	0.02	0.00	0.49	n.a.	99.94
8	Ilmenite	Pt 52	99.09	0.12	0.01	0.00	0.24	0.00	0.00	0.15	n.a.	99.61

J1610-10667		Point #	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	CaO	NiO	ZnO	Total
1	Chromite	Pt 1	1.83	4.56	62.15	0.34	18.10	12.29	0.02	0.16	0.14	99.59
2	Chromite	Pt 2	0.31	5.82	64.79	0.32	17.83	11.36	0.01	0.15	0.13	100.72
3	Chromite	Pt 3	0.28	6.21	63.55	0.35	17.74	11.31	0.02	0.14	0.18	99.78
4	Chromite	Pt 4	0.23	6.21	63.78	0.33	17.59	10.71	0.02	0.13	0.11	99.11
5	Chromite	Pt 5	0.51	5.76	64.72	0.33	17.15	11.86	0.01	0.14	0.17	100.65
6	Chromite	Pt 6	0.15	6.07	65.06	0.27	15.58	12.39	0.01	0.16	0.13	99.82
7	Chromite	Pt 7	0.43	5.97	64.56	0.33	17.99	11.34	0.01	0.14	0.16	100.93
8	Chromite	Pt 8	1.09	4.52	62.52	0.36	20.09	11.30	0.02	0.15	0.07	100.12
9	Chromite	Pt 9	3.56	6.02	54.91	0.41	21.39	13.44	0.02	0.15	0.06	99.96
10	Chromite	Pt 10	1.16	5.52	62.98	0.28	17.45	12.38	0.01	0.21	0.11	100.10
11	Chromite	Pt 11	0.48	4.93	64.99	0.32	17.21	11.78	0.01	0.15	0.09	99.96
12	Chromite	Pt 12	0.58	10.19	60.33	0.30	14.59	14.00	0.02	0.15	0.12	100.28
13	Chromite	Pt 13	0.62	6.59	63.59	0.33	16.71	12.06	0.02	0.16	0.14	100.22
14	Chromite	Pt 14	0.47	5.54	63.74	0.35	17.33	12.19	0.01	0.17	0.09	99.89
15	Chromite	Pt 15	1.04	5.14	62.79	0.31	17.81	12.26	0.02	0.21	0.14	99.72
16	Chromite	Pt 16	1.10	11.66	58.11	0.32	16.58	11.87	0.01	0.15	0.20	100.20
17	Chromite	Pt 17	3.68	9.83	49.68	0.30	20.53	13.93	0.17	0.19	0.10	98.41
18	Chromite	Pt 18	1.73	10.56	57.89	0.29	16.36	13.21	0.01	0.22	0.18	100.45
19	Chromite	Pt 19	0.70	4.90	64.18	0.31	17.54	12.27	0.01	0.14	0.13	100.18
20	Chromite	Pt 20	0.15	11.00	58.74	0.33	18.15	11.27	0.01	0.11	0.22	99.98
21	Chromite	Pt 21	0.25	6.59	63.56	0.31	16.92	10.92	0.02	0.14	0.11	98.82
22	Chromite	Pt 22	0.39	6.16	63.72	0.32	17.70	11.54	0.00	0.12	0.20	100.15
23	Chromite	Pt 23	0.84	5.92	63.55	0.34	17.06	12.03	0.01	0.17	0.16	100.08
24	Ti-magnetite	Pt 24	0.07	0.00	0.09	1.15	89.63	0.74	0.24	0.13	0.19	92.24
25	Chromite	Pt 25	0.08	12.93	58.47	0.35	14.83	13.09	0.00	0.13	0.16	100.04
26	Ti-magnetite	Pt 26	0.10	0.21	0.22	0.05	94.67	0.02	0.03	0.11	0.15	95.56
27	Chromite	Pt 27	0.40	6.27	63.40	0.32	17.91	11.12	0.02	0.14	0.12	99.70
28	Chromite	Pt 28	1.82	11.90	52.47	0.33	23.05	9.77	0.01	0.16	0.24	99.75
29	Ti-magnetite	Pt 29	0.09	0.00	0.10	1.40	90.51	0.51	0.11	0.41	0.29	93.42
30	Chromite	Pt 30	0.19	6.59	63.34	0.34	17.21	11.23	0.01	0.14	0.12	99.17
31	Chromite	Pt 32	0.06	6.94	63.06	0.34	16.95	11.40	0.02	0.13	0.14	99.04
32	Ti-magnetite	Pt 33	12.33	3.24	0.26	0.28	79.56	0.10	0.03	0.12	0.30	96.22
33	Ti-magnetite	Pt 34	0.06	0.00	0.05	1.65	88.36	0.40	0.16	0.11	0.13	90.92
34	Chromite	Pt 35	0.04	13.29	58.13	0.34	16.08	11.16	0.01	0.12	0.18	99.35
35	Chromite	Pt 37	1.07	5.47	62.81	0.33	16.47	12.51	0.01	0.19	0.13	98.99
36	Ti-magnetite	Pt 38	0.09	0.00	0.07	1.37	89.96	0.33	0.09	0.31	0.29	92.51
37	Ti-magnetite	Pt 40	0.12	0.17	0.14	0.05	93.15	0.00	0.03	0.14	0.14	93.94
38	Chromite	Pt 41	0.19	6.69	62.86	0.31	16.77	11.34	0.01	0.11	0.17	98.45
39	Chromite	Pt 43	0.41	12.38	55.78	0.31	17.91	11.10	0.00	0.13	0.22	98.24
40	Chromite	Pt 44	1.71	28.20	33.62	0.19	18.94	15.49	0.00	0.17	0.09	98.61
41	Chromite	Pt 45	0.32	9.98	60.42	0.33	15.31	11.78	0.01	0.11	0.17	98.43
42	Chromite	Pt 47	0.18	12.34	58.10	0.33	17.62	11.33	0.01	0.08	0.21	100.20
43	Chromite	Pt 48	0.11	14.46	57.32	0.29	16.05	11.37	0.00	0.07	0.16	99.83
44	Chromite	Pt 49	0.59	5.12	65.68	0.31	15.88	11.54	0.01	0.15	0.11	99.39
45	Chromite	Pt 50	1.12	8.05	57.47	0.26	18.68	12.63	0.02	0.21	0.12	98.56
46	Ti-magnetite	Pt 53	0.04	0.00	0.03	0.83	74.05	1.11	0.31	1.12	0.07	77.56
47	Ti-magnetite	Pt 55	0.07	0.00	0.08	1.68	89.20	0.52	0.07	0.12	0.22	92.16
48	Chromite	Pt 56	0.00	58.45	6.93	0.09	15.29	18.17	0.00	0.68	0.02	99.63
49	Chromite	Pt 58	0.06	41.28	27.21	0.17	12.63	16.62	0.00	0.10	0.14	98.21
50	Chromite	Pt 59	0.05	7.03	63.82	0.29	17.30	11.10	0.01	0.15	0.15	99.90
51	Ti-magnetite	Pt 60	17.92	2.38	0.10	0.35	77.89	0.27	0.03	0.09	0.31	99.44
52	Chromite	Pt 61	0.16	19.56	43.43	0.23	21.26	14.00	0.01	0.20	0.11	98.98
53	Ti-magnetite	Pt 62	0.08	0.00	0.06	1.59	88.54	0.58	0.18	0.11	0.20	91.34
54	Ti-magnetite	Pt 64	0.09	0.16	0.14	0.07	92.92	0.00	0.03	0.12	0.21	93.74
55	Ti-magnetite	Pt 65	0.03	0.00	0.02	0.78	73.77	1.05	0.32	0.96	0.05	76.98
56	Chromite	Pt 66	2.88	7.50	56.53	0.36	19.19	12.36	0.01	0.22	0.13	99.18
57	Chromite	Pt 68	2.38	5.29	60.23	0.34	18.92	12.34	0.02	0.13	0.10	99.75
58	Chromite	Pt 70	0.28	11.82	58.02	0.30	18.39	11.54	0.02	0.13	0.21	100.71
59	Chromite	Pt 74	1.34	10.89	56.89	0.36	17.71	11.66	0.00	0.14	0.20	99.21
60	Chromite	Pt 75	4.08	3.76	57.46	0.32	22.04	11.40	0.02	0.17	0.14	99.39
61	Chromite	Pt 77	0.32	9.28	60.80	0.27	18.13	10.82	0.02	0.14	0.18	99.96
62	Chromite	Pt 78	0.08	6.47	65.09	0.32	17.71	10.36	0.01	0.11	0.13	100.28
63	Chromite	Pt 79	0.37	6.01	64.39	0.28	16.13	12.02	0.01	0.16	0.16	99.53
64	Chromite	Pt 80	1.12	10.18	56.40	0.28	20.74	10.79	0.03	0.14	0.15	99.83
65	Chromite	Pt 81	2.90	6.89	57.06	0.33	19.46	12.38	0.01	0.18	0.07	99.28
66	Chromite	Pt 82	0.15	6.19	65.75	0.30	15.79	12.13	0.03	0.16	0.12	100.62
67	Chromite	Pt 83	0.00	36.26	34.69	0.15	12.01	15.78	0.00	0.09	0.14	99.12
68	Ti-magnetite	Pt 85	0.05	0.00	0.08	1.20	87.27	0.58	0.18	1.02	0.20	90.58
69	Chromite	Pt 87	0.94	4.93	62.99	0.30	18.06	11.44	0.02	0.19	0.14	99.03

70	Ti-magnetite	Pt 88	0.06	0.00	0.07	1.36	88.60	0.48	0.16	0.33	0.25	91.31
71	Chromite	Pt 89	0.73	29.87	37.25	0.25	19.38	11.95	0.01	0.15	0.19	99.78
72	Chromite	Pt 90	0.40	6.15	64.77	0.30	17.84	11.17	0.01	0.19	0.16	100.99
73	Chromite	Pt 91	1.71	9.70	59.48	0.31	17.10	11.30	0.01	0.18	0.16	99.95
74	Chromite	Pt 93	0.43	9.67	61.50	0.30	15.98	10.86	0.01	0.11	0.20	99.06
75	Chromite	Pt 94	0.12	11.40	58.47	0.34	18.41	10.95	0.04	0.12	0.18	100.03
1	Ilmenite	Pt 31	57.68	0.44	0.05	0.50	33.47	0.52	0.00	0.02	0.05	92.73
2	Ilmenite	Pt 36	51.57	0.00	0.03	0.52	46.49	0.30	0.02	0.10	0.08	99.11
3	Ilmenite	Pt 39	49.94	0.02	0.03	0.59	49.20	0.45	0.03	0.08	0.12	100.46
4	Ilmenite	Pt 42	50.88	0.00	0.08	0.36	46.98	2.00	0.02	0.05	0.08	100.45
5	Ilmenite	Pt 46	60.45	0.21	0.11	0.50	31.48	0.14	0.08	0.06	0.07	93.10
6	Ilmenite	Pt 51	51.17	0.00	0.20	0.37	46.44	2.25	0.03	0.11	0.11	100.68
7	Ilmenite	Pt 54	50.69	0.05	0.11	0.43	43.28	2.43	0.02	0.12	0.12	97.25
8	Ilmenite	Pt 57	47.04	0.00	0.06	1.85	49.81	0.06	0.01	0.06	0.13	99.02
9	Ilmenite	Pt 63	56.33	0.05	0.00	0.89	38.62	0.11	0.04	0.07	0.11	96.22
10	Ilmenite	Pt 67	68.17	0.43	0.00	0.49	22.35	0.18	0.26	0.02	0.05	91.95
11	Ilmenite	Pt 69	59.18	0.17	0.00	0.66	35.54	0.20	0.06	0.06	0.07	95.94
12	Ilmenite	Pt 71	48.74	0.00	0.03	0.59	47.24	1.20	0.02	0.06	0.12	98.00
13	Ilmenite	Pt 72	57.54	0.03	0.00	2.30	34.88	3.26	0.16	0.09	0.04	98.30
14	Ilmenite	Pt 76	61.65	0.50	0.01	0.44	30.91	0.18	0.11	0.05	0.07	93.92
15	Ilmenite	Pt 84	50.49	0.00	0.03	4.13	43.01	0.41	0.02	0.07	0.27	98.43
16	Ilmenite	Pt 86	50.52	0.00	0.05	0.48	45.97	0.55	0.01	0.10	0.17	97.85
17	Ilmenite	Pt 92	50.79	0.00	0.04	1.76	44.88	0.05	0.04	0.09	0.09	97.74
1	Rutile*	Pt 73	95.97	0.01	0.08	0.00	0.03	0.00	0.01	0.03	0.00	96.13

* - low totals due to poor calibration for Ti.

JI7-10663		Point #	TiO2	Al2O3	Cr2O3	MnO	FeO	MgO	NiO	Nb2O5	ZnO	Total
1	Chromite	Pt 1	1.62	12.21	54.56	0.27	20.45	9.83	0.08	0.12	n.a.	99.14
2	Chromite	Pt 2	0.19	5.77	65.38	0.31	17.18	10.65	0.08	0.18	n.a.	99.74
3	Chromite	Pt 3	0.37	6.44	64.98	0.32	17.33	10.81	0.12	0.11	n.a.	100.48
4	Ti-magnetite	Pt 4	0.04	0.05	0.04	0.01	89.30	0.02	0.07	0.57	n.a.	90.10
5	Chromite	Pt 5	0.31	6.40	65.43	0.30	16.60	10.87	0.11	0.15	n.a.	100.17
6	Chromite	Pt 6	1.90	5.87	61.53	0.30	18.47	12.05	0.11	0.14	n.a.	100.37
7	Chromite	Pt 7	0.11	12.36	59.75	0.27	15.77	11.88	0.04	0.09	n.a.	100.27
8	Chromite	Pt 8	2.54	5.93	59.41	0.32	19.71	12.13	0.11	0.15	n.a.	100.30
9	Chromite	Pt 9	0.20	5.67	65.57	0.33	17.40	11.05	0.11	0.15	n.a.	100.48
10	Chromite	Pt 10	0.07	5.80	64.92	0.32	17.15	11.70	0.12	0.16	n.a.	100.24
11	Chromite	Pt 11	0.22	5.83	66.80	0.32	14.99	12.18	0.07	0.13	n.a.	100.54
12	Chromite	Pt 12	0.11	12.32	59.45	0.29	17.00	10.79	0.05	0.11	n.a.	100.12
13	Chromite	Pt 13	0.12	6.63	65.56	0.29	16.98	10.82	0.07	0.12	n.a.	100.59
14	Chromite	Pt 14	0.35	5.80	65.27	0.32	16.66	11.79	0.12	0.15	n.a.	100.46
15	Chromite	Pt 15	0.13	6.46	65.73	0.31	17.05	10.84	0.08	0.18	n.a.	100.78
16	Chromite	Pt 16	0.71	12.53	56.30	0.30	17.56	11.44	0.09	0.11	n.a.	101.04
18	Ti-magnetite	Pt 18	0.61	0.73	0.06	0.08	92.42	0.01	0.03	0.62	n.a.	94.56
19	Chromite	Pt 19	0.28	12.37	59.14	0.29	17.38	11.11	0.09	0.17	n.a.	100.83
20	Chromite	Pt 20	0.29	12.75	58.56	0.24	17.65	10.90	0.05	0.14	n.a.	100.58
21	Chromite	Pt 21	0.35	43.26	25.05	0.09	11.23	19.56	0.23	0.00	n.a.	99.77
22	Chromite	Pt 22	0.89	11.00	59.48	0.31	16.46	12.36	0.04	0.09	n.a.	100.63
23	Ti-magnetite	Pt 23	0.18	0.59	0.01	0.08	93.77	0.01	0.07	0.62	n.a.	95.33
24	Chromite	Pt 24	0.28	12.47	58.47	0.28	17.38	10.97	0.05	0.11	n.a.	100.01
25	Chromite	Pt 25	0.17	15.59	53.57	0.27	18.69	11.99	0.08	0.10	n.a.	100.46
26	Chromite	Pt 26	3.05	7.09	55.70	0.40	23.11	10.65	0.12	0.13	n.a.	100.25
27	Chromite	Pt 27	0.08	10.14	63.45	0.31	14.79	11.31	0.09	0.09	n.a.	100.26
28	Chromite	Pt 28	1.45	7.72	60.19	0.31	18.47	12.19	0.14	0.11	n.a.	100.58
29	Chromite	Pt 29	0.16	15.75	53.75	0.28	17.89	11.95	0.14	0.06	n.a.	99.98
30	Chromite	Pt 30	0.15	15.88	53.62	0.26	18.69	12.13	0.04	0.15	n.a.	100.92
31	Chromite	Pt 31	0.21	5.64	65.49	0.24	16.46	11.96	0.10	0.18	n.a.	100.28
32	Ti-magnetite	Pt 32	0.03	0.15	0.00	0.03	90.07	0.01	0.07	0.63	n.a.	90.99
33	Chromite	Pt 33	0.75	11.70	58.10	0.28	18.71	10.82	0.04	0.13	n.a.	100.53
34	Chromite	Pt 34	2.27	4.54	63.00	0.42	17.98	12.02	0.10	0.15	n.a.	100.48
35	Chromite	Pt 35	1.59	12.71	54.73	0.28	19.09	11.37	0.11	0.14	n.a.	100.02
36	Chromite	Pt 36	2.70	8.23	57.30	0.37	18.94	12.39	0.12	0.12	n.a.	100.17
37	Chromite	Pt 37	0.28	12.60	58.67	0.29	17.65	11.03	0.09	0.16	n.a.	100.77
38	Chromite	Pt 38	1.15	11.41	56.51	0.22	16.81	13.54	0.14	0.07	n.a.	99.85
39	Chromite	Pt 39	0.41	5.66	65.78	0.26	16.07	11.10	0.13	0.12	n.a.	99.53
40	Chromite	Pt 40	0.03	29.80	39.45	0.25	16.56	13.60	0.13	0.00	n.a.	99.82
41	Chromite	Pt 41	1.19	11.70	55.95	0.34	19.90	11.35	0.08	0.11	n.a.	100.62
42	Chromite	Pt 42	0.26	12.34	58.91	0.30	17.80	10.73	0.07	0.09	n.a.	100.50
43	Chromite	Pt 43	2.48	5.75	61.36	0.36	18.12	12.35	0.13	0.10	n.a.	100.65
44	Chromite	Pt 44	0.85	14.52	53.47	0.23	16.87	13.98	0.16	0.04	n.a.	100.12
45	Chromite	Pt 45	0.42	5.70	65.66	0.32	17.44	10.79	0.07	0.11	n.a.	100.51
46	Chromite	Pt 46	0.28	6.12	66.10	0.30	15.84	11.52	0.08	0.15	n.a.	100.39
47	Chromite	Pt 47	0.62	6.09	63.90	0.28	16.95	11.96	0.13	0.16	n.a.	100.09
48	Ti-magnetite	Pt 48	0.06	0.07	0.04	0.03	89.81	0.00	0.02	0.59	n.a.	90.62
49	Chromite	Pt 49	0.07	4.88	66.01	0.31	17.20	11.40	0.09	0.12	n.a.	100.08
50	Chromite	Pt 50	0.07	0.01	0.28	0.04	33.17	3.60	38.51	0.43	n.a.	76.11
51	Chromite	Pt 51	0.17	15.63	53.63	0.27	18.71	11.64	0.07	0.11	n.a.	100.23
52	Chromite	Pt 52	15.15	3.45	0.11	0.36	75.64	0.40	0.06	0.49	n.a.	95.66
53	Chromite	Pt 53	0.30	12.44	58.88	0.31	16.94	11.26	0.08	0.09	n.a.	100.30
54	Chromite	Pt 54	0.11	6.40	65.56	0.27	17.25	10.81	0.13	0.10	n.a.	100.63
55	Chromite	Pt 55	0.24	10.05	63.74	0.31	15.12	11.04	0.05	0.10	n.a.	100.65
57	Chromite	Pt 57	0.27	12.38	58.85	0.31	17.43	10.80	0.08	0.10	n.a.	100.22
58	Chromite	Pt 58	0.27	12.29	58.60	0.30	17.88	10.99	0.10	0.13	n.a.	100.56
59	Chromite	Pt 59	0.21	5.71	66.08	0.29	17.62	10.82	0.08	0.16	n.a.	100.97
60	Chromite	Pt 60	0.28	12.43	59.05	0.28	17.43	10.81	0.10	0.17	n.a.	100.55
61	Chromite	Pt 61	0.29	12.58	58.34	0.25	17.68	10.66	0.08	0.16	n.a.	100.04
63	Chromite	Pt 63	0.29	12.48	58.57	0.28	17.26	10.92	0.10	0.11	n.a.	100.01
64	Chromite	Pt 64	0.16	15.73	53.67	0.26	18.33	11.83	0.12	0.07	n.a.	100.17
65	Chromite	Pt 65	2.84	10.65	54.00	0.30	18.11	13.49	0.21	0.09	n.a.	99.69
66	Chromite	Pt 66	0.42	12.99	58.11	0.37	18.50	10.57	0.08	0.11	n.a.	101.15
67	Chromite	Pt 67	1.18	11.24	55.47	0.33	21.71	10.25	0.11	0.12	n.a.	100.41
68	Chromite	Pt 68	20.29	4.87	5.33	0.76	50.40	14.40	0.16	0.31	n.a.	96.52
69	Chromite	Pt 69	0.70	11.40	59.04	0.25	17.25	11.50	0.12	0.15	n.a.	100.41
70	Chromite	Pt 70	0.15	10.16	64.14	0.30	15.25	10.92	0.03	0.09	n.a.	101.04

71	Ti-magnetite	Pt 71	0.07	0.06	0.04	0.19	93.45	0.01	0.09	0.62	n.a.	94.53
72	Chromite	Pt 72	0.03	43.99	26.25	0.10	12.52	16.54	0.07	0.00	n.a.	99.50
73	Chromite	Pt 73	0.44	9.48	63.36	0.40	15.73	11.24	0.04	0.13	n.a.	100.82
74	Chromite	Pt 74	0.29	12.46	59.44	0.31	17.83	10.92	0.06	0.11	n.a.	101.42
75	Chromite	Pt 75	0.41	5.72	66.00	0.28	16.97	11.28	0.09	0.12	n.a.	100.87
76	Chromite	Pt 76	20.35	2.21	0.06	0.30	73.25	0.15	0.05	0.52	n.a.	96.89
77	Chromite	Pt 77	1.65	5.89	63.64	0.25	16.48	12.48	0.12	0.08	n.a.	100.59
78	Chromite	Pt 78	0.16	15.56	53.51	0.27	18.61	11.81	0.09	0.10	n.a.	100.11
79	Chromite	Pt 79	0.61	5.97	64.34	0.22	16.70	11.99	0.12	0.08	n.a.	100.03
80	Chromite	Pt 80	2.85	7.98	57.62	0.26	18.02	13.01	0.16	0.11	n.a.	100.01
81	Chromite	Pt 81	0.11	12.50	59.54	0.34	17.49	10.95	0.08	0.16	n.a.	101.17
82	Chromite	Pt 82	21.97	4.03	3.44	0.62	52.31	13.94	0.20	0.32	n.a.	96.83
85	Chromite	Pt 85	1.74	10.31	55.82	0.24	20.92	10.61	0.13	0.14	n.a.	99.91
86	Chromite	Pt 86	0.04	15.23	58.30	0.29	15.86	11.00	0.06	0.09	n.a.	100.87
87	Chromite	Pt 87	14.54	3.52	0.11	0.35	75.55	0.33	0.04	0.51	n.a.	94.95
88	Chromite	Pt 88	0.11	12.31	59.49	0.29	17.36	10.86	0.08	0.09	n.a.	100.59
89	Chromite	Pt 89	0.23	21.67	38.69	0.20	23.15	14.20	0.19	0.08	n.a.	98.41
90	Chromite	Pt 90	2.25	4.79	62.67	0.32	17.62	12.21	0.10	0.12	n.a.	100.08
91	Chromite	Pt 91	0.27	12.48	58.89	0.32	17.33	10.90	0.09	0.09	n.a.	100.37
92	Chromite	Pt 92	0.27	12.22	58.82	0.31	17.51	10.74	0.06	0.10	n.a.	100.03
96	Chromite	Pt 96	0.07	26.81	42.47	0.21	17.15	13.01	0.09	0.07	n.a.	99.88
97	Chromite	Pt 97	0.17	15.64	53.49	0.27	18.34	11.72	0.11	0.06	n.a.	99.80
98	Chromite	Pt 98	0.26	22.01	38.52	0.21	23.25	14.18	0.26	0.04	n.a.	98.73
100	Chromite	Pt 100	0.37	20.03	45.76	0.30	21.07	11.68	0.15	0.00	n.a.	99.36
101	Chromite	Pt 101	0.03	12.69	59.91	0.29	17.31	10.72	0.01	0.00	n.a.	100.96
103	Chromite	Pt 103	0.09	15.61	53.79	0.26	18.38	11.80	0.08	0.00	n.a.	100.01
104	Chromite	Pt 104	2.93	3.62	60.98	0.41	19.27	11.73	0.04	0.00	n.a.	98.98
1	Ilmenite	Pt 56	48.59	0.07	0.00	0.68	47.98	0.28	0.02	0.34	n.a.	97.96
2	Ilmenite	Pt 62	49.55	0.06	0.02	0.85	47.89	0.33	0.05	0.34	n.a.	99.09
3	Ilmenite	Pt 84	49.38	0.03	0.02	0.80	47.29	0.35	0.00	0.38	n.a.	98.25
4	Ilmenite	Pt 99	47.27	0.03	0.03	4.75	47.10	0.29	0.02	1.31	n.a.	100.80

JI9-10664		Point #	TiO_2	Al_2O_3	Cr_2O_3	MnO	FeO	MgO	NiO	Nb_2O_5	ZnO	Total
1	Chromite	Pt 1	0.02	11.49	60.18	0.28	17.23	10.19	0.03	0.00	n.a.	99.42
2	Chromite	Pt 2	0.11	6.61	65.80	0.25	16.93	10.41	0.09	0.00	n.a.	100.20
3	Chromite	Pt 3	0.27	5.78	63.82	0.21	16.63	11.10	0.06	0.00	n.a.	97.87
4	Chromite	Pt 4	0.32	5.41	65.82	0.28	16.75	10.89	0.11	0.00	n.a.	99.58
5	Chromite	Pt 5	1.21	12.21	57.92	0.21	17.37	10.14	0.11	0.00	n.a.	99.17
6	Chromite	Pt 6	0.48	6.38	65.12	0.30	17.01	10.18	0.09	0.01	n.a.	99.57
7	Chromite	Pt 7	0.36	12.51	58.83	0.25	16.25	11.38	0.02	0.00	n.a.	99.60
8	Chromite	Pt 8	0.50	11.63	60.48	0.25	15.56	10.67	0.08	0.00	n.a.	99.17
9	Chromite	Pt 9	0.32	11.67	58.97	0.24	17.78	10.56	0.01	0.00	n.a.	99.55
10	Chromite	Pt 10	0.43	11.81	58.23	0.27	18.00	10.46	0.05	0.01	n.a.	99.26
11	Chromite	Pt 11	1.42	5.93	62.91	0.28	18.32	10.42	0.09	0.00	n.a.	99.37
12	Chromite	Pt 12	0.00	6.53	67.29	0.25	15.45	9.31	0.09	0.00	n.a.	98.92
13	Chromite	Pt 13	1.58	11.61	47.43	0.30	27.60	10.57	0.19	0.03	n.a.	99.31
14	Chromite	Pt 14	0.00	32.14	37.05	0.19	16.48	13.91	0.04	0.00	n.a.	99.81
15	Chromite	Pt 15	0.91	11.85	57.69	0.30	17.90	10.73	0.07	0.01	n.a.	99.46
16	Ti-magnetite	Pt 16	19.77	1.79	0.02	0.48	72.16	0.03	0.01	0.33	n.a.	94.59
17	Chromite	Pt 17	0.42	10.40	57.31	0.31	20.14	10.36	0.10	0.00	n.a.	99.04
18	Chromite	Pt 18	0.36	9.78	62.73	0.32	16.21	10.00	0.10	0.07	n.a.	99.57
19	Chromite	Pt 19	0.00	14.04	59.40	0.25	14.71	10.04	0.05	0.00	n.a.	98.49
20	Chromite	Pt 20	0.06	6.36	65.58	0.24	16.20	10.71	0.06	0.00	n.a.	99.21
21	Chromite	Pt 21	0.25	5.97	64.34	0.24	17.38	11.48	0.06	0.01	n.a.	99.73
22	Chromite	Pt 22	0.02	35.75	34.10	0.20	13.54	14.96	0.06	0.00	n.a.	98.63
23	Chromite	Pt 23	0.94	11.35	43.90	0.30	33.63	8.08	0.15	0.11	n.a.	98.46
24	Chromite	Pt 24	0.24	4.72	66.12	0.20	16.53	10.91	0.16	0.00	n.a.	98.88
25	Chromite	Pt 26	0.71	6.00	66.57	0.20	14.86	11.38	0.07	0.00	n.a.	99.79
26	Chromite	Pt 27	0.23	24.62	46.74	0.21	13.73	12.39	0.03	0.00	n.a.	97.95
27	Chromite	Pt 28	0.09	16.70	57.15	0.24	13.68	11.14	0.02	0.00	n.a.	99.02
28	Chromite	Pt 29	0.14	10.01	64.07	0.29	14.03	11.71	0.00	0.00	n.a.	100.25
29	Chromite	Pt 30	0.72	12.72	56.10	0.22	16.57	11.01	0.13	0.00	n.a.	97.47
30	Chromite	Pt 31	0.04	13.04	58.33	0.29	17.46	10.17	0.00	0.00	n.a.	99.33
31	Chromite	Pt 32	0.76	8.63	60.24	0.22	18.02	10.88	0.12	0.00	n.a.	98.87
32	Chromite	Pt 33	0.13	6.76	65.18	0.27	16.85	10.70	0.04	0.00	n.a.	99.93
33	Chromite	Pt 34	0.00	12.94	59.46	0.29	16.52	10.66	0.04	0.00	n.a.	99.91
34	Chromite	Pt 35	0.31	11.57	60.28	0.23	16.11	10.57	0.04	0.00	n.a.	99.11
35	Chromite	Pt 36	0.00	31.72	36.90	0.24	15.45	14.60	0.06	0.00	n.a.	98.97
36	Chromite	Pt 37	0.74	5.42	65.29	0.24	16.04	10.21	0.09	0.00	n.a.	98.03
37	Chromite	Pt 38	0.07	12.81	59.60	0.27	16.15	10.79	0.02	0.00	n.a.	99.71
38	Chromite	Pt 39	0.28	11.31	60.68	0.29	16.27	11.04	0.04	0.00	n.a.	99.91
39	Chromite	Pt 40	0.38	10.82	61.75	0.28	16.26	10.55	0.10	0.00	n.a.	100.14
40	Chromite	Pt 41	0.66	5.37	65.86	0.21	15.65	11.00	0.05	0.00	n.a.	98.80
41	Chromite	Pt 42	0.62	5.54	65.87	0.23	15.90	11.11	0.11	0.02	n.a.	99.40
42	Chromite	Pt 44	0.64	11.90	57.39	0.26	18.74	11.06	0.10	0.00	n.a.	100.09
43	Chromite	Pt 46	2.20	4.72	63.25	0.25	17.23	9.93	0.09	0.00	n.a.	97.67
44	Chromite	Pt 47	0.01	6.45	67.52	0.24	15.01	10.29	0.05	0.00	n.a.	99.57
45	Chromite	Pt 48	0.20	9.60	64.30	0.29	14.82	10.71	0.03	0.00	n.a.	99.95
46	Chromite	Pt 49	0.00	12.96	60.06	0.26	16.16	10.45	0.02	0.00	n.a.	99.91
47	Ti-magnetite	Pt 50	21.35	2.19	0.08	0.61	68.77	1.15	0.06	0.29	n.a.	94.50
48	Chromite	Pt 51	0.00	13.05	59.83	0.31	16.17	10.30	0.01	0.00	n.a.	99.67
49	Chromite	Pt 52	0.00	6.53	65.54	0.30	17.31	10.37	0.08	0.00	n.a.	100.13
50	Chromite	Pt 53	0.08	6.22	66.68	0.31	15.84	11.06	0.06	0.00	n.a.	100.25
51	Chromite	Pt 54	0.18	12.23	59.44	0.24	17.12	9.42	0.05	0.00	n.a.	98.68
52	Chromite	Pt 55	0.14	6.10	66.58	0.27	15.25	11.52	0.06	0.00	n.a.	99.92
53	Chromite	Pt 56	0.54	6.25	64.44	0.34	17.00	10.65	0.05	0.02	n.a.	99.29
54	Ti-magnetite	Pt 57	0.00	0.16	0.01	0.30	70.19	0.38	0.42	0.20	n.a.	71.66
55	Chromite	Pt 58	2.76	7.46	59.12	0.26	18.64	10.34	0.15	0.00	n.a.	98.73
56	Chromite	Pt 59	0.45	5.75	65.44	0.22	15.83	11.49	0.12	0.00	n.a.	99.30
57	Chromite	Pt 60	0.25	5.41	66.22	0.24	16.01	11.83	0.09	0.00	n.a.	100.05
58	Chromite	Pt 61	0.00	12.13	59.57	0.22	16.64	10.37	0.02	0.00	n.a.	98.95
59	Chromite	Pt 62	0.86	5.70	66.30	0.23	14.89	11.04	0.13	0.00	n.a.	99.15
60	Chromite	Pt 63	1.51	9.76	59.39	0.27	17.66	10.91	0.09	0.00	n.a.	99.59
61	Chromite	Pt 64	0.13	10.48	64.42	0.27	14.89	10.03	0.02	0.00	n.a.	100.24
62	Chromite	Pt 65	0.11	12.76	59.65	0.26	16.43	11.10	0.07	0.00	n.a.	100.38
63	Chromite	Pt 66	0.03	27.30	44.00	0.23	14.30	13.57	0.05	0.00	n.a.	99.48
64	Chromite	Pt 67	0.02	13.81	59.84	0.29	14.71	10.60	0.01	0.00	n.a.	99.28
65	Chromite	Pt 69	0.00	14.23	59.47	0.28	15.54	10.83	0.00	0.00	n.a.	100.35
66	Chromite	Pt 70	0.28	5.37	64.08	0.26	16.98	10.46	0.11	0.00	n.a.	97.54
67	Chromite	Pt 71	0.11	12.83	58.96	0.22	16.38	10.93	0.05	0.00	n.a.	99.48
68	Chromite	Pt 72	0.13	25.38	46.91	0.22	14.05	12.00	0.09	0.00	n.a.	98.78
69	Chromite	Pt 73	0.11	13.29	58.15	0.24	16.95	10.46	0.02	0.00	n.a.	99.22
70	Chromite	Pt 74	0.04	16.05	57.20	0.25	15.17	10.93	0.03	0.00	n.a.	99.67

71	Chromite	Pt 75	0.00	14.13	59.63	0.27	15.11	10.45	0.00	0.00	n.a.	99.59
72	Chromite	Pt 76	0.01	10.60	64.00	0.30	14.40	10.26	0.04	0.01	n.a.	99.62
73	Chromite	Pt 77	1.95	6.07	63.71	0.27	16.57	10.60	0.12	0.00	n.a.	99.29
74	Chromite	Pt 78	0.62	5.51	65.12	0.26	16.19	11.80	0.12	0.03	n.a.	99.65
75	Chromite	Pt 80	0.57	11.27	58.47	0.29	18.39	10.41	0.07	0.00	n.a.	99.47
76	Chromite	Pt 81	0.22	10.55	63.47	0.26	13.48	11.00	0.08	0.00	n.a.	99.06
77	Chromite	Pt 82	0.51	8.21	61.34	0.22	16.43	11.82	0.13	0.00	n.a.	98.66
78	Chromite	Pt 83	1.88	6.15	63.00	0.25	16.58	11.19	0.14	0.00	n.a.	99.19
79	Chromite	Pt 84	0.73	5.65	66.12	0.25	16.35	11.17	0.09	0.00	n.a.	100.36
80	Chromite	Pt 85	1.71	10.05	54.72	0.23	22.23	10.25	0.16	0.00	n.a.	99.35
81	Chromite	Pt 86	0.09	6.56	66.02	0.24	16.22	10.26	0.08	0.00	n.a.	99.47
82	Chromite	Pt 87	0.00	14.51	58.93	0.28	15.36	10.72	0.03	0.00	n.a.	99.83
83	Chromite	Pt 88	0.32	10.93	60.07	0.24	17.42	10.50	0.04	0.00	n.a.	99.52
84	Chromite	Pt 89	0.21	5.81	64.51	0.28	17.10	11.54	0.09	0.00	n.a.	99.54
85	Chromite	Pt 90	0.00	14.18	59.78	0.30	15.38	10.57	0.01	0.00	n.a.	100.22
86	Chromite	Pt 91	0.24	6.04	64.31	0.24	17.40	11.82	0.07	0.00	n.a.	100.12
87	Chromite	Pt 92	0.47	30.64	34.64	0.12	14.91	16.74	0.17	0.00	n.a.	97.69
88	Chromite	Pt 93	0.52	7.96	61.28	0.22	16.32	12.33	0.14	0.02	n.a.	98.79
89	Chromite	Pt 94	0.07	6.21	65.90	0.27	16.52	10.52	0.08	0.00	n.a.	99.57
90	Chromite	Pt 95	0.06	6.39	66.40	0.29	16.00	10.88	0.04	0.00	n.a.	100.06
91	Chromite	Pt 96	0.73	13.59	45.47	0.25	29.55	9.36	0.16	0.04	n.a.	99.15
92	Chromite	Pt 97	0.77	13.64	44.89	0.33	28.97	9.51	0.07	0.04	n.a.	98.22
93	Chromite	Pt 98	2.40	6.65	61.57	0.23	16.70	9.91	0.16	0.03	n.a.	97.65
94	Chromite	Pt 99	0.02	6.21	67.14	0.24	14.21	11.01	0.07	0.00	n.a.	98.90
95	Chromite	Pt 100	2.23	7.22	51.36	0.27	28.15	9.41	0.20	0.00	n.a.	98.84
96	Ti-magnetite	Pt 101	0.00	0.02	0.03	0.33	70.41	0.50	0.70	0.21	n.a.	72.20
97	Chromite	Pt 102	0.12	12.72	60.10	0.24	16.43	9.33	0.04	0.00	n.a.	98.98
98	Chromite	Pt 103	1.27	4.87	63.60	0.24	18.05	11.97	0.08	0.00	n.a.	100.08
99	Chromite	Pt 104	0.00	10.29	64.97	0.26	14.76	10.90	0.06	0.00	n.a.	101.24
100	Chromite	Pt 105	0.24	12.19	59.27	0.24	16.78	10.88	0.09	0.00	n.a.	99.69
101	Chromite	Pt 106	1.33	11.22	57.23	0.30	18.56	10.45	0.08	0.00	n.a.	99.17
102	Chromite	Pt 107	0.73	13.26	45.50	0.31	28.74	9.32	0.15	0.00	n.a.	98.01
103	Chromite	Pt 108	1.61	11.55	47.52	0.24	26.50	11.05	0.14	0.00	n.a.	98.61
104	Chromite	Pt 109	0.13	13.27	57.58	0.26	17.21	11.11	0.04	0.00	n.a.	99.60
105	Chromite	Pt 110	0.13	12.92	58.44	0.26	17.93	9.56	0.02	0.00	n.a.	99.26
106	Chromite	Pt 111	1.31	5.99	63.12	0.30	18.01	10.68	0.11	0.02	n.a.	99.54
107	Chromite	Pt 112	0.00	10.34	63.90	0.29	14.21	10.80	0.03	0.00	n.a.	99.57
108	Chromite	Pt 113	0.00	13.47	59.55	0.26	15.55	10.64	0.00	0.00	n.a.	99.47
109	Chromite	Pt 115	0.74	13.64	45.64	0.33	28.95	9.59	0.11	0.01	n.a.	99.01
110	Chromite	Pt 116	0.18	12.84	59.62	0.23	15.77	10.65	0.03	0.00	n.a.	99.32
111	Chromite	Pt 117	0.49	10.46	57.21	0.34	19.71	10.06	0.08	0.00	n.a.	98.35
112	Chromite	Pt 118	0.11	13.50	57.97	0.24	16.84	10.64	0.04	0.00	n.a.	99.34
113	Chromite	Pt 119	0.00	42.10	29.31	0.10	11.65	14.01	0.06	0.00	n.a.	97.23
114	Ti-magnetite	Pt 120	0.01	0.12	0.11	0.15	92.38	0.03	0.03	0.43	n.a.	93.26
115	Chromite	Pt 121	0.09	12.61	59.30	0.29	16.53	11.00	0.07	0.00	n.a.	99.89
116	Chromite	Pt 122	0.02	36.21	34.53	0.17	12.87	15.27	0.01	0.00	n.a.	99.08
117	Chromite	Pt 123	0.02	35.65	34.21	0.18	13.44	14.71	0.07	0.00	n.a.	98.28
1	Ilmenite	Pt 43	48.89	0.09	0.01	0.46	46.89	0.91	0.00	0.21	n.a.	97.46
2	Ilmenite	Pt 45	49.80	0.29	0.01	0.29	42.92	3.48	0.04	0.17	n.a.	97.00
3	Ilmenite	Pt 79	48.60	0.25	0.01	0.34	44.80	3.17	0.04	0.17	n.a.	97.38

72	Chromite	Pt 76	0.04	6.82	65.31	0.28	16.92	10.68	0.09	0.00	n.a.	100.14
73	Chromite	Pt 77	0.24	5.98	65.80	0.26	16.40	11.47	0.09	0.00	n.a.	100.24
74	Chromite	Pt 78	0.07	41.08	25.29	0.12	17.46	14.38	0.19	0.00	n.a.	98.59
75	Chromite	Pt 79	1.23	12.17	56.96	0.22	18.39	10.40	0.03	0.01	n.a.	99.41
76	Chromite	Pt 80	0.06	6.39	66.56	0.26	15.36	11.62	0.12	0.03	n.a.	100.40
1	Ilmenite	Pt 81	46.51	0.04	0.03	4.34	47.94	0.27	0.00	1.30	n.a.	100.43
2	Ilmenite	Pt 55	47.95	0.02	0.01	1.79	46.75	0.25	0.00	0.19	n.a.	96.96
3	Ilmenite	Pt 60	48.35	0.10	0.00	0.49	44.19	2.59	0.02	0.16	n.a.	95.90
4	Ilmenite	Pt 32	49.65	0.04	0.02	0.83	45.39	1.54	0.00	0.22	n.a.	97.69
5	Ilmenite	Pt 23	51.14	0.10	0.01	0.50	41.82	4.43	0.00	0.14	n.a.	98.14

ANNEX 5

Lakefield Research Limited reports - Diamond Recovery by Caustic Dissolution for Trench JI-1 samples JI 1R, JI 120, JI-122, JI 129, JI 131, JI 133, JI 137, JI 139 and JI 151

September-November 2000

Samples submitted by Twin Mining Corporation

LakefieldResearch

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 19, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 1R**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 30.00 kg
Number of Syndites: 0

Total Weight (carats)*: 0.006
Number of Diamonds: 17

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

LakefieldResearch

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Email: bjago@lakefield.com

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 19, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 1R**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	1	1.014	0.005
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	1	0.092	0.000
	-212 / +150 µm	4	0.061	0.000
	-150 / +100 µm	11	0.078	0.000
	TOTAL	17	1.245	0.006

Sample Weight: 30.00 kg
Number of Syndites: 0

Total Weight (carats)*: 0.006
Number of Diamonds: 17

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

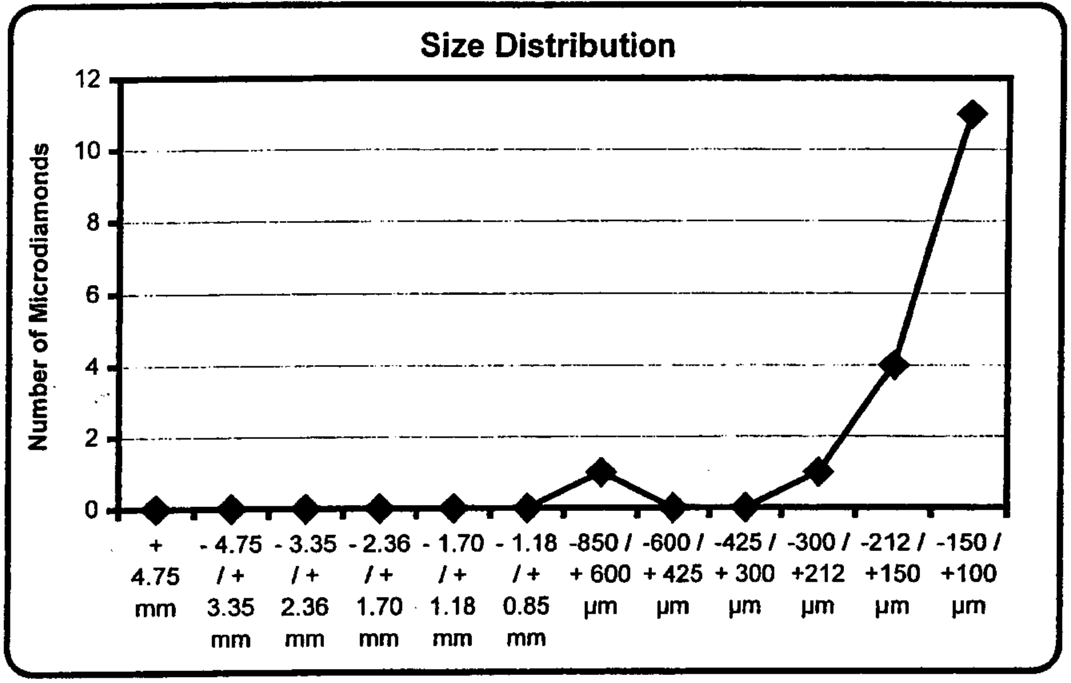
Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

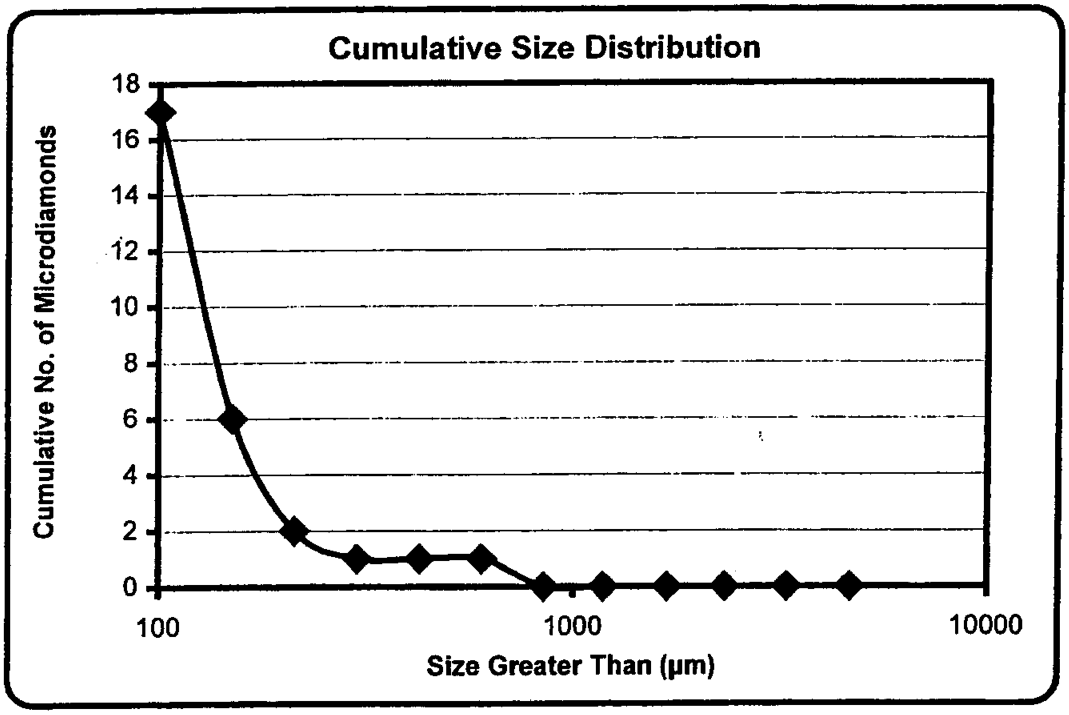
M. Mezei !
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. JI 1R





LAKEFIELD RESEARCH LIMITED
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October 19, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 1R**
Sample Weight: 30.00 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 19, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0006.R00**
Sample No. **JI 1R**
Sample Weight: 30.00 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-850 / + 600 µm fraction									
1	1.03	0.88	0.77	1.014	0.005070	White	Transparent	85%	Dodecahedral, very minor cleavages
1				1.014	0.005070	**Sub-Total**			
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.86	0.34	0.17		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages
1				0.092	0.000460	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.26	0.20	0.13		0.000000	Off White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages
2	0.29	0.20	0.11		0.000000	White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages
3	0.23	0.17	0.18		0.000000	Off White	Transparent	95%	Octahedral, stepped faces, graphite coating, very minor cleavages
4	0.17	0.17	0.09		0.000000	White	Transparent	95%	Octahedral, twinned, very minor cleavages
4				0.061	0.000305	**Sub-Total**			

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October 19, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0006.R00**

Client: **Twin Mining Corporation**

Sample No. **JI 1R**

Sample Weight: 30.00 kg

No.	Stone Dimension, mm			Weight				Percent Preservation	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity		Morphology
-150 / + 100 µm fraction									
1	0.17	0.11	0.10		0.000000	White	Transparent	99+%	Octahedral, stepped faces
2	0.20	0.14	0.10		0.000000	White	Translucent	95%	Octahedral, twinned, stepped faces, graphite coating
3	0.14	0.11	0.11		0.000000	White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages
4	0.17	0.14	0.12		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite coating
5	0.26	0.14	0.09		0.000000	White	Transparent	99+%	Octahedral, partially distorted
6	0.17	0.14	0.06		0.000000	White	Transparent	99+%	Octahedral, twinned
7	0.20	0.20	0.09		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
8	0.20	0.17	0.07		0.000000	Grey	Opaque	Note 1	Fragment on which crystal faces unrecognizable, frosted, very minor cleavages, graphite inclusions
9	0.34	0.20	0.09		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
10	0.17	0.14	0.08		0.000000	White	Translucent	62.5%	Fragment with Crystal Faces, minor cleavages, graphite coating
11	0.14	0.11	0.09		0.000000	White	Transparent	85%	Octahedral, twinned
11				0.078	0.000390	**Sub-Total**			
17					0.006225	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: September 28, 1998
LIMS No. **SEP0006.R00**
Sample No. **JI 120**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	1	1.592	0.008
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	1	0.124	0.001
	-300 / +212 µm	1	0.035	0.000
	-212 / +150 µm	3	0.023	0.000
	-150 / +100 µm	9	0.061	0.000
	TOTAL	15	1.835	0.009

Sample Weight: 27.67 kg
Number of Syndites: 0

Total Weight (carats)*: 0.009
Number of Diamonds: 15

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

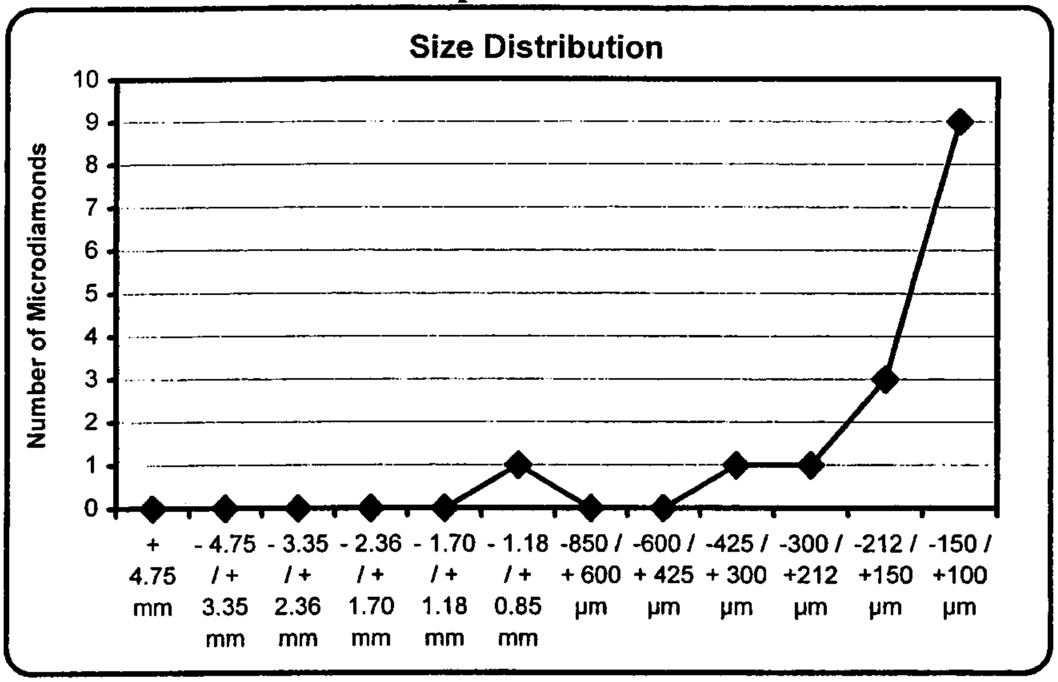
R. Buchanan for
Selection and Description
Tracy Gill
Mineralogy Technician

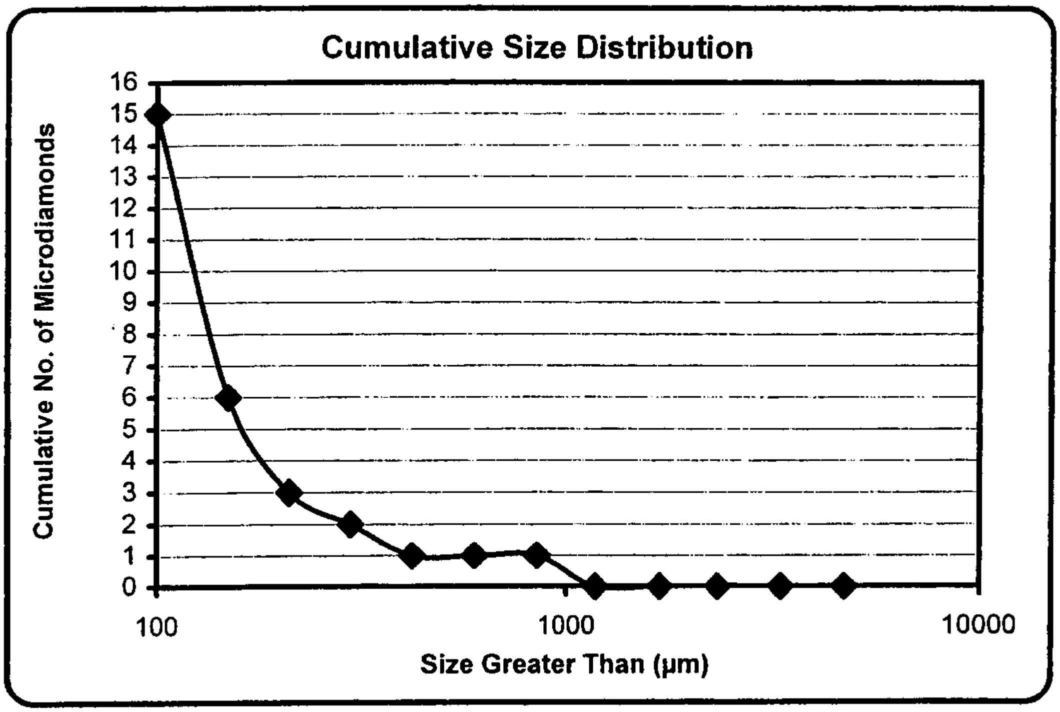
M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. JI 120





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September 28, 1998

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 120**
Sample Weight: 27.67 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
1	1.28	1.20	0.68	1.592	0.007960	Brown	Translucent	95%	Fragment with Crystal Faces, graphite inclusions, partially frosted, minor cleavages
1				1.592	0.007960	**Sub-Total**			
-850 / + 600 μm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-600 / + 425 μm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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September 28, 1998

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 120**
Sample Weight: 27.67 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-425 / + 300 µm fraction									
1	0.54	0.40	0.28		0.000000	White	Transparent	95%	Octahedral, graphite coating
1				0.124	0.000620	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.31	0.26	0.24		0.000000	White	Transparent	75%	Dodecahedral
1				0.035	0.000175	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.43	0.14	0.09		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages, graphite inclusions
2	0.20	0.20	0.11		0.000000	White	Transparent	85%	Octahedral, twinned, graphite coating
3	0.31	0.17	0.13		0.000000	White	Transparent	85%	Octahedral, twinned, graphite coating
3				0.023	0.000115	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.26	0.17	0.06		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
2	0.14	0.11	0.07		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
3	0.14	0.14	0.05		0.000000	White	Transparent	99+%	Macle, twinned
4	0.17	0.14	0.09		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, graphite inclusions
5	0.17	0.14	0.08		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
6	0.17	0.14	0.09		0.000000	White	Transparent	95%	Octahedral, graphite inclusions
7	0.14	0.11	0.09		0.000000	White	Transparent	95%	Octahedral, graphite coating
8	0.17	0.14	0.09		0.000000	White	Translucent	85%	Octahedral
9	0.17	0.11	0.07		0.000000	White	Translucent	85%	Octahedral, graphite coating
9				0.061	0.000305	**Sub-Total**			
15					0.009175	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

LakefieldResearch

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: September 28, 1998
LIMS No. **SEP0006.R00**
Sample No. **JI 122**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides and silicates

Sample Weight: 26.64 kg
Number of Syndites: 0

Total Weight (carats)*: 0.005
Number of Diamonds: 14

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: September 28, 1998
LIMS No. **SEP0006.R00**
Sample No. **JI 122**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	1	0.847	0.004
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	0	0.000	0.000
	-212 / +150 µm	0	0.000	0.000
	-150 / +100 µm	13	0.060	0.000
	TOTAL	14	0.907	0.005

Sample Weight: 26.64 kg
Number of Syndites: 0

Total Weight (carats)*: 0.005
Number of Diamonds: 14

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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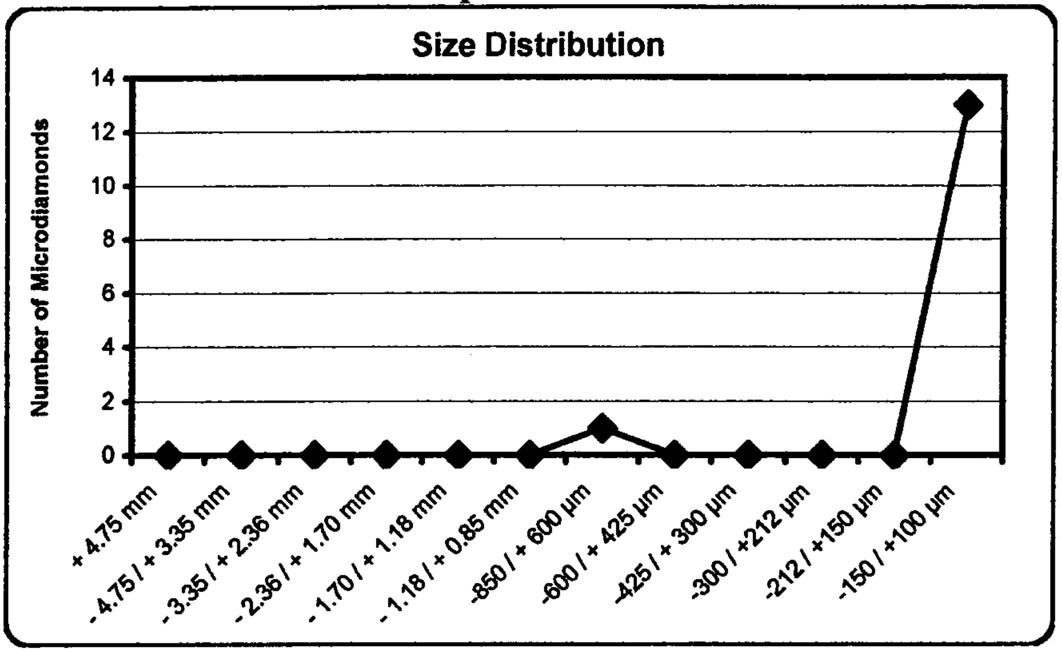
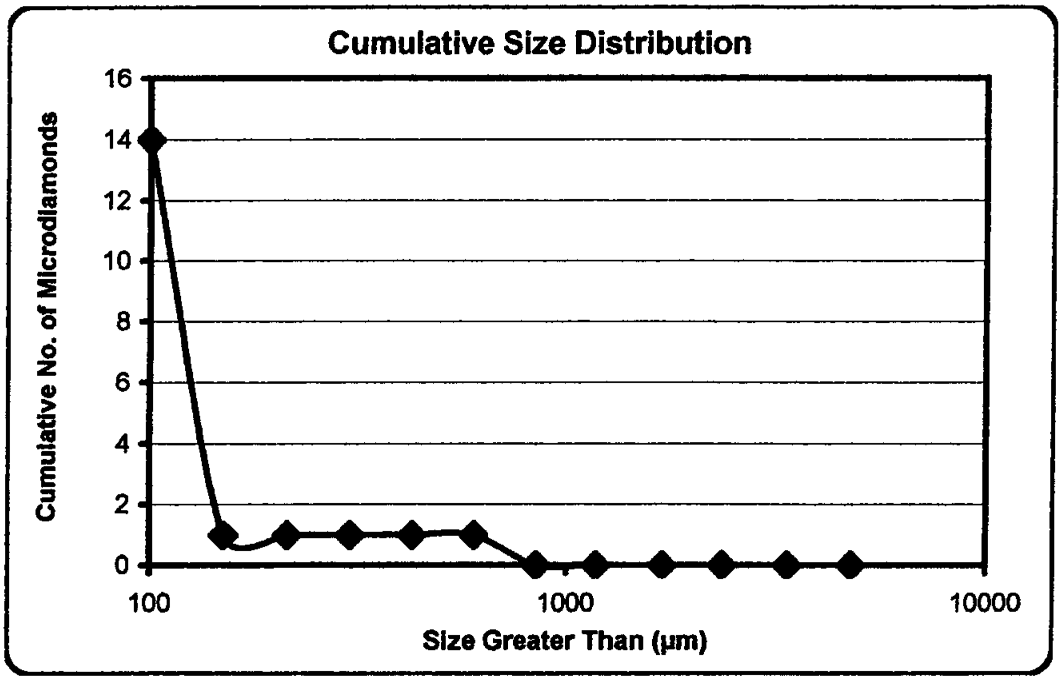
Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. JI 122





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September 28, 1998

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 122**
Sample Weight: 26.64 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 µm fraction									
1	0.86	0.86	0.55	0.847	0.004235	Off White	Transparent	99+%	Octahedral, stepped faces, minor cleavages, graphite inclusions
1				0.847	0.004235	**Sub-Total**			

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September 28, 1998

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 122**
Sample Weight: 26.64 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-212 / + 150 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.20	0.14	0.14		0.000000	White	Transparent	99+%	Octahedral, stepped faces
2	0.17	0.11	0.11		0.000000	White	Transparent	95%	Octahedral, graphite coating, twinned, stepped faces
3	0.14	0.14	0.10		0.000000	White	Transparent	95%	Octahedral, graphite coating, twinned, graphite inclusions
4	0.14	0.11	0.12		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages, graphite inclusions
5	0.17	0.11	0.04		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages
6	0.17	0.17	0.10		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite inclusions

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September 28, 1998

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0006.R00**
Sample No. **JI 122**
Sample Weight: 26.64 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
7	0.14	0.14	0.13		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages
8	0.29	0.14	0.14		0.000000	White	Translucent	75%	Aggregate, very minor cleavages
9	0.17	0.14	0.10		0.000000	White	Transparent	85%	Octahedral, stepped faces, graphite inclusions
10	0.17	0.11	0.12		0.000000	White	Transparent	95%	Octahedral, graphite coating
11	0.20	0.17	0.15		0.000000	White	Transparent	95%	Octahedral, very minor cleavages, graphite coating
12	0.26	0.17	0.10		0.000000	White	Transparent	95%	Octahedral, graphite coating, twinned
13	0.20	0.14	0.11		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages, graphite coating
13				0.060	0.000300	**Sub-Total**			

14		0.004535	**TOTAL**

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

LakefieldResearch

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 3, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 127**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Not applicable
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides and silicates

Sample Weight: 27.09 kg
Number of Syndites: 0

Total Weight (carats)*: 0.001
Number of Diamonds: 21

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

LakefieldResearch

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 3, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 127**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 μm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 μm	0	0.000	0.000
	-425 / + 300 μm	0	0.000	0.000
	-300 / +212 μm	2	0.116	0.001
	-212 / +150 μm	5	0.072	0.000
	-150 / +100 μm	14	0.070	0.000
	TOTAL	21	0.258	0.001

Sample Weight: 27.09 kg
Number of Syndites: 0

Total Weight (carats)*: 0.001
Number of Diamonds: 21

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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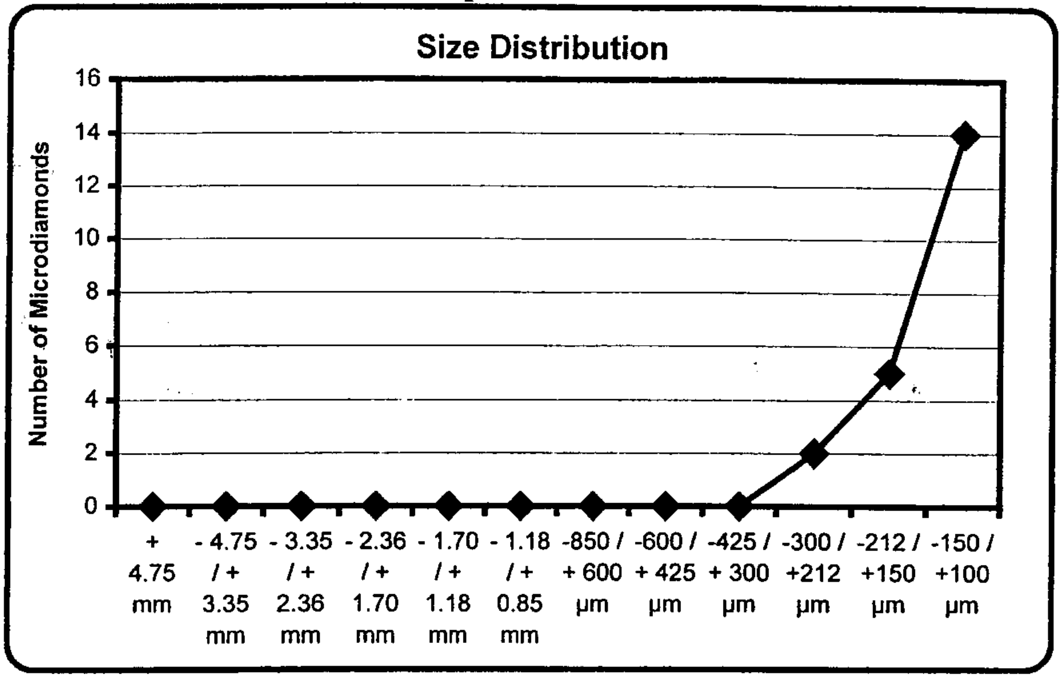
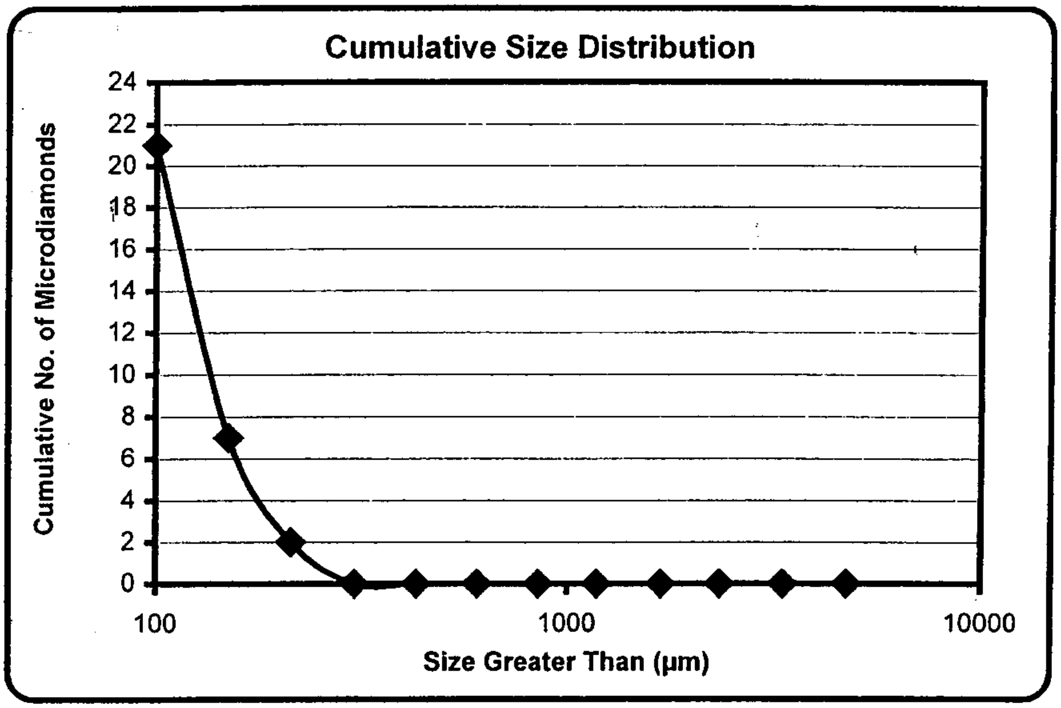
Sample No. JI 127





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October 3, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 127**
Sample Weight: 27.09 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 μm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 3, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 127**
Sample Weight: 27.09 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	-600 / + 425 µm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-425 / + 300 µm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-300 / + 212 µm fraction								
1	0.37	0.31	0.25		0.000000	White	Translucent	95%	Octahedral, twinned, stepped faces, graphite coating
2	0.26	0.26	0.17		0.000000	White	Transparent	95%	Macle, twinned
2				0.116	0.000580	**Sub-Total**			
	-212 / + 150 µm fraction								
1	0.48	0.23	0.15		0.000000	Grey	Translucent	85%	Aggregate, graphite coating
2	0.23	0.17	0.10		0.000000	White	Transparent	95%	Octahedral, twinned
3	0.23	0.17	0.14		0.000000	White	Transparent	95%	Macle, twinned
4	0.20	0.14	0.16		0.000000	White	Transparent	85%	Octahedral, stepped faces
5	0.20	0.17	0.12		0.000000	White	Translucent	75%	Irregular
5				0.072	0.000360	**Sub-Total**			
	-150 / + 100 µm fraction								
1	0.26	0.14	0.06		0.000000	#N/A	Transparent	99+%	Macle, twinned
2	0.20	0.17	0.12		0.000000	White	Transparent	95%	Octahedral, twinned
3	0.17	0.14	0.11		0.000000	White	Transparent	95%	Octahedral, twinned
4	0.20	0.17	0.04		0.000000	White	Transparent	99+%	Macle, partially distorted
5	0.20	0.11	0.06		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages

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October 3, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 127**
Sample Weight: 27.09 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
6	0.17	0.14	0.10		0.000000	White	Translucent	85%	Octahedral, twinned, stepped faces
7	0.14	0.14	0.05		0.000000	White	Transparent	95%	Macle, twinned, graphite coating
8	0.14	0.14	0.06		0.000000	White	Transparent	95%	Macle, twinned
9	0.14	0.11	0.05		0.000000	White	Transparent	95%	Macle, twinned
10	0.14	0.14	0.06		0.000000	White	Transparent	99+%	Octahedral, twinned
11	0.14	0.11	0.06		0.000000	White	Transparent	99+%	Macle, twinned, graphite inclusions
12	0.14	0.11	0.09		0.000000	White	Transparent	95%	Octahedral, twinned
13	0.17	0.14	0.07		0.000000	White	Transparent	95%	Octahedral, twinned, graphite coating
14	0.11	0.11	0.09		0.000000	White	Transparent	99+%	Octahedral
14				0.070	0.000350	Sub-Total			
21					0.001290	TOTAL			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 3, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 129**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 28.11 kg
Number of Syndites: 0

Total Weight (carats)*: 0.013
Number of Diamonds: 11

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 3, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 129**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	1	2.452	0.012
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	1	0.091	0.000
	-300 / +212 µm	2	0.052	0.000
	-212 / +150 µm	1	0.015	0.000
	-150 / +100 µm	6	0.037	0.000
	TOTAL	11	2.647	0.013

Sample Weight: 28.11 kg
Number of Syndites: 0

Total Weight (carats)*: 0.013
Number of Diamonds: 11

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill

Selection and Description
Tracy Gill
Mineralogy Technician

C.G. Mezei

Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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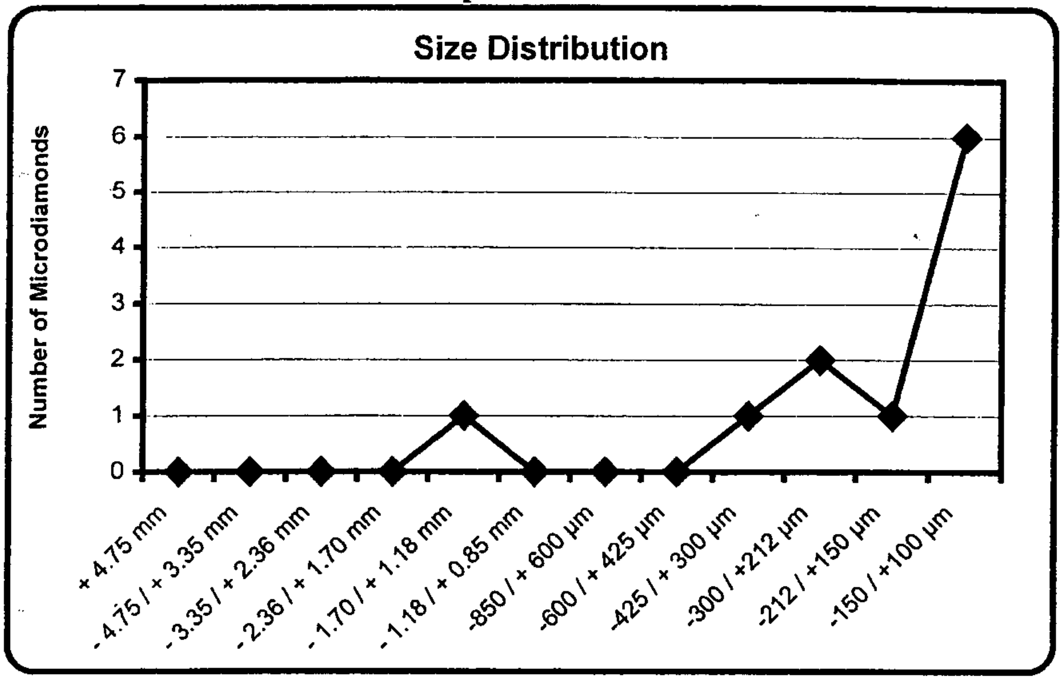
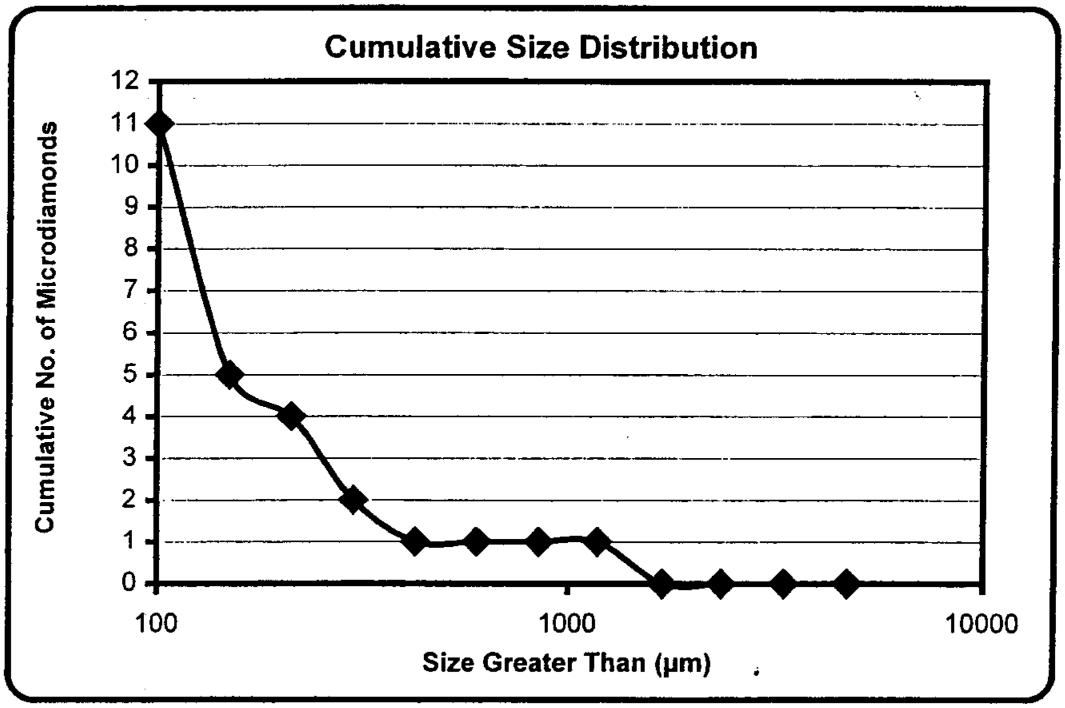
Sample No. JI 129





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October 3, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 129**
Sample Weight: 28.11 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
1	1.60	1.60	0.51	2.452	0.012260	White	Transparent	85%	Fragment with Crystal Faces, very significant cleavages, graphite inclusions
1				2.452	0.012260	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 μm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 3, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 129**
Sample Weight: 28.11 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 μm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 μm fraction									
1	0.60	0.43	0.11		0.000000	White	Transparent	99+%	Macle, twinned
1				0.091	0.000455	**Sub-Total**			
-300 / + 212 μm fraction									
1	0.40	0.26	0.10		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, graphite coating, very minor cleavages
2	0.29	0.26	0.06		0.000000	White	Transparent	95%	Macle, twinned
2				0.052	0.000260	**Sub-Total**			
-212 / + 150 μm fraction									
1	0.26	0.23	0.17		0.000000	White	Transparent	95%	Macle, twinned
1				0.015	0.000075	**Sub-Total**			
-150 / + 100 μm fraction									
1	0.20	0.14	0.13		0.000000	White	Transparent	95%	Octahedral, stepped faces
2	0.17	0.14	0.11		0.000000	White	Transparent	95%	Macle, graphite coating, partially frosted
3	0.17	0.14	0.12		0.000000	White	Transparent	95%	Macle, twinned, graphite coating
4	0.23	0.14	0.09		0.000000	White	Transparent	85%	Irregular, graphite coating
5	0.14	0.11	0.12		0.000000	White	Transparent	95%	Octahedral, twinned, stepped faces
6	0.11	0.11	0.09		0.000000	White	Transparent	95%	Macle, twinned
6				0.037	0.000185	**Sub-Total**			

11		0.013235	**TOTAL**

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 11, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 131**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 23.40 kg
Number of Syndites: 0

Total Weight (carats)*: 0.003
Number of Diamonds: 7

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 11, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 131**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	1	0.576	0.003
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	0	0.000	0.000
	-212 / +150 µm	1	0.007	0.000
	-150 / +100 µm	5	0.021	0.000
	TOTAL	7	0.604	0.003

Sample Weight: 23.40 kg
Number of Syndites: 0

Total Weight (carats)*: 0.003
Number of Diamonds: 7

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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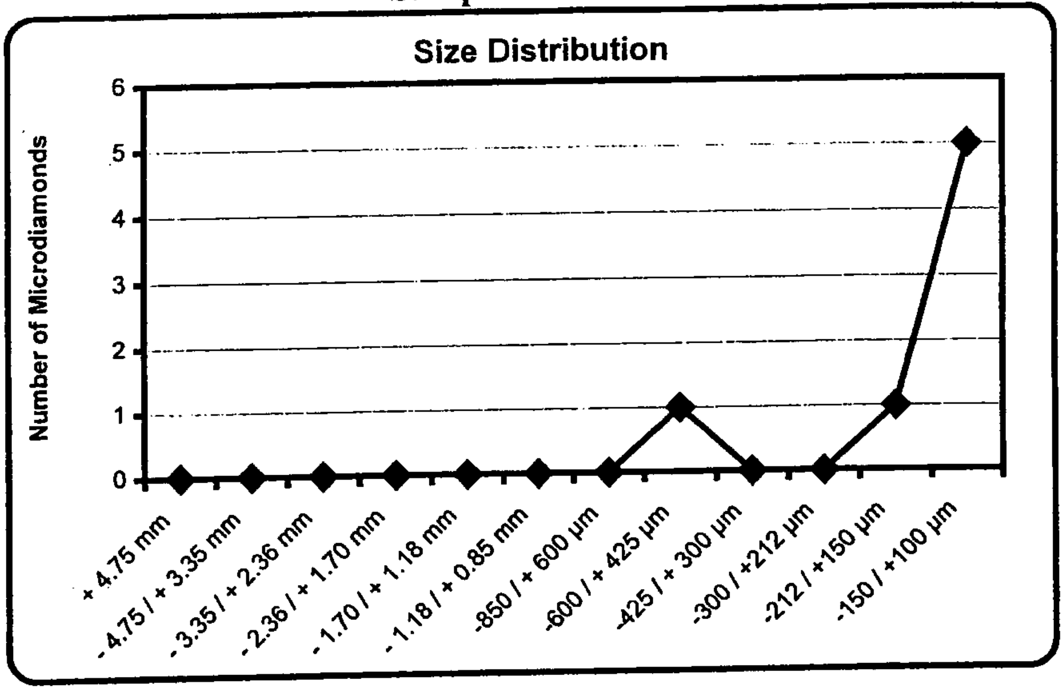
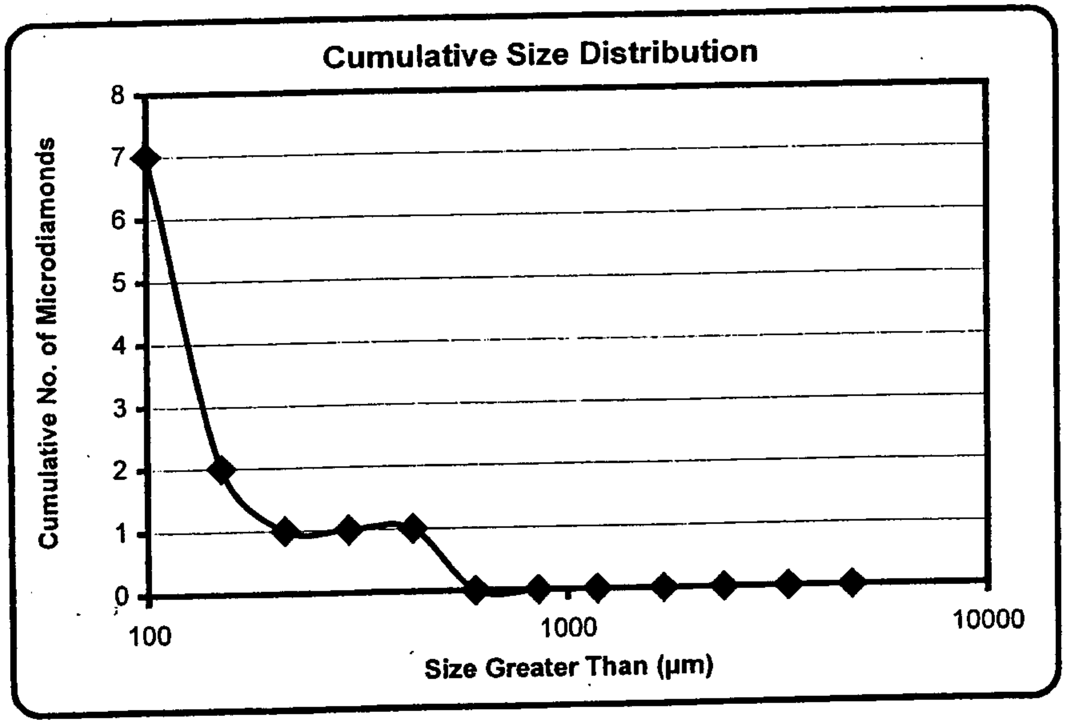
Sample No. JI 131





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October 11, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0006.R00**
Sample No. **JI 131**
Sample Weight: 23.40 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
1					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
1					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 µm fraction								
1					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 11, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 131**
Sample Weight: 23.40 kg

No.	Stone Dimension, mm			Weight				Percent Preservation	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity		Morphology
-600 / + 425 µm fraction									
1	1.43	0.74	0.27		0.000000	White	Transparent	62.5%	Fragment with Crystal Faces, very minor cleavages
1				0.576	0.002880	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.20	0.20	0.07		0.000000	White	Transparent	85%	Macle
1				0.007	0.000035	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.29	0.14	0.10		0.000000	White	Transparent	95%	Contact Twinned
2	0.20	0.14	0.09		0.000000	White	Transparent	95%	Fragment with Crystal Faces, minor cleavages, graphite coating
3	0.17	0.14	0.12		0.000000	White	Transparent	99+%	Octahedral, twinned
4	0.17	0.11	0.07		0.000000	White	Transparent	99+%	Octahedral, twinned
5	0.14	0.11	0.05		0.000000	White	Transparent	99+%	Octahedral, twinned
5				0.021	0.000105	**Sub-Total**			
7					0.003020	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

LakefieldResearch

Lakefield Research Limited
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Email: bjago@lakefield.com

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 6, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 133**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 28.25 kg
Number of Syndites: 0

Total Weight (carats)*: 0.001
Number of Diamonds: 21

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 6, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 133**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	1	0.030	0.000
	-212 / +150 µm	5	0.069	0.000
	-150 / +100 µm	15	0.075	0.000
	TOTAL	21	0.174	0.001

Sample Weight: 28.25 kg
Number of Syndites: 0

Total Weight (carats)*: 0.001
Number of Diamonds: 21

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

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Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

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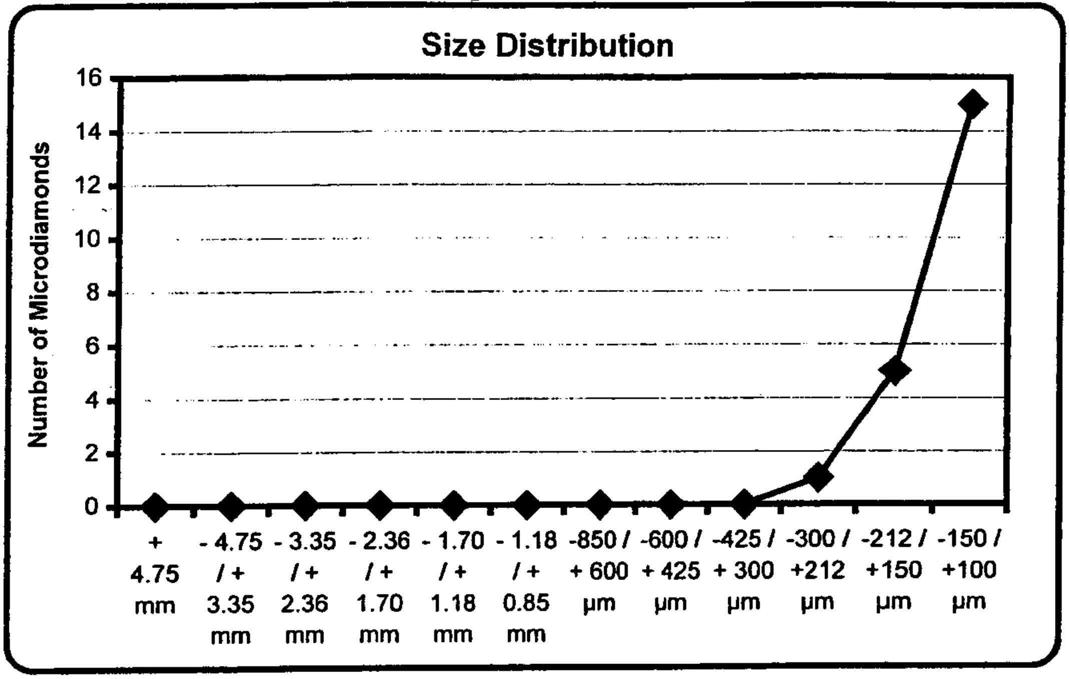
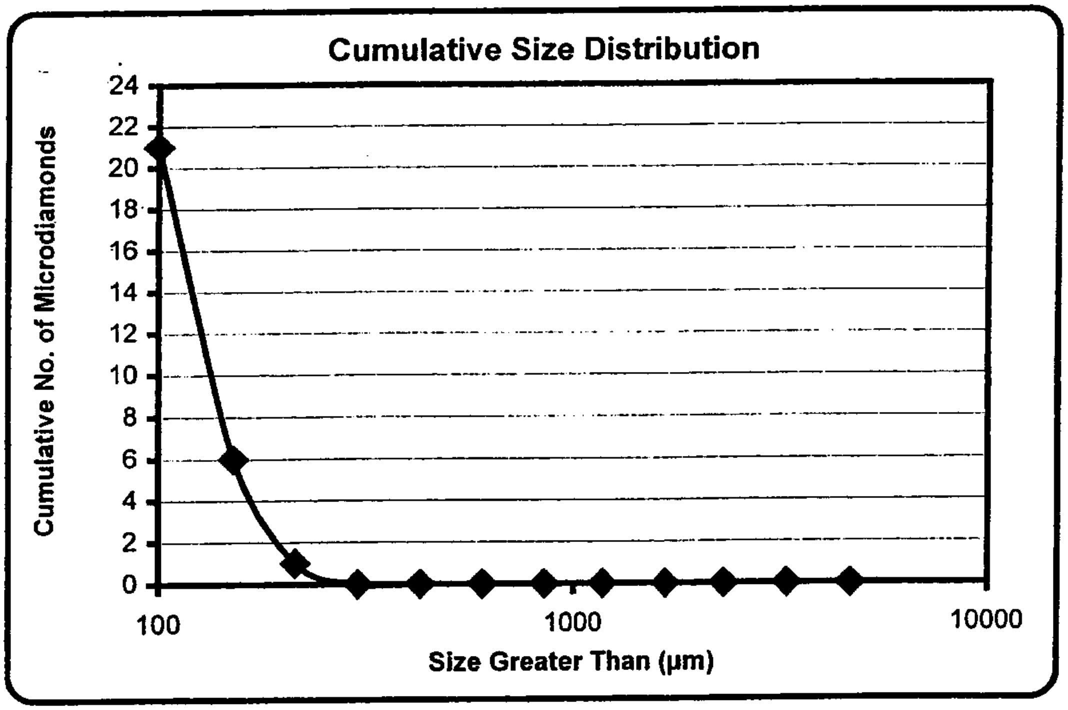
Sample No. JI 133





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October 6, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0006.R00**
Sample No. **JI 133**
Sample Weight: 28.25 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 6, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 133**
Sample Weight: 28.25 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.37	0.29	0.14		0.000000	White	Transparent	85%	Fragment with Crystal Faces, minor cleavages, graphite coating
1				0.030	0.000150	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.34	0.31	0.10		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
2	0.29	0.23	0.15		0.000000	White	Transparent	95%	Fragment with Crystal Faces, very minor cleavages
3	0.26	0.23	0.14		0.000000	White	Transparent	99+%	Octahedral
4	0.23	0.20	0.19		0.000000	White	Transparent	95%	Octahedral, twinned
5	0.23	0.17	0.14		0.000000	White	Translucent	62.5%	Irregular
5				0.069	0.000345	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.23	0.17	0.14		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite inclusions
2	0.23	0.14	0.10		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
3	0.17	0.17	0.12		0.000000	White	Transparent	99+%	Octahedral
4	0.20	0.17	0.12		0.000000	White	Transparent	95%	Fragment with Crystal Faces, minor cleavages

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October 6, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0006.R00**
Sample No. **JI 133**

Client: **Twin Mining Corporation**

Sample Weight: 28.25 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
5	0.20	0.17	0.13		0.000000	White	Transparent	95%	Octahedral, graphite inclusions
6	0.20	0.14	0.12		0.000000	White	Transparent	95%	Octahedral, twinned, graphite coating
7	0.17	0.14	0.04		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
8	0.17	0.14	0.11		0.000000	White	Transparent	99+%	Octahedral, stepped faces
9	0.11	0.11	0.08		0.000000	White	Transparent	95%	Octahedral
10	0.14	0.11	0.10		0.000000	White	Transparent	99+%	Octahedral
11	0.14	0.14	0.08		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages
12	0.14	0.14	0.11		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable
13	0.14	0.11	0.08		0.000000	White	Transparent	85%	Irregular
14	0.14	0.11	0.07		0.000000	White	Transparent	75%	Fragment with Crystal Faces, minor cleavages
15	0.14	0.14	0.10		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
15				0.075	0.000375	**Sub-Total**			

21		0.000870	**TOTAL**

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 11, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 137**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 30.54 kg
Number of Syndites: 0

Total Weight (carats)*: 0.001
Number of Diamonds: 14

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

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Date: October 11, 2000

Project: **8901-221**
LIMS No. **SEP0006.R00**

Client: **Twin Mining Corporation**
Sample No. **JI 137**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 μm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 μm	0	0.000	0.000
	-425 / + 300 μm	0	0.000	0.000
	-300 / +212 μm	2	0.088	0.000
	-212 / +150 μm	5	0.072	0.000
	-150 / +100 μm	7	0.041	0.000
	TOTAL	14	0.201	0.001

Sample Weight: 30.54 kg

Number of Syndites: 0

Total Weight (carats)*: 0.001

Number of Diamonds: 14

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

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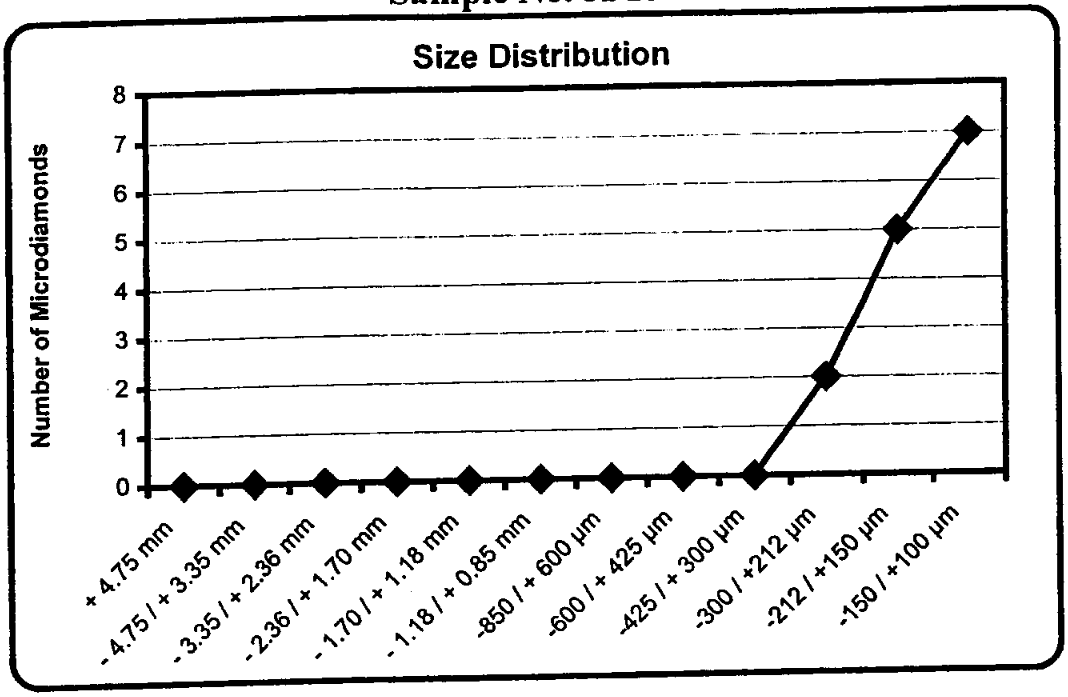
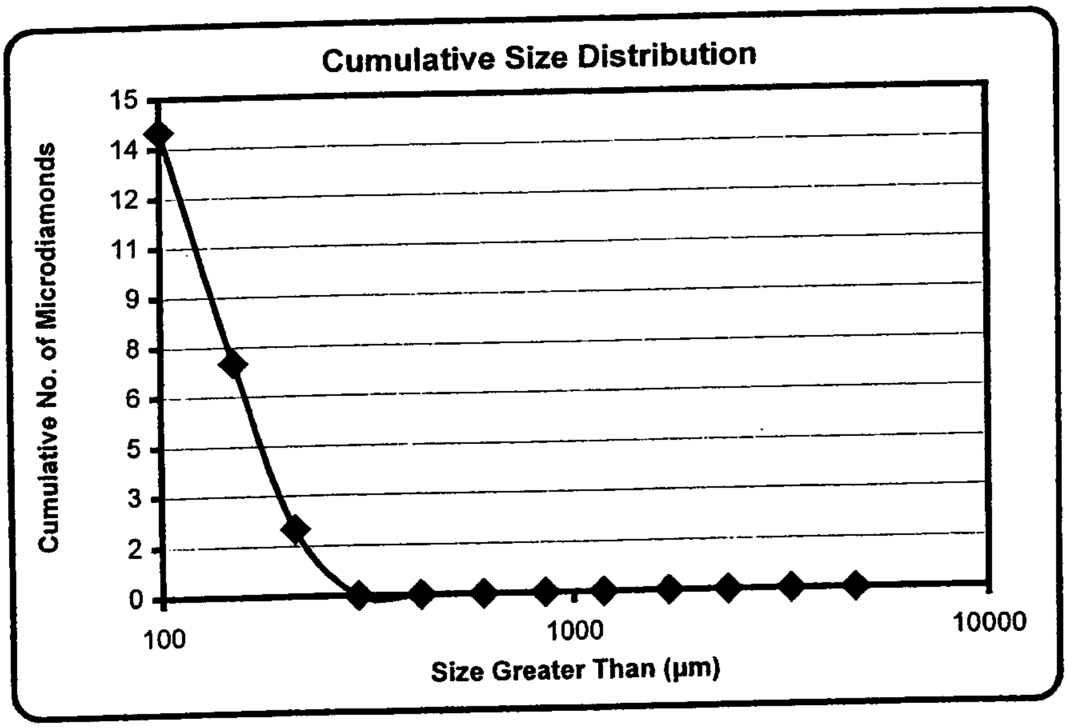
Sample No. JI 137





October 11, 2000

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Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 137**
Sample Weight: 30.54 kg

No.	Stone Dimension, mm			Weight				Percent Preservation	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity		Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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LIMS No. **SEP0006.R00**
Sample No. **JI 137**
Sample Weight: 30.54 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.40	0.34	0.27		0.000000	White	Transparent	95%	Octahedral, stepped faces
2	0.31	0.26	0.13		0.000000	White	Transparent	99+%	Octahedral, twinned, stepped faces, graphite inclusions
2				0.088	0.000440	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.29	0.20	0.18		0.000000	White	Transparent	99+%	Octahedral, twinned
2	0.26	0.23	0.14		0.000000	White	Transparent	99+%	Macle, twinned, stepped faces
3	0.31	0.29	0.09		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
4	0.29	0.20	0.10		0.000000	White	Translucent	95%	Octahedral, twinned, graphite inclusions
5	0.26	0.20	0.14		0.000000	White	Transparent	99+%	Octahedral, twinned
5				0.072	0.000360	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.23	0.14	0.13		0.000000	White	Transparent	99+%	Octahedral, twinned
2	0.23	0.20	0.08		0.000000	Off White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
3	0.40	0.14	0.09		0.000000	White	Transparent	95%	Aggregate, partially frosted

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 137**
Sample Weight: 30.54 kg

No.	Stone Dimension, mm			Weight				Percent Preservation	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity		Morphology
4	0.20	0.14	0.14		0.000000	White	Transparent	95%	Aggregate, partially frosted
5	0.11	0.11	0.09		0.000000	White	Transparent	99+%	Octahedral, twinned
6	0.11	0.11	0.07		0.000000	White	Transparent	99+%	Macle, twinned
7	0.17	0.14	0.11		0.000000	White	Transparent	99+%	Octahedral
7				0.041	0.000205	**Sub-Total**			
14					0.001005	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 1, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 139(Sep0006)**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 55.05 kg
Number of Syndites: 0

Total Weight (carats)*: 0.003
Number of Diamonds: 28

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Hill
Selection and Description
for Robert Buchan
Consulting Mineralogist

M. Mezei
Quality Control
Maria Mezei
Diamond Selection Specialist

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 1, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 139(Sep0006)**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	3	0.323	0.002
	-300 / +212 µm	3	0.071	0.000
	-212 / +150 µm	6	0.078	0.000
	-150 / +100 µm	16	0.058	0.000
	TOTAL	28	0.530	0.003

Sample Weight: 55.05 kg
Number of Syndites: 0

Total Weight (carats)*: 0.003
Number of Diamonds: 28

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Selection and Description
for Robert Buchan
Consulting Mineralogist

Quality Control
Maria Mezei
Diamond Selection Specialist

Note:
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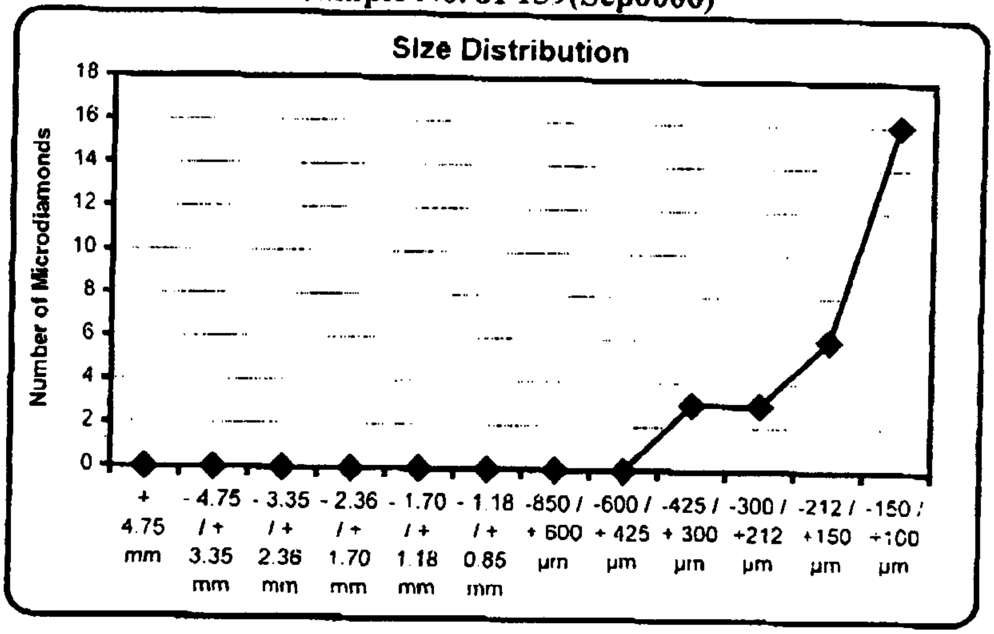
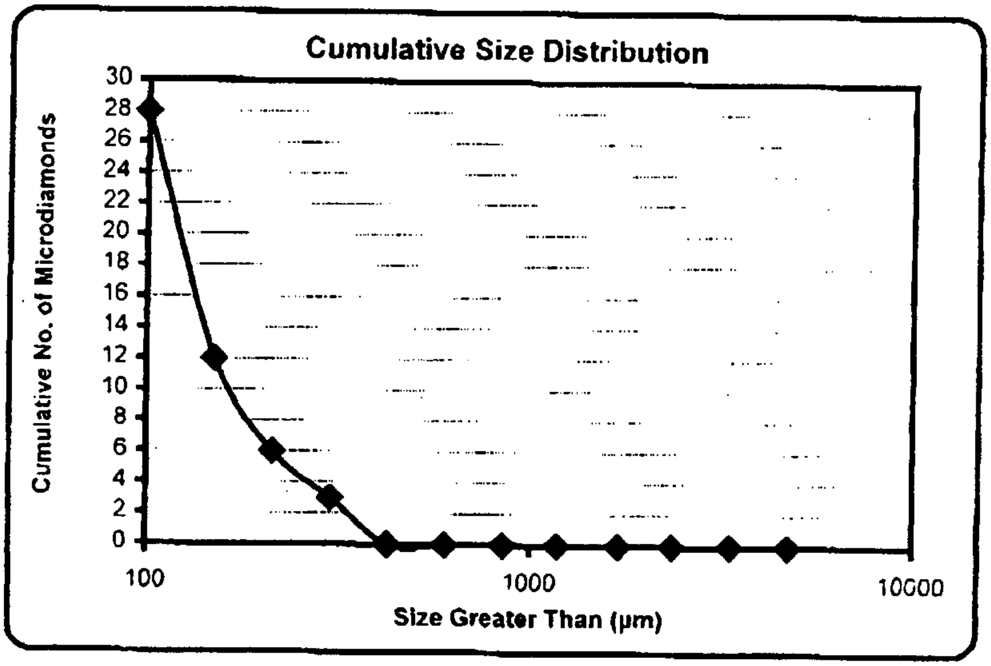
Sample No. JI 139(Sep0006)





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November 1, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 139(Sep0006)**
Sample Weight: 55.05 kg

No.	tone Dimension, m			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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November 1, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 139(Sep0006)**
Sample Weight: 55.05 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-425 / + 300 µm fraction									
3	0.57	0.43	0.24		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite inclusions, graphite coating
4	0.63	0.37	0.29		0.000000	Brown	Transparent	75%	Fragment with Crystal Faces, significant cleavages
5	0.51	0.48	0.18		0.000000	White	Transparent	95%	Fragment on which crystal faces unrecognizable, very significant cleavages
3				0.323	0.001615	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.31	0.29	0.05		0.000000	White	Transparent	85%	Macle, very minor cleavages
2	0.26	0.23	0.22		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite inclusions, very minor cleavages
3	0.29	0.26	0.17		0.000000	White	Transparent	95%	Octahedral, twinned, graphite inclusions, stepped faces
3				0.071	0.000355	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.43	0.29	0.05		0.000000	White	Transparent	1-55%	Fragment with Crystal Faces, very minor cleavages
2	0.26	0.20	0.09		0.000000	White	Transparent	95%	Octahedral, twinned, minor cleavages
3	0.26	0.20	0.15		0.000000	White	Transparent	99+%	Octahedral, twinned, stepped faces, minor cleavages
4	0.29	0.17	0.10		0.000000	White	Transparent	95%	Octahedral, stepped faces, minor cleavages
5	0.26	0.20	0.12		0.000000	White	Transparent	99+%	Octahedral, twinned, minor cleavages
6	0.54	0.23	0.14		0.000000	White	Translucent	95%	Fragment on which crystal faces unrecognizable, graphite coating, minor cleavages
6				0.078	0.000390	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.14	0.11	0.04		0.000000	White	Transparent	99+%	Octahedral, very minor cleavages
2	0.17	0.14	0.09		0.000000	White	Transparent	1-55%	Tetrahexahedral, very minor cleavages
3	0.17	0.11	0.09		0.000000	White	Transparent	75%	Octahedral, twinned, graphite inclusions, minor cleavages
4	0.14	0.14	0.10		0.000000	White	Transparent	95%	Octahedral, stepped faces, very minor cleavages
5	0.17	0.17	0.11		0.000000	White	Transparent	95%	Octahedral, minor cleavages
6	0.23	0.23	0.03		0.000000	White	Transparent	95%	Macle, very minor cleavages

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November 1, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Oct0003.R00**
Sample No. **JI 139(Sep0006)**
Sample Weight: 55.05 kg

Client: **Twin Mining Corporation**

No.	tone Dimension, m			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
7	0.20	0.17	0.11		0.000000	White	Transparent	99+%	Octahedral, twinned, very minor cleavages
8	0.14	0.11	0.07		0.000000	White	Translucent	85%	Fragment with Crystal Faces, stepped faces, very minor cleavages
9	0.17	0.11	0.05		0.000000	White	Transparent	85%	Octahedral, very minor cleavages
10	0.11	0.11	0.10		0.000000	White	Transparent	99+%	Octahedral
11	0.20	0.14	0.10		0.000000	White	Transparent	62.5%	Fragment with Crystal Faces, minor cleavages
12	0.20	0.14	0.07		0.000000	White	Translucent	85%	Octahedral, twinned, graphite inclusions, minor cleavages
13	0.17	0.14	0.08		0.000000	White	Translucent	75%	
14	0.20	0.14	0.07		0.000000	White	Translucent	85%	
15	0.20	0.14	0.08		0.000000	White	Translucent	95%	Octahedral, twinned, minor cleavages
16	0.17	0.11	0.05		0.000000	White	Transparent	85%	Octahedral, twinned, graphite coating
16				0.058	0.000290	Sub-Total			
28					0.002650	TOTAL			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

LakefieldResearch

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 11, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 139**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 54.7 kg
Number of Syndites: 0

Total Weight (carats)*: 0.016
Number of Diamonds: 34

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Mezell
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 11, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 139**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	3	2.111	0.011
Stones Described Individually / Group Weighed	-600 / + 425 µm	3	0.640	0.003
	-425 / + 300 µm	2	0.209	0.001
	-300 / +212 µm	1	0.016	0.000
	-212 / +150 µm	9	0.133	0.001
	-150 / +100 µm	16	0.058	0.000
	TOTAL	34	3.167	0.016

Sample Weight: 54.7 kg
Number of Syndites: 0

Total Weight (carats)*: 0.016
Number of Diamonds: 34

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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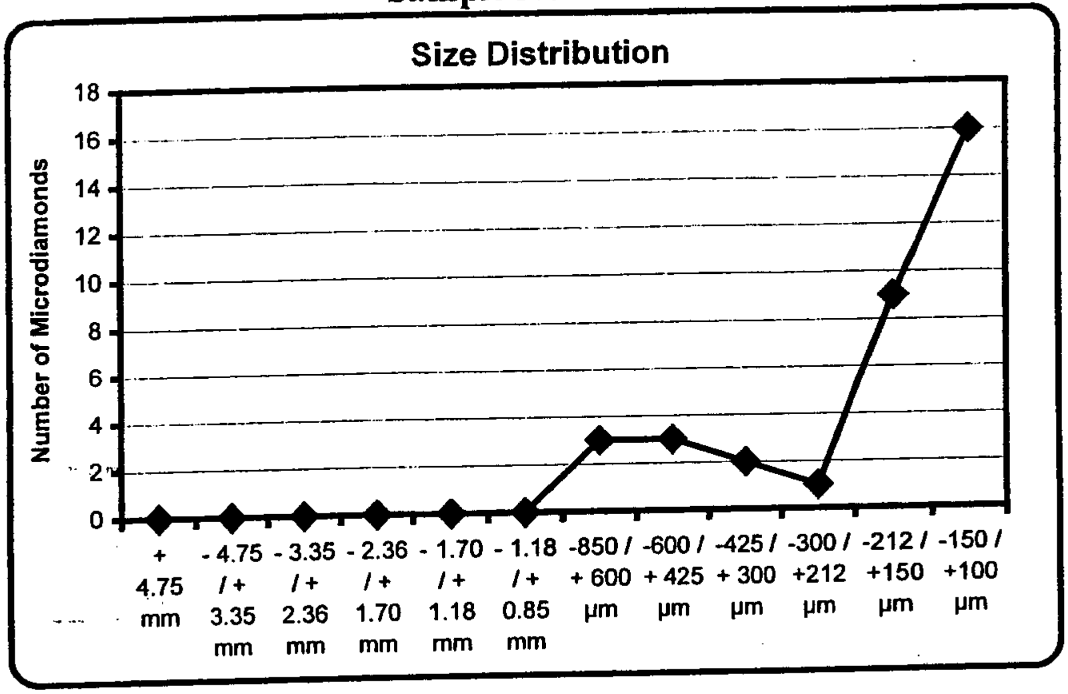
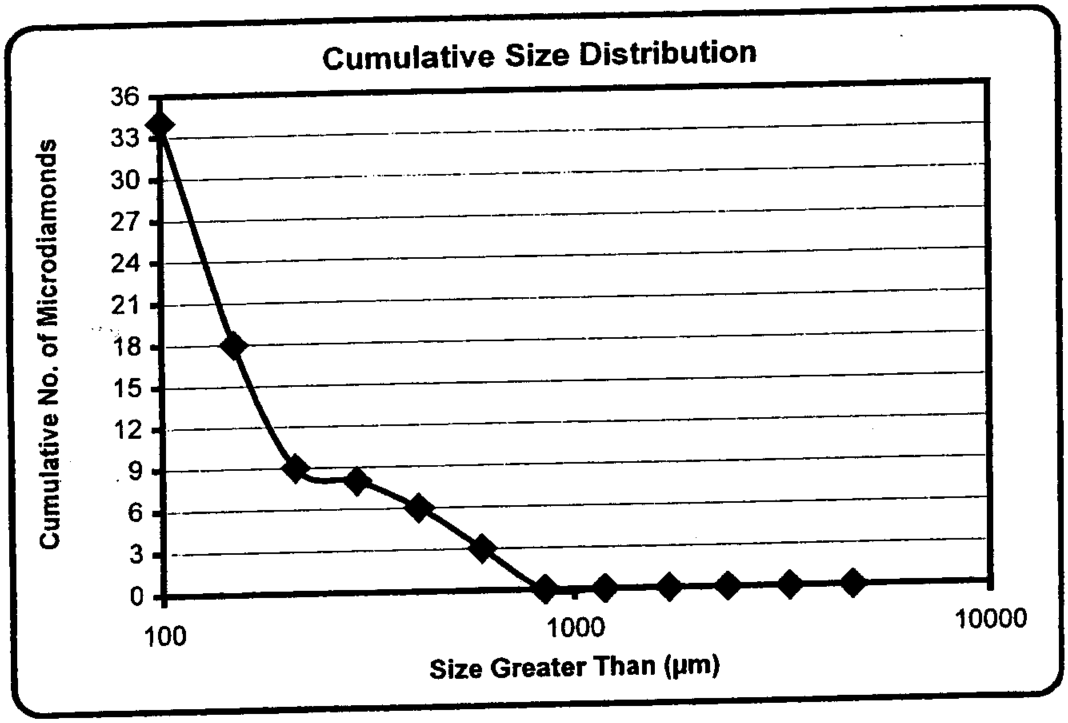
Sample No. JI 139





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October 11, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0006.R00**
Sample No. **JI 139**
Sample Weight: 54.7 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 µm fraction									
1	1.17	0.91	0.42	0.809	0.004045	Off White	Transparent	85%	Dodecahedral surface fragment
2	1.11	1.08	0.49	0.730	0.003650	Brown	Transparent	75%	Fragment with Crystal Faces, significant cleavages
3	0.86	0.74	0.50	0.572	0.002860	Brown	Transparent	75%	Fragment with Crystal Faces, minor cleavages
3				2.111	0.010555	**Sub-Total**			

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October 11, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 139**
Sample Weight: 54.7 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
1	0.63	0.57	0.44		0.000000	White	Transparent	62.5%	Tetrahexahedral surface fragment
2	0.60	0.48	0.31		0.000000	White	Transparent	95%	Octahedral, twinned, graphite coating
3	0.60	0.51	0.30		0.000000	Brown	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
3				0.640	0.003200	**Sub-Total**			
-425 / + 300 µm fraction									
1	0.83	0.43	0.28		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
2	0.43	0.37	0.29		0.000000	White	Transparent	Note 1	Octahedral, twinned, stepped faces, graphite coating
2				0.209	0.001045	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.40	0.37	0.15		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
1				0.016	0.000080	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.17	0.17	0.18		0.000000	Off White	Transparent	99+%	Octahedral
2	0.31	0.20	0.16		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages, graphite coating
3	0.29	0.20	0.11		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite coating
4	0.20	0.17	0.08		0.000000	White	Transparent	95%	Octahedral, twinned, graphite coating
5	0.37	0.23	0.15		0.000000	White	Translucent	85%	Octahedral, twinned, stepped faces
6	0.23	0.23	0.18		0.000000	Brown	Transparent	85%	Fragment with Crystal Faces, very minor cleavages
7	0.29	0.17	0.13		0.000000	White	Transparent	95%	Octahedral, twinned, graphite inclusions

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Project: **8901-221**

LIMS No. **SEP0006.R00**
Sample No. **JI 139**
Sample Weight: 54.7 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
8	0.60	0.26	0.15		0.000000	Brown	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
9	0.60	0.20	0.16		0.000000	Brown	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
9				0.133	0.000665	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.23	0.11	0.10		0.000000	White	Transparent	99+%	Octahedral, twinned
2	0.31	0.17	0.09		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
3	0.20	0.11	0.09		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
4	0.29	0.20	0.12		0.000000	White	Transparent	95%	Octahedral, twinned, graphite coating
5	0.26	0.14	0.06		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
6	0.26	0.17	0.10		0.000000	Grey	Opaque	Note 1	Fragment on which crystal faces unrecognizable, frosted, graphite inclusions
7	0.20	0.11	.0.10		0.000000	White	Translucent	85%	Octahedral, twinned
8	0.20	0.11	0.09		0.000000	White	Transparent	75%	Fragment with Crystal Faces, minor cleavages, graphite coating
9	0.17	0.17	0.07		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
10	0.17	0.14	0.10		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
11	0.17	0.17	0.09		0.000000	Brown	Transparent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages
12	0.17	0.11	0.10		0.000000	White	Transparent	95%	Octahedral, twinned
13	0.17	0.11	0.09		0.000000	White	Transparent	95%	Octahedral, twinned
14	0.17	0.14	0.07		0.000000	White	Opaque	85%	Aggregate, graphite coating
15	0.14	0.14	0.08		0.000000	White	Transparent	85%	Fragment with Crystal Faces, graphite coating, very minor cleavages
16	0.11	0.11	0.04		0.000000	White	Transparent	99+%	Macle
16				0.058	0.000290	**Sub-Total**			
34					0.015835	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 6, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 151**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 52.55 kg
Number of Syndites: 0

Total Weight (carats)*: 0.003
Number of Diamonds: 18

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 6, 2000
LIMS No. **SEP0006.R00**
Sample No. **JI 151**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	1	0.242	0.001
	-425 / + 300 µm	2	0.173	0.001
	-300 / +212 µm	1	0.083	0.000
	-212 / +150 µm	6	0.053	0.000
	-150 / +100 µm	8	0.049	0.000
	TOTAL	18	0.600	0.003

Sample Weight: 52.55 kg
Number of Syndites: 0

Total Weight (carats)*: 0.003
Number of Diamonds: 18

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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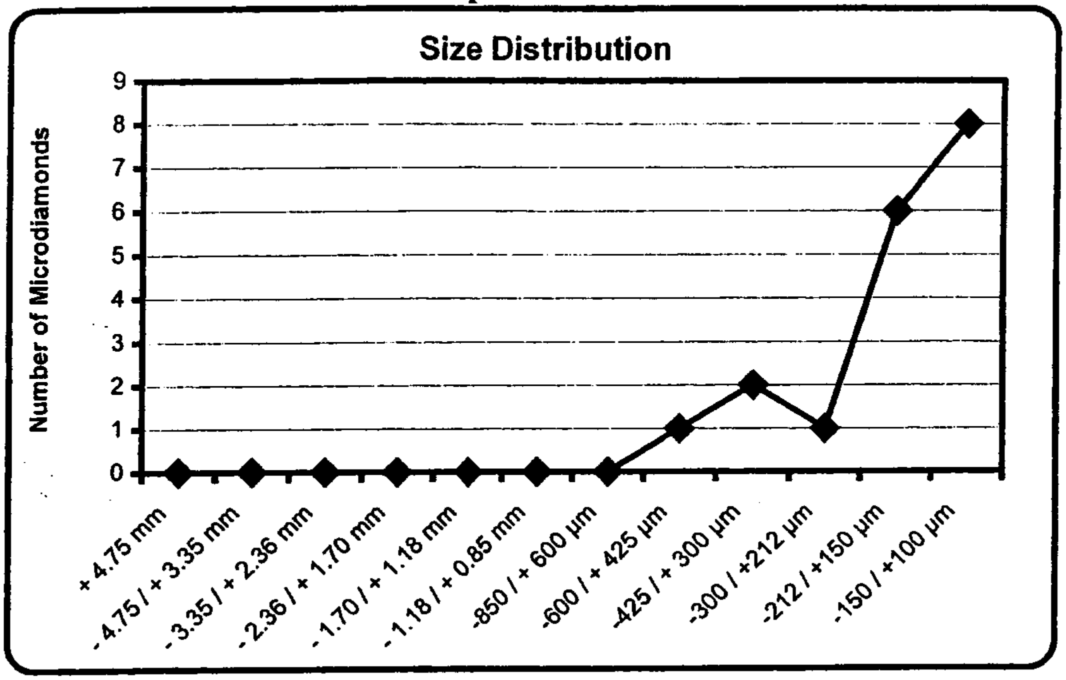
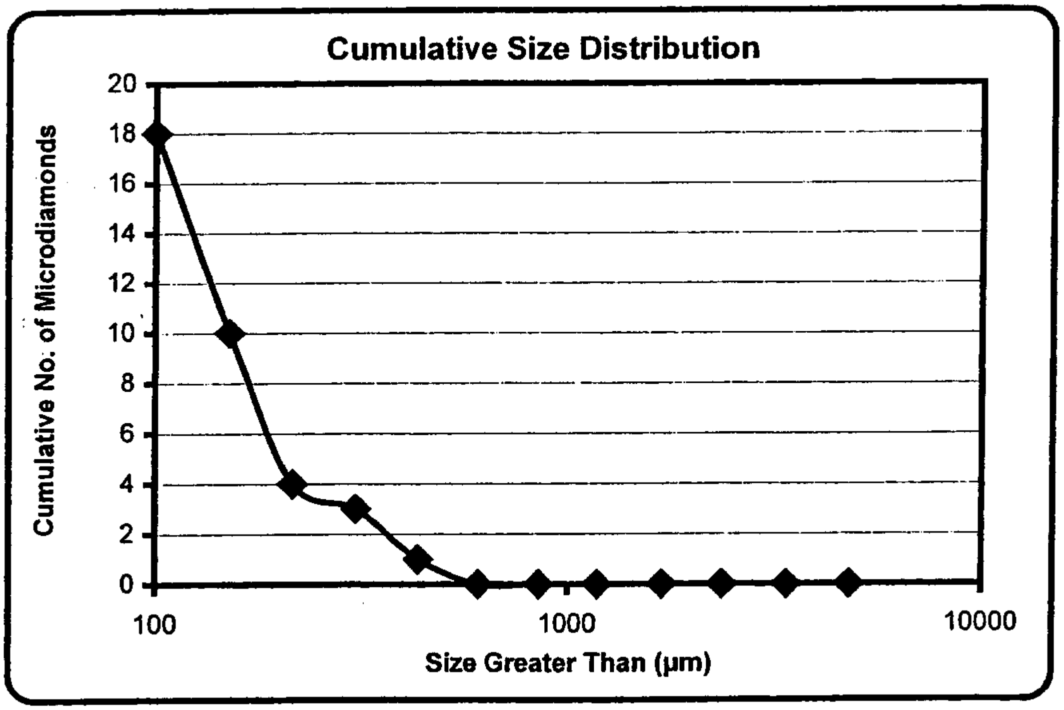
Sample No. JI 151





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October 6, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 151**
Sample Weight: 52.55 kg

No.	Stone Dimension, mm X	Y	Z	Weight mg	Carats	Colour	Clarity	Percent Preservation	Stone Description Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 6, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 151**
Sample Weight: 52.55 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
1	0.83	0.57	0.31		0.000000	White	Transparent	75%	Fragment with Crystal Faces, minor cleavages
1				0.242	0.001210	**Sub-Total**			
-425 / + 300 µm fraction									
1	0.37	0.34	0.30		0.000000	Off White	Translucent	75%	Aggregate, graphite inclusions, very minor cleavages
1	0.43	0.31	0.23		0.000000	White	Transparent	99+%	Octahedral
2				0.173	0.000865	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.40	0.26	0.21		0.000000	White	Transparent	99+%	Octahedral
1				0.083	0.000415	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.34	0.23	0.12		0.000000	White	Transparent	95%	Macle, twinned, graphite coating
2	0.34	0.23	0.12		0.000000	White	Transparent	95%	Octahedral, graphite coating, very minor cleavages
3	0.23	0.23	0.16		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
4	0.29	0.26	0.20		0.000000	White	Transparent	99+%	Octahedral
5	0.20	0.20	0.12		0.000000	White	Transparent	99+%	Octahedral, graphite coating, very minor cleavages
6	0.20	0.17	0.17		0.000000	White	Translucent	95%	Octahedral, twinned, partially frosted
6				0.053	0.000265	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.17	0.17	0.11		0.000000	White	Transparent	95%	Octahedral, graphite coating
2	0.17	0.17	0.10		0.000000	White	Transparent	99+%	Octahedral, graphite coating

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0006.R00**
Sample No. **JI 151**
Sample Weight: 52.55 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
3	0.20	0.17	0.09		0.000000	White	Transparent	95%	Octahedral, twinned
4	0.20	0.14	0.10		0.000000	White	Transparent	95%	Fragment with Crystal Faces, very minor cleavages
5	0.14	0.11	0.12		0.000000	White	Translucent	85%	Octahedral, graphite coating, very minor cleavages
6	0.14	0.14	0.12		0.000000	White	Transparent	85%	Fragment with Crystal Faces, partially frosted
7	0.20	0.17	0.11		0.000000	White	Translucent	85%	Octahedral, twinned, stepped faces
8	0.20	0.17	0.12		0.000000	Off White	Translucent	99+%	Macle, graphite inclusions
8				0.049	0.000245	**Sub-Total**			

18		0.003000	**TOTAL**

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

LakefieldResearch

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 1, 2000
LIMS No. **Oct0003.R00**
Sample No. **JT 151(Sep0006)**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 27.85 kg
Number of Syndites: 2

Total Weight (carats)*: 0.006
Number of Diamonds: 13

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Hill
Selection and Description
for Robert Buchan
Consulting Mineralogist

M. Mezei
Quality Control
Maria Mezei
Diamond Selection Specialist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve: +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 1, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 151(Sep0006)**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	1	1.000	0.005
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	5	0.125	0.001
	-212 / +150 µm	7	0.069	0.000
	-150 / +100 µm	0	0.000	0.000
	TOTAL	13	1.194	0.006

Sample Weight: 27.85 kg
Number of Syndites: 0

Total Weight (carats)*: 0.006
Number of Diamonds: 13

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Hiel

Selection and Description
for Robert Buchan
Consulting Mineralogist

M. Mezei

Quality Control
Maria Mezei
Diamond Selection Specialist

Note:
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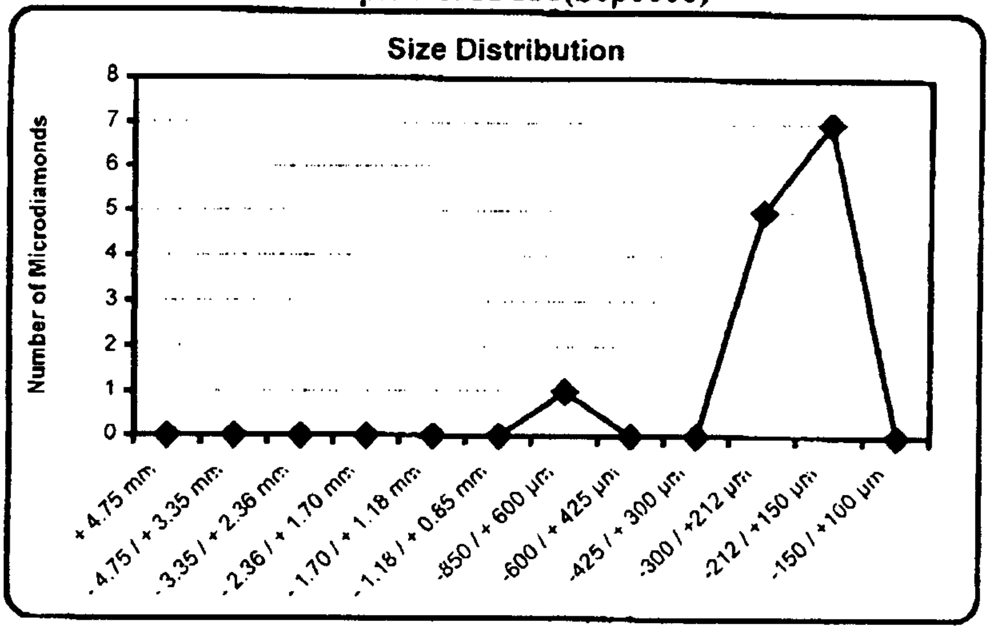
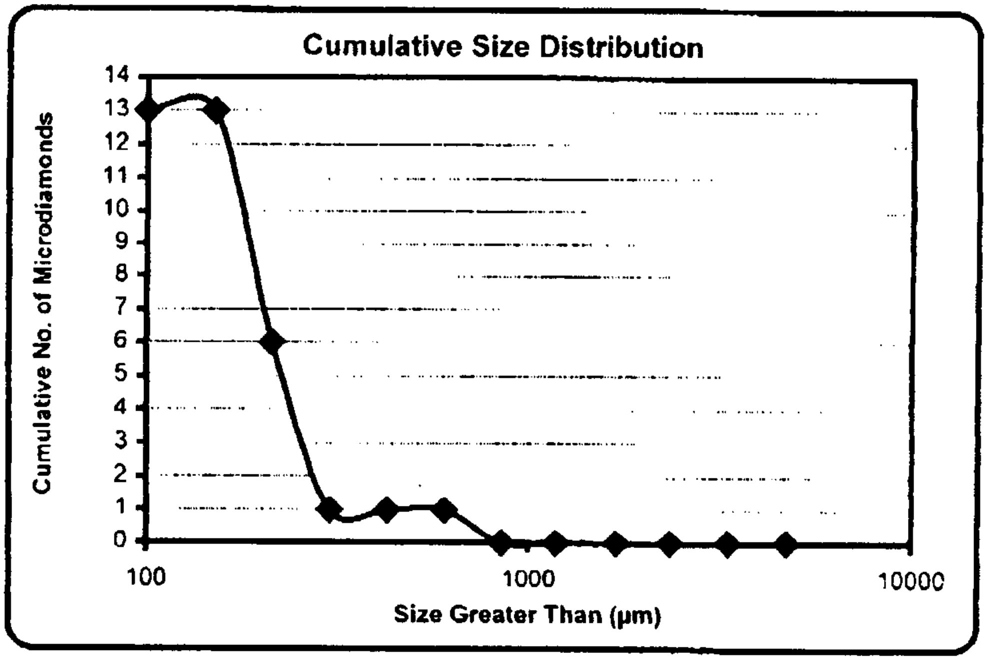
Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. JI 151(Sep0006)





LAKEFIELD RESEARCH LIMITED

November 1, 2000

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Oct0003.R00**
Sample No. **JI 151(Sep0006)**
Sample Weight: 27.85 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 μm fraction									
0	1.03	0.86	0.49	1.000	0.005000	Brown	Transparent	1-55%	Tetrahexahedral, graphite inclusion, significant cleavages
1				1.000	0.005000	**Sub-Total**			

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 151(Sep0006)**
Sample Weight: 27.85 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.29	0.29	0.18		0.000000	White	Transparent	85%	Fragment with Crystal Faces, graphite coating, graphite inclusion, significant cleavages
2	0.40	0.31	0.25		0.000000	White	Transparent	85%	Octahedral, stepped faces, minor cleavages
3	0.31	0.26	0.19		0.000000	White	Transparent	85%	Octahedral, graphite coating, minor cleavages, twinned
4	0.20	0.20	0.09		0.000000	Brown	Transparent	85%	Fragment with Crystal Faces, significant cleavages, graphite inclusions
5	0.20	0.14	0.07		0.000000	Grey	Opaque	85%	Octahedral, twinned, graphite coating
5				0.125	0.000625	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.34	0.26	0.08		0.000000	Brown	Transparent	75%	Fragment with Crystal Faces, very minor cleavages
2	0.26	0.17	0.11		0.000000	Brown	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
3	0.23	0.23	0.14		0.000000	White	Transparent	62.5%	Fragment with Crystal Faces, significant cleavages
4	0.23	0.20	0.15		0.000000	White	Transparent	95%	Octahedral, graphite coating, very minor cleavages
5	0.23	0.17	0.08		0.000000	White	Transparent	95%	Octahedral, very minor cleavages
6	0.14	0.14	0.13		0.000000	White	Transparent	95%	Octahedral, twinned
7	0.14	0.11	0.11		0.000000	White	Transparent	95%	Octahedral, twinned

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November 1, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 151(Sep0006)**
Sample Weight: 27.85 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
7				0.069	0.000345	**Sub-Total**			
	-150 / + 100 μm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
13					0.005970	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

ANNEX 6

Lakefield Research Limited reports - Diamond Recovery by Caustic Dissolution for Trench JI-2 samples JI 229, JI 231, JI 234 and JI 270

September-November 2000

Samples submitted by Twin Mining Corporation

Lakefield Research

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 19,2000
LIMS No. **SEP0007.R00**
Sample No. **JI 229**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Rock fragments and silicates
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides, rock fragments, and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 61.75 kg
Number of Syndites: 0

Total Weight (carats)*: 0.052
Number of Diamonds: 2

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 19,2000
LIMS No. **SEP0007.R00**
Sample No. **JI 229**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	1	8.225	0.041
	- 1.18 / + 0.85 mm	1	2.086	0.010
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	0	0.000	0.000
	-212 / +150 µm	0	0.000	0.000
	-150 / +100 µm	0	0.000	0.000
	TOTAL	2	10.311	0.052

Sample Weight: 61.75 kg
Number of Syndites: 0

Total Weight (carats)*: 0.052
Number of Diamonds: 2

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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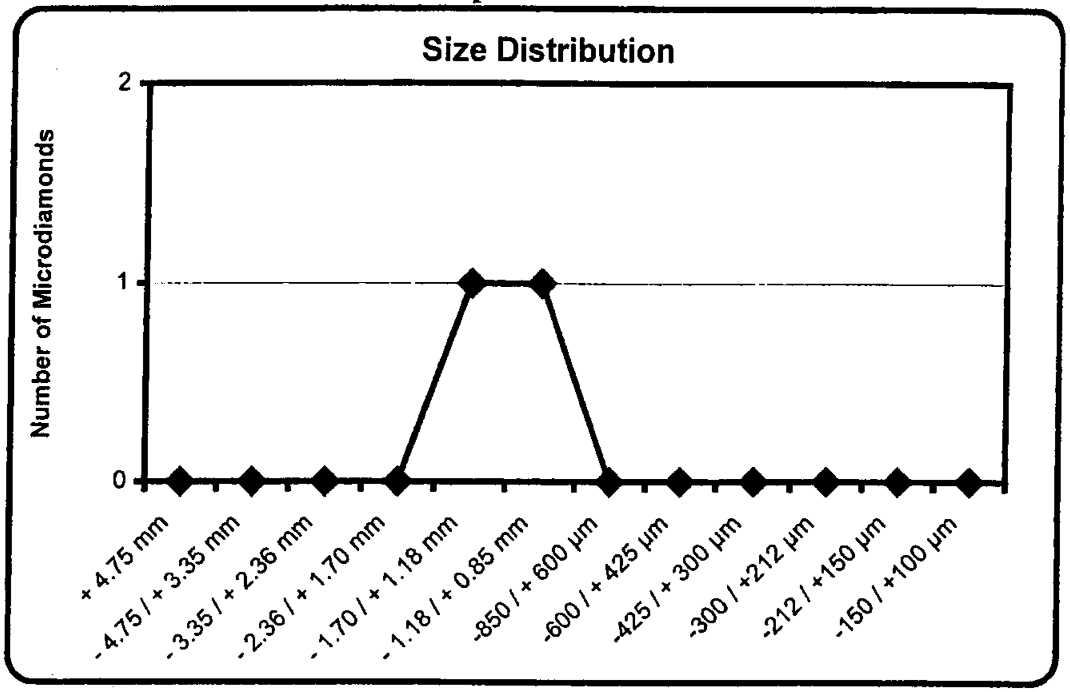
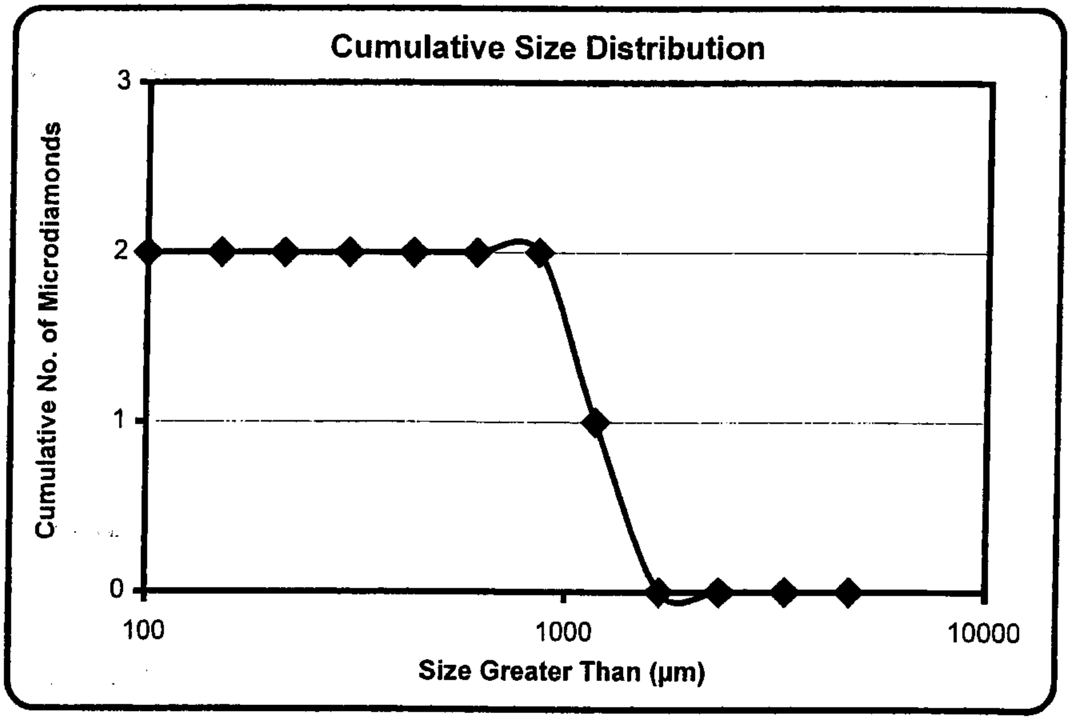
Sample No. JI 229





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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

Date: October 19, 2000
LIMS No. **SEP0007.R00**
Sample No. **JI 231**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 59.55 kg
Number of Syndites: 0

Total Weight (carats)*: 0.002
Number of Diamonds: 24

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 19, 2000
LIMS No. **SEP0007.R00**
Sample No. **JI 231**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	4	0.159	0.001
	-212 / +150 µm	8	0.149	0.001
	-150 / +100 µm	12	0.065	0.000
	TOTAL	24	0.373	0.002

Sample Weight: 59.55 kg
Number of Syndites: 0

Total Weight (carats)*: 0.002
Number of Diamonds: 24

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

M. Mezei !
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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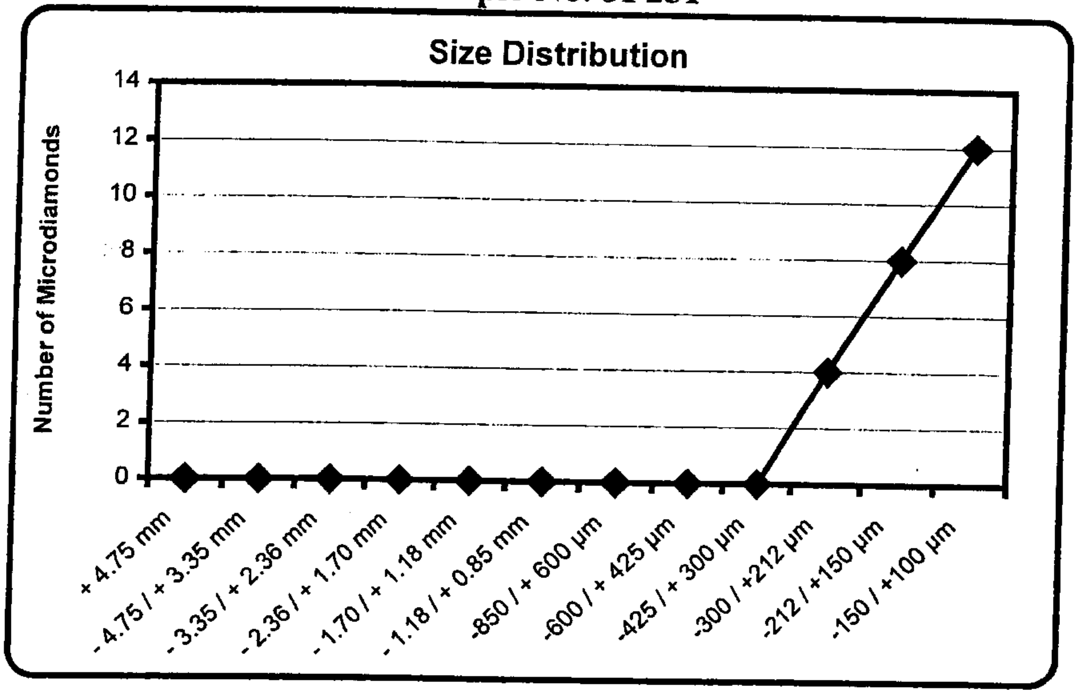
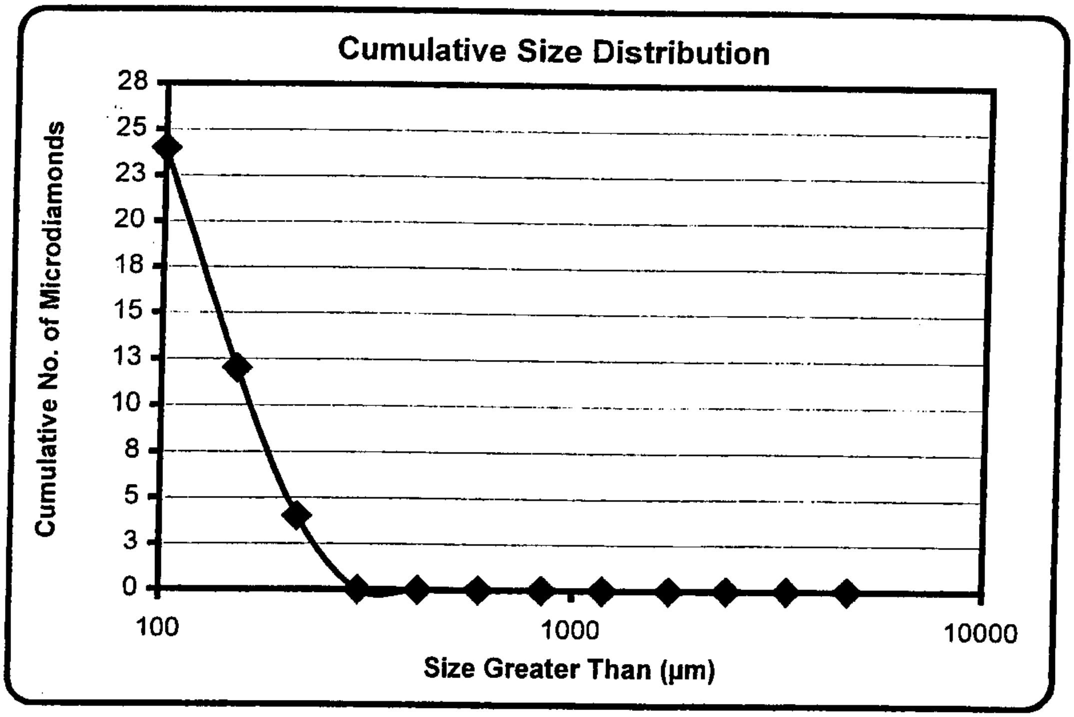
Sample No. JI 231





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October 19, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0007.R00**
Sample No. **JI 231**
Sample Weight: 59.55 kg

No.	Stone Dimension, mm			Weight				Percent Preservation	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity		Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 19. 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0007.R00**
Sample No. **JI 231**
Sample Weight: 59.55 kg

No.	Stone Dimension, mm			Weight				Percent Preservation	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity		Morphology
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.54	0.31	0.10		0.000000	White	Transparent	62.5%	Fragment with Crystal Faces, minor cleavages
2	0.43	0.29	0.15		0.000000	White	Transparent	62.5%	Fragment with Crystal Faces, minor cleavages
3	0.43	0.29	0.11		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
4	0.43	0.26	0.15		0.000000	White	Translucent	85%	Irregular, graphite inclusions
4				0.159	0.000795	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.57	0.20	0.13		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
2	0.31	0.20	0.15		0.000000	White	Transparent	95%	Octahedral, twinned
3	0.23	0.23	0.10		0.000000	White	Transparent	95%	Octahedral, twinned
4	0.23	0.20	0.08		0.000000	White	Transparent	95%	Octahedral, twinned
5	0.29	0.20	0.07		0.000000	White	Translucent	99+%	Octahedral, twinned, graphite coating
6	0.20	0.14	0.09		0.000000	White	Transparent	95%	Octahedral, graphite inclusions
7	0.17	0.14	0.12		0.000000	White	Transparent	62.5%	Fragment with Crystal Faces, minor cleavages
8	0.26	0.14	0.13		0.000000	White	Transparent	95%	Octahedral, twinned, stepped faces
8				0.149	0.000745	**Sub-Total**			

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October 19, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0007.R00**
Sample No. **JI 231**
Sample Weight: 59.55 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-150 / + 100 µm fraction									
1	0.17	0.11	0.05		0.000000	White	Transparent	99+%	Octahedral
2	0.17	0.11	0.08		0.000000	White	Transparent	99+%	Octahedral, twinned
3	0.17	0.14	0.06		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite coating
4	0.20	0.11	0.06		0.000000	White	Transparent	95%	Octahedral, twinned, stepped faces
5	0.14	0.14	0.07		0.000000	White	Transparent	95%	Octahedral, twinned
6	0.14	0.14	0.07		0.000000	White	Transparent	85%	Octahedral, twinned
7	0.14	0.11	0.09		0.000000	White	Transparent	95%	Octahedral, twinned
8	0.11	0.11	0.07		0.000000	White	Transparent	99+%	Octahedral, twinned
9	0.20	0.11	0.06		0.000000	White	Transparent	99+%	Octahedral, twinned
10	0.20	0.17	0.07		0.000000	White	Transparent	99+%	Octahedral, twinned
11	0.17	0.14	0.13		0.000000	White	Transparent	99+%	Octahedral
12	0.14	0.11	0.10		0.000000	White	Transparent	99+%	Octahedral
12				0.065	0.000325	**Sub-Total**			
24					0.001865	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

LakefieldResearch

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 231**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 26.88 kg
Number of Syndites: 0

Total Weight (carats)*: 0.009
Number of Diamonds: 19

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Diamond Selection Specialist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve, +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 231**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 μm	1	1.216	0.006
Stones Described Individually / Group Weighed	-600 / + 425 μm	1	0.280	0.001
	-425 / + 300 μm	1	0.092	0.000
	-300 / +212 μm	1	0.068	0.000
	-212 / +150 μm	4	0.071	0.000
	-150 / +100 μm	11	0.056	0.000
	TOTAL	19	1.783	0.009

Sample Weight: 26.88 kg
Number of Syndites: 0

Total Weight (carats)*: 0.009
Number of Diamonds: 19

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Diamond Selection Specialist

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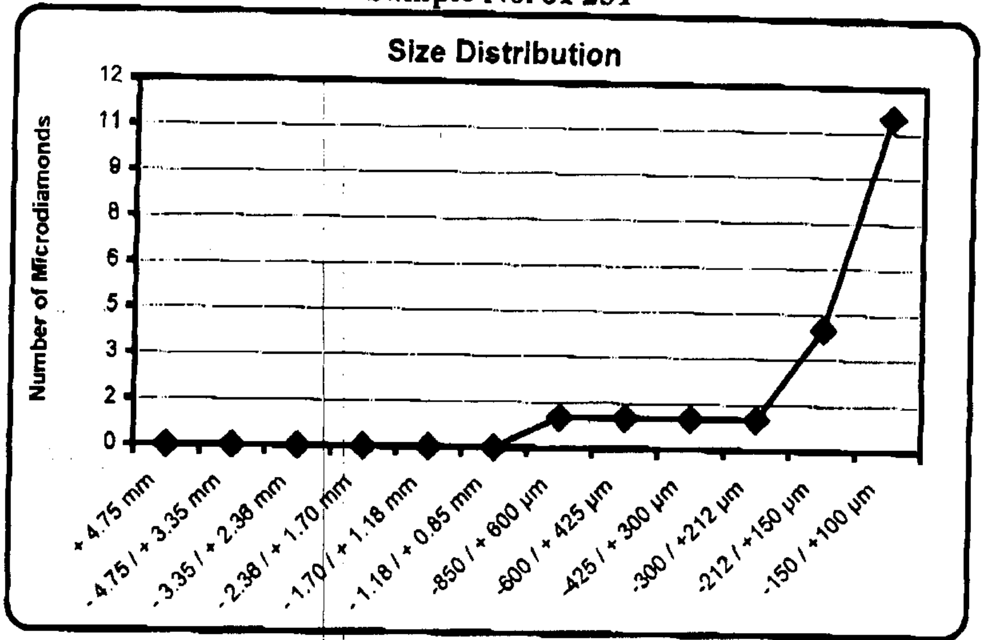
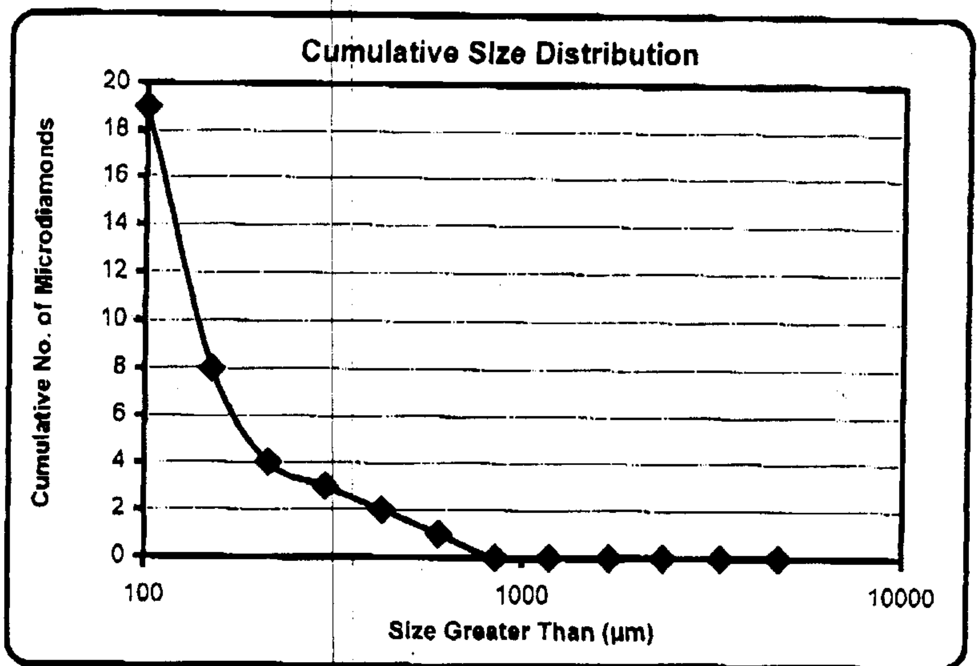
Sample No. JI 231





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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 231**
Sample Weight: 26.88 kg

No.	Stone Dimension, mm X	Y	Z	Weight mg	Carats	Colour	Clarity	Percent Preservation	Stone Description Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 µm fraction								
0	1.71	0.86	0.50	1.216	0.006080	White	Transparent	85%	Fragment with Crystal Faces, significant cleavages
1				1.216	0.006080	**Sub-Total**			

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November 14, 2000

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 231**
Sample Weight: 26.88 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	-600 / + 425 µm fraction								
1	0.63	0.51	0.44		0.000000	White	Transparent	99+%	Octahedral, stepped faces, graphite inclusions
1				0.280	0.001400	**Sub-Total**			
	-425 / + 300 µm fraction								
1	0.40	0.31	0.36		0.000000	White	Transparent	99+%	Octahedral, stepped faces
1				0.092	0.000460	**Sub-Total**			
	-300 / + 212 µm fraction								
1	0.37	0.29	0.20		0.000000	White	Transparent	99+%	Octahedral, stepped faces
1				0.068	0.000340	**Sub-Total**			
	-212 / + 150 µm fraction								
1	0.29	0.26	0.18		0.000000	White	Transparent	99+%	Octahedral
2	0.26	0.23	0.16		0.000000	White	Transparent	99+%	Macle
3	0.29	0.17	0.11		0.000000	White	Transparent	95%	Octahedral, twinned, graphite inclusions
4	0.26	0.20	0.16		0.000000	White	Transparent	99+%	Octahedral, twinned
4				0.071	0.000355	**Sub-Total**			
	-150 / + 100 µm fraction								
1	0.31	0.17	0.13		0.000000	White	Transparent	99+%	Octahedral, twinned
2	0.20	0.17	0.14		0.000000	White	Transparent	99+%	Octahedral
3	0.23	0.20	0.06		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
4	0.23	0.14	0.05		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
5	0.20	0.11	0.06		0.000000	White	Transparent	75%	Fragment with Crystal Faces, twinned, very minor cleavages

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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 231**
Sample Weight: 26.88 kg

No.	Stone Dimension, mm			Weight		Colour	Clarity	Percent Preservation	Stone Description Morphology
	X	Y	Z	mg	Carats				
6	0.17	0.14	0.10		0.000000	White	Transparent	95%	Octahedral
7	0.14	0.14	0.13		0.000000	White	Transparent	99+%	Octahedral
8	0.14	0.11	0.11		0.000000	White	Transparent	95%	Fragment with Crystal Faces, minor cleavages
9	0.11	0.11	0.12		0.000000	White	Transparent	95%	Octahedral, stepped faces
10	0.11	0.09	0.03		0.000000	White	Transparent	95%	Fragment with Crystal Faces, very minor cleavages
11	0.14	0.11	0.07		0.000000	White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages, graphite coating
11				0.056	0.000280	**Sub-Total**			

19		0.008915	**TOTAL**

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 16, 2000
LIMS No. **SEP0007.R00**
Sample No. **JI 234**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 57.26 kg
Number of Syndites: 0

Total Weight (carats)*: 0.007
Number of Diamonds: 31

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 16, 2000
LIMS No. **SEP0007.R00**
Sample No. **JI 234**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	1	0.767	0.004
Stones Described Individually / Group Weighed	-600 / + 425 µm	1	0.192	0.001
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	6	0.245	0.001
	-212 / +150 µm	6	0.111	0.001
	-150 / +100 µm	17	0.073	0.000
	TOTAL	31	1.388	0.007

Sample Weight: 57.26 kg
Number of Syndites: 0

Total Weight (carats)*: 0.007
Number of Diamonds: 31

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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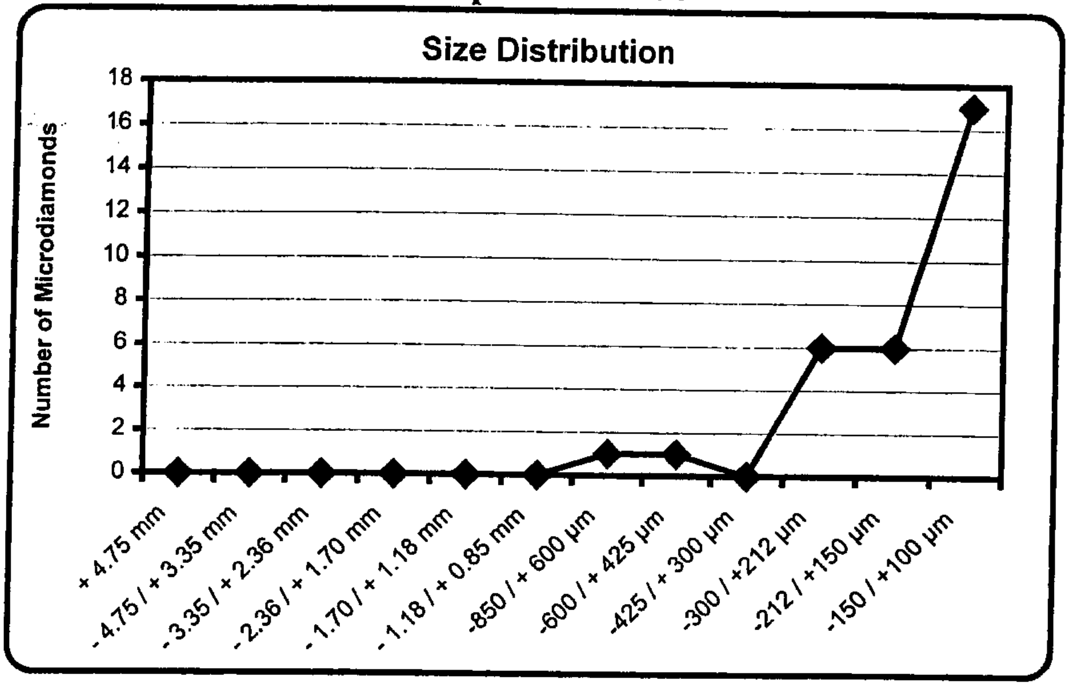
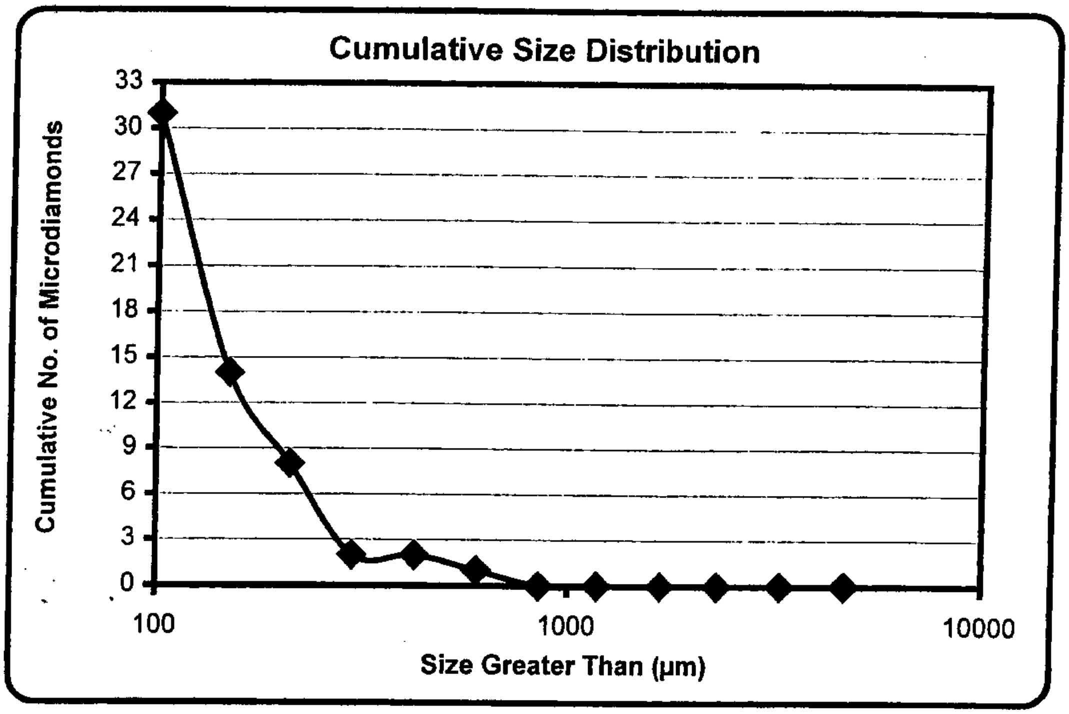
Sample No. JI 234





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October 16, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0007.R00**
Sample No. **JI 234**
Sample Weight: 57.26 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 μm fraction								
0	0.91	0.80	0.60	0.767	0.003835	Off White	Translucent	85%	Octahedral, twinned, stepped faces, graphite coating
1				0.767	0.003835	**Sub-Total**			

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0007.R00**
Sample No. **JI 234**
Sample Weight: 57.26 kg

No.	Stone Dimension, mm			Weight		Colour	Clarity	Percent Preservation	Stone Description
	X	Y	Z	mg	Carats				Morphology
	-600 / + 425 µm fraction								
0	0.48	0.48	0.41		0.000000	Off White	Transparent	99+%	Octahedral, twinned
1				0.192	0.000960	**Sub-Total**			
	-425 / + 300 µm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-300 / + 212 µm fraction								
1	0.43	0.43	0.20		0.000000	Off White	Transparent	99+%	Macle, twinned
2	0.54	0.29	0.26		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages, graphite inclusions
3	0.48	0.37	0.15		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
4	0.31	0.29	0.21		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
5	0.34	0.31	0.15		0.000000	White	Opaque	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages, frosted
6	0.34	0.23	0.10		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages, graphite coating
6				0.245	0.001225	**Sub-Total**			
	-212 / + 150 µm fraction								
1	0.29	0.23	0.20		0.000000	White	Transparent	95%	Octahedral, twinned
2	0.29	0.20	0.20		0.000000	White	Transparent	85%	Octahedral, twinned, stepped faces
3	0.29	0.23	0.19		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages, partially frosted, graphite coating
4	0.26	0.26	0.18		0.000000	White	Transparent	95%	Macle, twinned, graphite inclusions
5	0.31	0.29	0.12		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
6	0.29	0.26	0.10		0.000000	White	Transparent	95%	Octahedral, twinned, stepped faces
6				0.111	0.000555	**Sub-Total**			

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October 16, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0007.R00**
Sample No. **JI 234**
Sample Weight: 57.26 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm X	Y	Z	Weight mg	Carats	Colour	Clarity	Percent Preservation	Stone Description Morphology
-150 / + 100 µm fraction									
1	0.26	0.20	0.19		0.000000	White	Transparent	95%	Octahedral, twinned, graphite coating
2	0.23	0.20	0.12		0.000000	White	Translucent	95%	Octahedral, partially frosted, graphite coating
3	0.26	0.17	0.15		0.000000	White	Transparent	62.5%	Fragment with Crystal Faces, minor cleavages
4	0.43	0.23	0.05		0.000000	Pink	Transparent	95%	Macle
5	0.20	0.11	0.04		0.000000	White	Transparent	95%	Macle, twinned
6	0.26	0.14	0.08		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
7	0.23	0.14	0.08		0.000000	White	Transparent	95%	Octahedral, twinned
8	0.17	0.14	0.07		0.000000	White	Transparent	99+%	Octahedral, twinned
9	0.37	0.14	0.10		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
10	0.14	0.11	0.09		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages
11	0.14	0.14	0.15		0.000000	White	Transparent	95%	Octahedral, graphite coating, minor cleavages
12	0.17	0.14	0.10		0.000000	White	Translucent	85%	Fragment with Crystal Faces, twinned, very minor cleavages
13	0.17	0.14	0.14		0.000000	White	Transparent	99+%	Octahedral
14	0.20	0.17	0.11		0.000000	White	Transparent	95%	Octahedral, twinned, very minor cleavages
15	0.17	0.14	0.08		0.000000	White	Transparent	85%	Fragment with Crystal Faces, graphite coating, very minor cleavages
16	0.14	0.11	0.10		0.000000	White	Transparent	99+%	Macle, very minor cleavages
17	0.11	0.11	0.09		0.000000	White	Transparent	99+%	Macle, twinned
17				0.073	0.000365	**Sub-Total**			
31					0.006940	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 234**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 25.45 kg
Number of Syndites: 0

Total Weight (carats)*: 0.000
Number of Diamonds: 11

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

R. Chezeu!
Quality Control
for. Robert Buchan
Consulting Mineralogist

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 234**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 μm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 μm	0	0.000	0.000
	-425 / + 300 μm	0	0.000	0.000
	-300 / +212 μm	1	0.020	0.000
	-212 / +150 μm	3	0.029	0.000
	-150 / +100 μm	7	0.027	0.000
	TOTAL	11	0.076	0.000

Sample Weight: 25.45 kg
Number of Syndites: 0

Total Weight (carats)*: 0.000
Number of Diamonds: 11

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Meza
Quality Control
for Robert Buchan
Consulting Mineralogist

Note:
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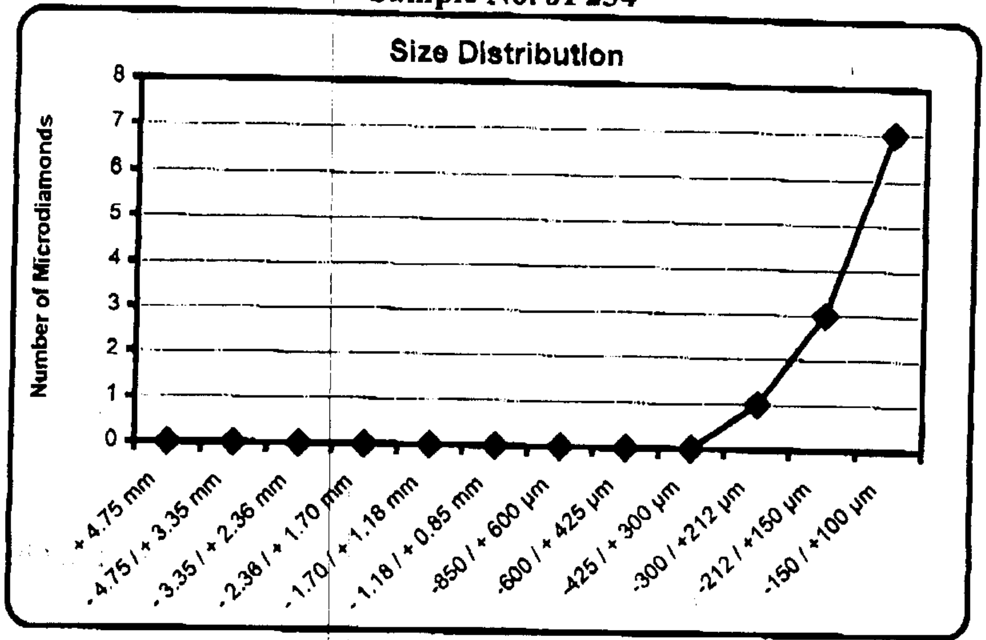
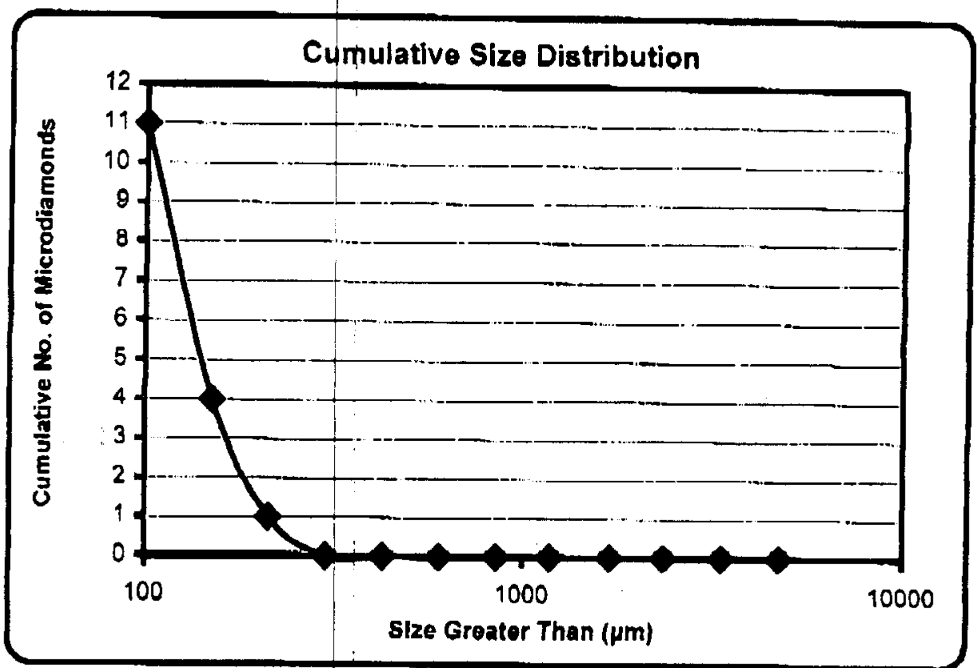
Sample No. JI 234





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Phone: 705-652-2112 E-mail: bjago@lakefield.com
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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 234**
Sample Weight: 25.45 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 234**
Sample Weight: 25.45 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-850 / + 600 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.37	0.31	0.22		0.000000	White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages
1				0.020	0.000100	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.26	0.23	0.16		0.000000	White	Transparent	85%	Fragment with Crystal Faces, stepped faces, twinned, graphite coating
2	0.23	0.20	0.13		0.000000	White	Transparent	99+%	Octahedral
3	0.23	0.23	0.15		0.000000	Off White	Opaque	75%	Cubic
3				0.029	0.000145	**Sub-Total**			

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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Oct0003.R00**
Sample No. **JI 234**
Sample Weight: 25.45 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-150 / + 100 µm fraction									
1	0.29	0.17	0.15		0.000000	White	Transparent	95%	Octahedral, twinned, graphite inclusions
2	0.23	0.14	0.05		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages
3	0.20	0.17	0.11		0.000000	White	Transparent	85%	Fragment with Crystal Faces, twinned, very minor cleavages
4	0.23	0.17	0.04		0.000000	White	Transparent	95%	Macle, twinned, very minor cleavages
5	0.17	0.17	0.11		0.000000	White	Transparent	95%	Octahedral, twinned
6	0.20	0.14	0.07		0.000000	White	Transparent	99+%	Octahedral
7	0.14	0.11	0.10		0.000000	White	Transparent	99+%	Macle
7				0.027	0.000135	**Sub-Total**			
11					0.000380	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

LakefieldResearch

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 16, 2000
LIMS No. **SEP0007.R00**
Sample No. **JI 270**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Rock fragments
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 59.80 kg
Number of Syndites: 0

Total Weight (carats)*: 0.043
Number of Diamonds: 9

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 16, 2000
LIMS No. **SEP0007.R00**
Sample No. **JI 270**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	1	7.005	0.035
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	1	1.258	0.006
Stones Described Individually / Group Weighed	-600 / + 425 µm	1	0.315	0.002
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	0	0.000	0.000
	-212 / +150 µm	2	0.035	0.000
	-150 / +100 µm	4	0.017	0.000
	TOTAL	9	8.630	0.043

Sample Weight: 59.80 kg
Number of Syndites: 0

Total Weight (carats)*: 0.043
Number of Diamonds: 9

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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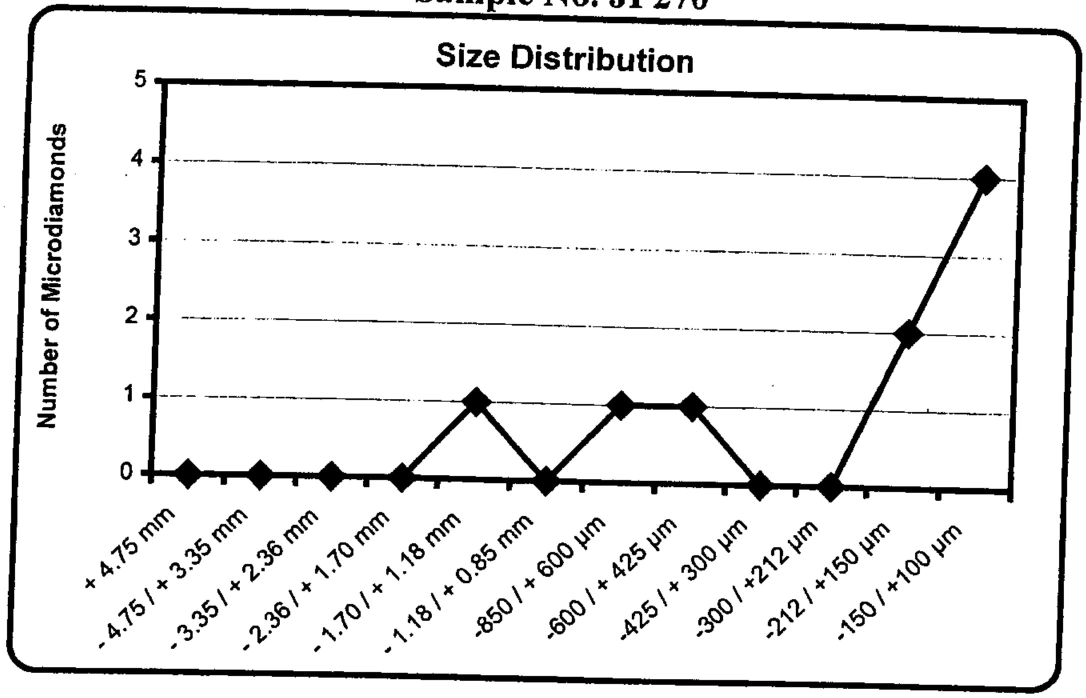
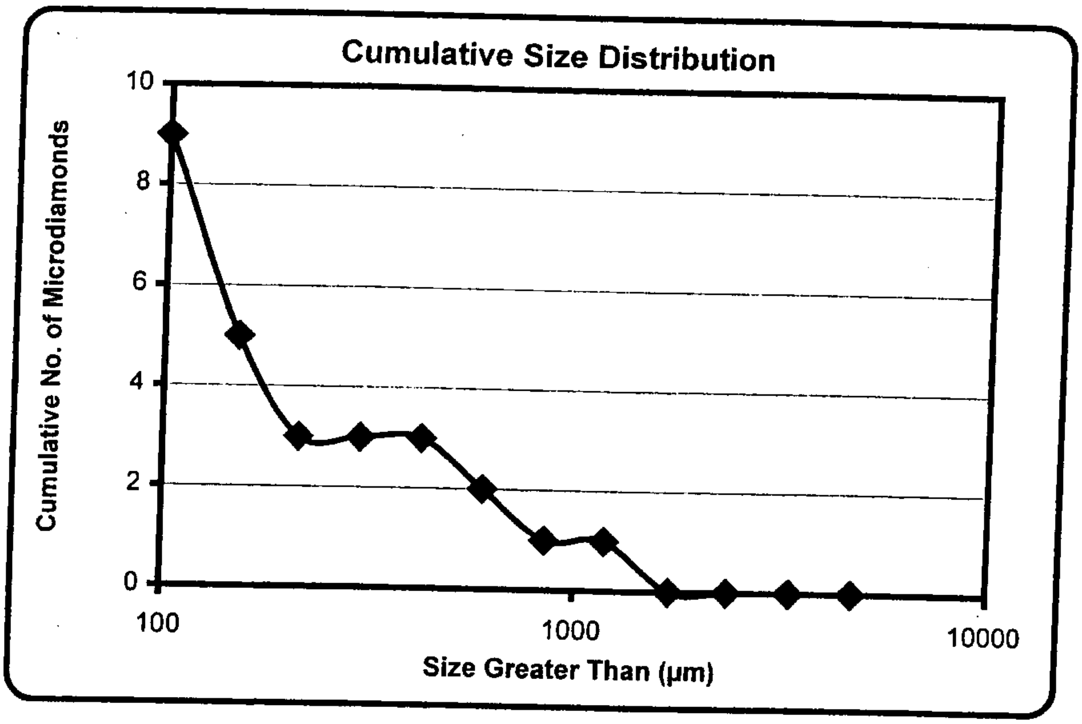
Sample No. JI 270





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October 16, 2000

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0007.R00**
Sample No. **JI 270**
Sample Weight: 59.80 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
1	2.48	2.22	1.01	7.005	0.035025	White	Transparent	85%	Dodecahedral, graphite inclusions
1				7.005	0.035025	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 µm fraction								
1	1.14	0.77	0.40	1.258	0.006290	White	Transparent	99+%	Octahedral, very minor cleavages
1				1.258	0.006290	**Sub-Total**			

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October 16, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0007.R00**
Sample No. **JI 270**
Sample Weight: 59.80 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	-600 / + 425 µm fraction								
1	1.00	0.71	0.26		0.000000	White	Transparent	85%	Fragment with Crystal Faces, significant cleavages, graphite inclusions
1				0.315	0.001575	**Sub-Total**			
	-425 / + 300 µm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-300 / + 212 µm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-212 / + 150 µm fraction								
1	0.46	0.23	0.17		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
2	0.31	0.23	0.12		0.000000	White	Transparent	95%	Octahedral, twinned, very minor cleavages
2				0.035	0.000175	**Sub-Total**			
	-150 / + 100 µm fraction								
1	0.20	0.14	0.06		0.000000	White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages, graphite inclusions
2	0.17	0.14	0.10		0.000000	White	Transparent	95%	Octahedral, twinned, graphite coating
3	0.17	0.14	0.11		0.000000	White	Transparent	99+%	Octahedral, graphite coating
4	0.14	0.14	0.05		0.000000	White	Transparent	99+%	Macle, twinned
4				0.017	0.000085	**Sub-Total**			
9					0.043150	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 13, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 270**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Silicates and graphite

Sample Weight: 89.0 kg
Number of Syndites: 0

Total Weight (carats)*: 0.012
Number of Diamonds: 45

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Hill
Selection and Description
for Robert Buchan
Consulting Mineralogist

M. Mozei
Quality Control
Maria Mozei
Diamond Selection Specialist

Note:
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Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 13, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 270**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	1	1.294	0.006
Stones Described Individually / Group Weighed	-600 / + 425 µm	1	0.150	0.001
	-425 / + 300 µm	3	0.382	0.002
	-300 / +212 µm	9	0.294	0.001
	-212 / +150 µm	11	0.159	0.001
	-150 / +100 µm	20	0.100	0.001
	TOTAL	45	2.379	0.012

Sample Weight: 89.0 kg
Number of Syndites: 0

Total Weight (carats)*: 0.012
Number of Diamonds: 45

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Hill
Selection and Description
for Robert Buchan
Consulting Mineralogist

M. Mezei
Quality Control
Maria Mezei
Diamond Selection Specialist

Note:
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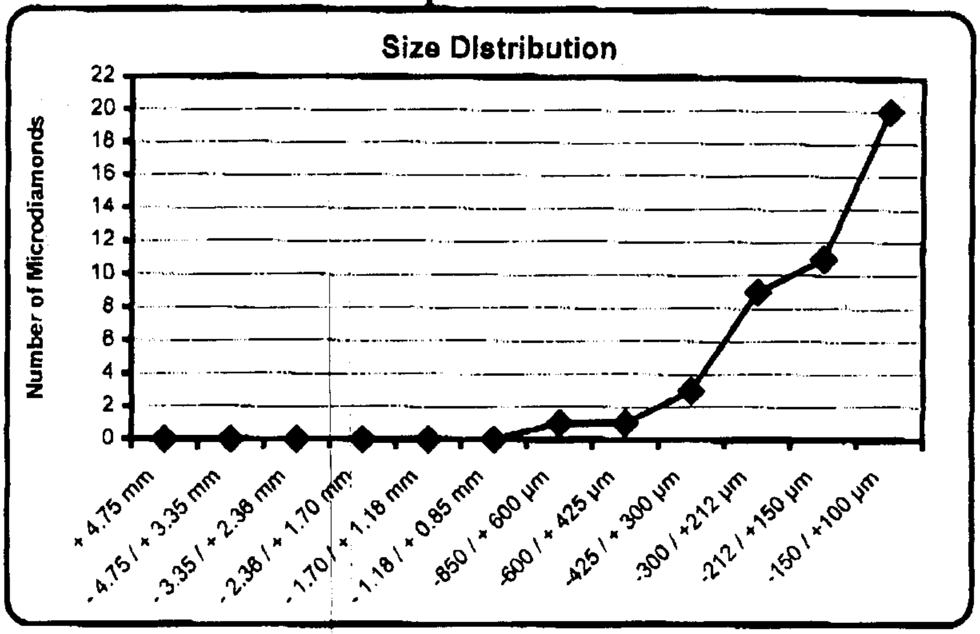
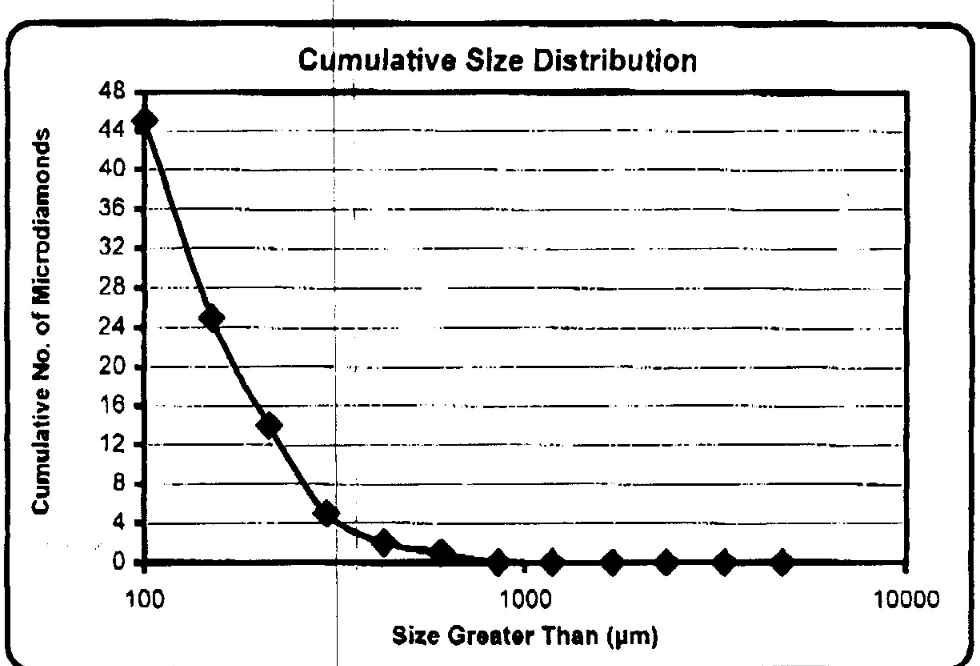
Sample No. JI 270





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November 13, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 270**
Sample Weight: 89.0 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-850 / + 600 μm fraction								
1	1.08	0.74	0.30	0.922	0.004610	White	Transparent	1-55%	Tetrahexahedral, very minor cleavages
2	0.88	0.63	0.38	0.372	0.001860	White	Transparent	95%	Fragment on which crystal faces unrecognizable, graphite inclusion, very significant cleavages
1				1.294	0.006470	Sub-Total			

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November 13, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Oct0003.R00**
Sample No. **JI 270**
Sample Weight: 89.0 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
1	0.46	0.43	0.30		0.000000	Brown	Translucent	62.5%	Fragment with Crystal Faces, minor cleavages
1				0.150	0.000750	**Sub-Total**			
-425 / + 300 µm fraction									
1	0.46	0.46	0.27		0.000000	Brown	Transparent	1-55%	Tetrahexahedral, very minor cleavages
2	0.40	0.34	0.33		0.000000	White	Transparent	1-55%	Tetrahexahedral, frosted, very minor cleavages
3	0.40	0.31	0.29		0.000000	Brown	Translucent	62.5%	Fragment on which crystal faces unrecognizable, minor cleavages
3				0.382	0.001910	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.43	0.29	0.24		0.000000	White	Transparent	95%	Fragment on which crystal faces unrecognizable, graphite inclusion, significant cleavages
2	0.26	0.26	0.23		0.000000	White	Transparent	95%	Octahedral, graphite coating, graphite inclusion, stepped faces
3	0.31	0.20	0.21		0.000000	White	Transparent	85%	Octahedral, graphite coating, graphite inclusion, stepped faces
4	0.29	0.17	0.24		0.000000	White	Transparent	95%	Octahedral, very minor cleavages
5	0.37	0.26	0.11		0.000000	White	Translucent	95%	Fragment on which crystal faces unrecognizable, extreme cleavages
6	0.31	0.23	0.15		0.000000	Grey	Opaque	95%	Aggregate, graphite inclusion, extreme cleavages
7	0.26	0.26	0.16		0.000000	White	Transparent	95%	Fragment with Crystal Faces, graphite inclusion, minor cleavages
8	0.29	0.23	0.22		0.000000	White	Transparent	95%	Fragment with Crystal Faces, very minor cleavages
9	0.31	0.29	0.18		0.000000	White	Transparent	95%	Aggregate, graphite coating, twinned, minor cleavages
9				0.294	0.001470	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.34	0.17	0.13		0.000000	White	Transparent	95%	Fragment with Crystal Faces, very minor cleavages
2	0.17	0.14	0.15		0.000000	White	Transparent	95%	Fragment with Crystal Faces, minor cleavages
3	0.31	0.20	0.18		0.000000	White	Transparent	62.5%	Fragment with Crystal Faces, very minor cleavages
4	0.20	0.20	0.12		0.000000	Brown	Transparent	95%	Octahedral, minor cleavages
5	0.20	0.14	0.13		0.000000	Grey	Translucent	62.5%	Fragment with Crystal Faces, graphite coating, graphite inclusion, minor cleavages

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November 13, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 270**
Sample Weight: 89.0 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
6	0.14	0.14	0.15		0.000000	White	Transparent	85%	Fragment with Crystal Faces, graphite coating, graphite inclusion, significant cleavages
7	0.23	0.14	0.13		0.000000	White	Transparent	95%	Fragment with Crystal Faces, graphite coating, graphite inclusion, very significant cleavages
8	0.20	0.20	0.15		0.000000	Grey	Transparent	62.5%	Fragment with Crystal Faces, graphite coating, graphite inclusion, minor cleavages
9	0.17	0.14	0.21		0.000000	White	Translucent	85%	Octahedral, minor cleavages
10	0.17	0.14	0.13		0.000000	Off White	Transparent	85%	Fragment with Crystal Faces, graphite inclusion, minor cleavages
11	0.23	0.17	0.10		0.000000	White	Transparent	85%	Octahedral, twinned, stepped faces
11				0.159	0.000795	Sub-Total			
-150 / + 100 µm fraction									
1	0.14	0.11	0.09		0.000000	White	Transparent	62.5%	Fragment on which crystal faces unrecognizable, graphite coating, very minor cleavages
2	0.11	0.11	0.11		0.000000	White	Transparent	99+%	Macle, very minor cleavages
3	0.26	0.11	0.11		0.000000	White	Transparent	85%	Fragment on which crystal faces unrecognizable, graphite coating, very minor cleavages
4	0.23	0.09	0.10		0.000000	White	Transparent	75%	Fragment on which crystal faces unrecognizable, frosted, very minor cleavages
5	0.23	0.11	0.11		0.000000	White	Transparent	95%	Fragment on which crystal faces unrecognizable, minor cleavages
6	0.14	0.11	0.13		0.000000	White	Translucent	62.5%	Fragment with Crystal Faces, significant cleavages
7	0.17	0.11	0.10		0.000000	White	Transparent	99+%	Fragment on which crystal faces unrecognizable, minor cleavages
8	0.14	0.11	0.12		0.000000	White	Transparent	95%	Octahedral, minor cleavages
9	0.14	0.09	0.10		0.000000	White	Transparent	95%	Octahedral, minor cleavages
10	0.11	0.11	0.08		0.000000	Off White	Transparent	75%	Fragment on which crystal faces unrecognizable, minor cleavages
11	0.14	0.11	0.15		0.000000	Off White	Transparent	99+%	Octahedral, very minor cleavages
12	0.17	0.11	0.11		0.000000	White	Transparent	62.5%	Fragment with Crystal Faces, minor cleavages
13	0.20	0.11	0.10		0.000000	White	Transparent	95%	Octahedral, very minor cleavages
14	0.11	0.11	0.13		0.000000	White	Transparent	95%	Fragment with Crystal Faces, minor cleavages
15	0.14	0.09	0.12		0.000000	White	Transparent	95%	Macle, graphite coating, very minor cleavages
16	0.17	0.11	0.11		0.000000	White	Translucent	85%	Fragment with Crystal Faces, graphite inclusion, very minor cleavages
17	0.17	0.14	0.08		0.000000	White	Transparent	95%	Octahedral, twinned
18	0.17	0.14	0.07		0.000000	White	Translucent	95%	Octahedral, twinned

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November 13, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Oct0003.R00**
Sample No. **JI 270**
Sample Weight: 89.0 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
19	0.17	0.14	0.10		0.000000	White	Transparent	85%	Dodecahedral, very minor cleavages
20	0.14	0.11	0.08		0.000000	White	Transparent	95%	Octahedral, twinned
20				0.100	0.000500	**Sub-Total**			
45					0.011895	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

ANNEX 7

Lakefield Research Limited reports - Diamond Recovery by Caustic Dissolution for Trench JI-3 samples JI 311, JI 325, JI 326, JI 332, JI 335, JI 347 and JI 367

September-November 2000

Samples submitted by Twin Mining Corporation

LakefieldResearch

Lakefield Research Limited
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 16, 2000
LIMS No. **SEP0007.R00**
Sample No. **JI 311**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 27.45 kg
Number of Syndites: 0

Total Weight (carats)*: 0.001
Number of Diamonds: 19

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 16, 2000
LIMS No. **SEP0007.R00**
Sample No. **JI 311**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 μm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 μm	0	0.000	0.000
	-425 / + 300 μm	1	0.074	0.000
	-300 / +212 μm	0	0.000	0.000
	-212 / +150 μm	5	0.044	0.000
	-150 / +100 μm	13	0.054	0.000
	TOTAL	19	0.172	0.001

Sample Weight: 27.45 kg
Number of Syndites: 0

Total Weight (carats)*: 0.001
Number of Diamonds: 19

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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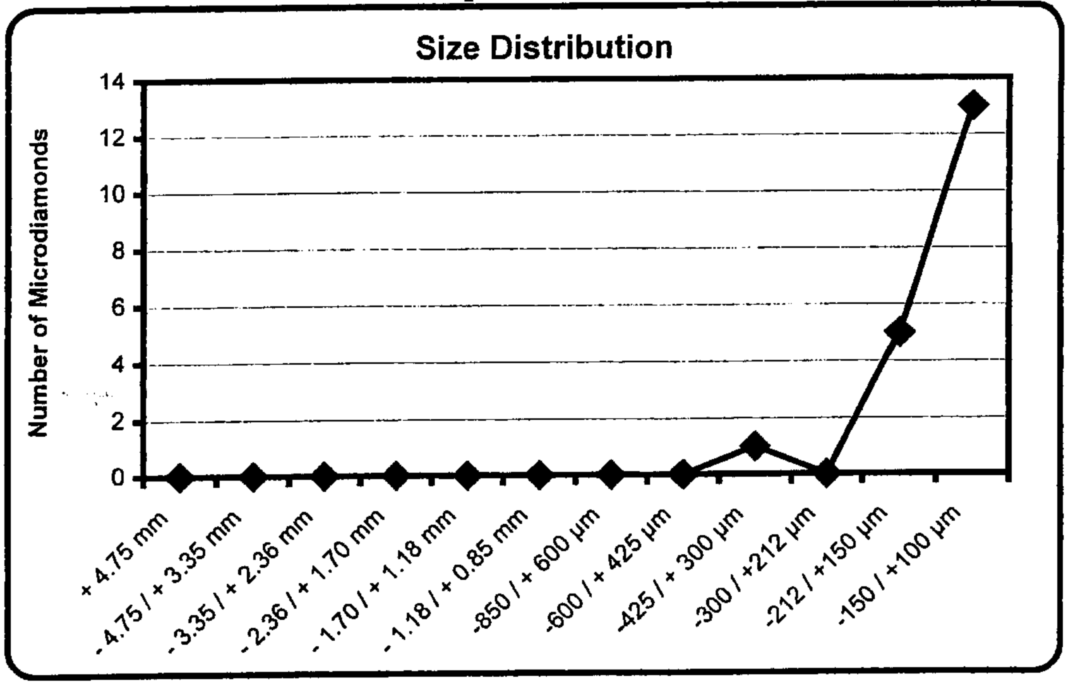
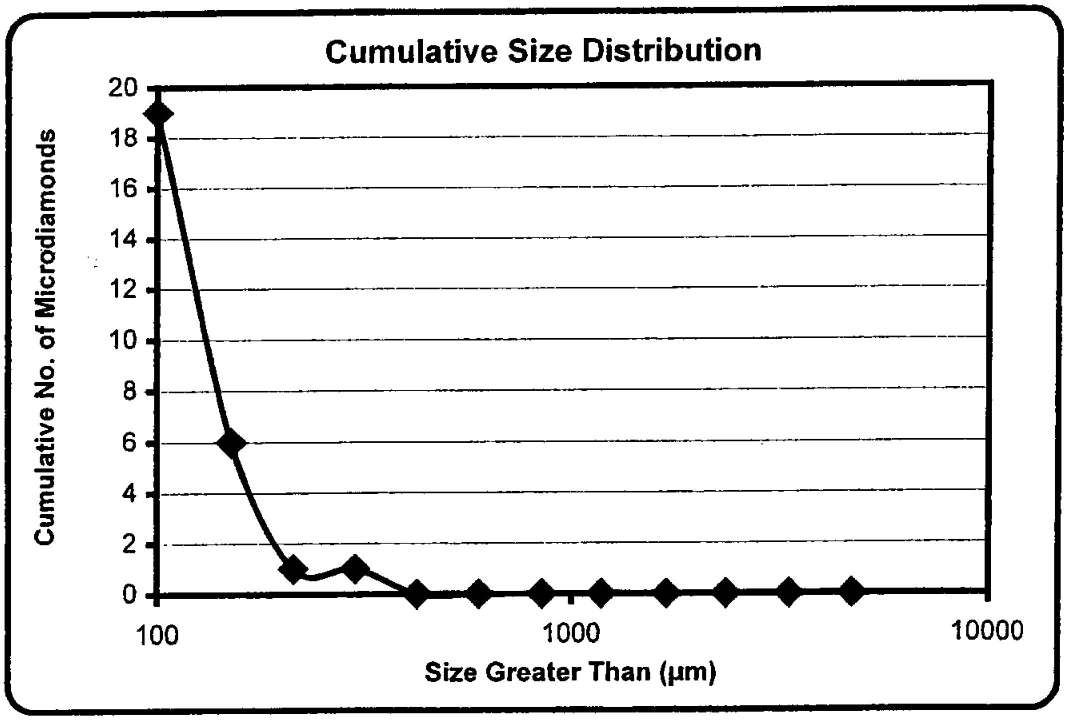
Sample No. JI 311





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October 16, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0007.R00**
Sample No. **JI 311**
Sample Weight: 27.45 kg

No.	Stone Dimension, mm			Weight				Percent Preservation	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity		Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 16, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0007.R00**
Sample No. **JI 311**
Sample Weight: 27.45 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
1	0.48	0.46	0.23		0.000000	White	Transparent	95%	Fragment with Crystal Faces, stepped faces, very minor cleavages
1				0.074	0.000370	**Sub-Total**			
-300 / + 212 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.29	0.17	0.21		0.000000	White	Transparent	95%	Octahedral, twinned, stepped faces, very minor cleavages
2	0.29	0.17	0.13		0.000000	White	Transparent	95%	Octahedral, twinned
3	0.23	0.17	0.17		0.000000	Off White	Transparent	99+%	Octahedral
4	0.20	0.20	0.07		0.000000	White	Transparent	95%	Octahedral, minor cleavages
5	0.26	0.17	0.17		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages
5				0.044	0.000220	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.26	0.14	0.12		0.000000	White	Transparent	95%	Octahedral, twinned
2	0.23	0.14	0.12		0.000000	White	Transparent	99+%	Octahedral, twinned, stepped faces
3	0.26	0.20	0.10		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, partially frosted, very minor cleavages
4	0.26	0.17	0.08		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable

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October 16, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0007.R00**
Sample No. **JI 311**
Sample Weight: 27.45 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
5	0.23	0.17	0.14		0.000000	White	Transparent	99+%	Octahedral, twinned
6	0.23	0.14	0.12		0.000000	Grey	Translucent	85%	Fragment with Crystal Faces, graphite coating, very minor cleavages
7	0.26	0.14	0.10		0.000000	White	Transparent	95%	Octahedral, twinned, very minor cleavages
8	0.17	0.14	0.12		0.000000	White	Transparent	95%	Octahedral, twinned, very minor cleavages, graphite coating
9	0.17	0.14	0.10		0.000000	White	Transparent	95%	Octahedral, stepped faces, very minor cleavages
10	0.20	0.11	0.11		0.000000	White	Transparent	95%	Octahedral, twinned
11	0.17	0.11	0.11		0.000000	White	Transparent	Note 1	Fragment with Crystal Faces, very minor cleavages
12	0.14	0.11	0.11		0.000000	White	Transparent	99+%	Octahedral
13	0.20	0.14	0.10		0.000000	White	Transparent	95%	Fragment with Crystal Faces, graphite coating, stepped faces, very minor cleavages
13				0.054	0.000270	**Sub-Total**			
19					0.000860	**TOTAL**			

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 11, 2000
LIMS No. **Sep0007.R00**
Sample No. **JI 325**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 26.80 kg
Number of Syndites: 0

Total Weight (carats)*: 0.002
Number of Diamonds: 6

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 11, 2000
LIMS No. **Sep0007.R00**
Sample No. **JI 325**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	1	0.192	0.001
	-425 / + 300 µm	1	0.089	0.000
	-300 / +212 µm	1	0.017	0.000
	-212 / +150 µm	1	0.017	0.000
	-150 / +100 µm	2	0.013	0.000
	TOTAL	6	0.328	0.002

Sample Weight: 26.80 kg
Number of Syndites: 0

Total Weight (carats)*: 0.002
Number of Diamonds: 6

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

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Tracy Gill
Mineralogy Technician

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Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

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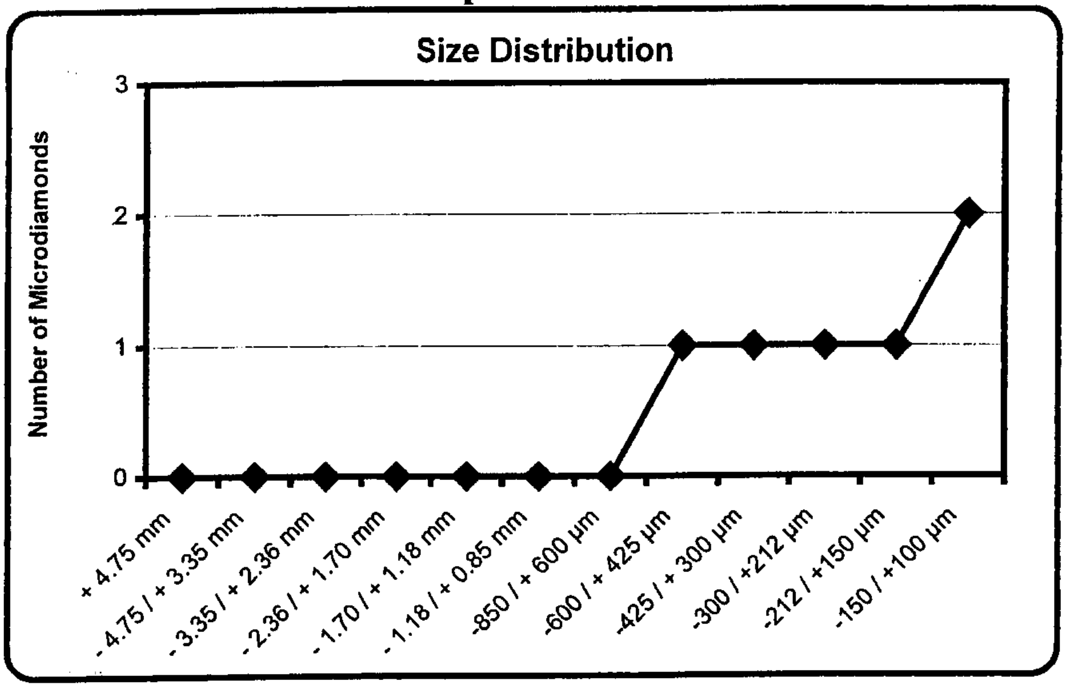
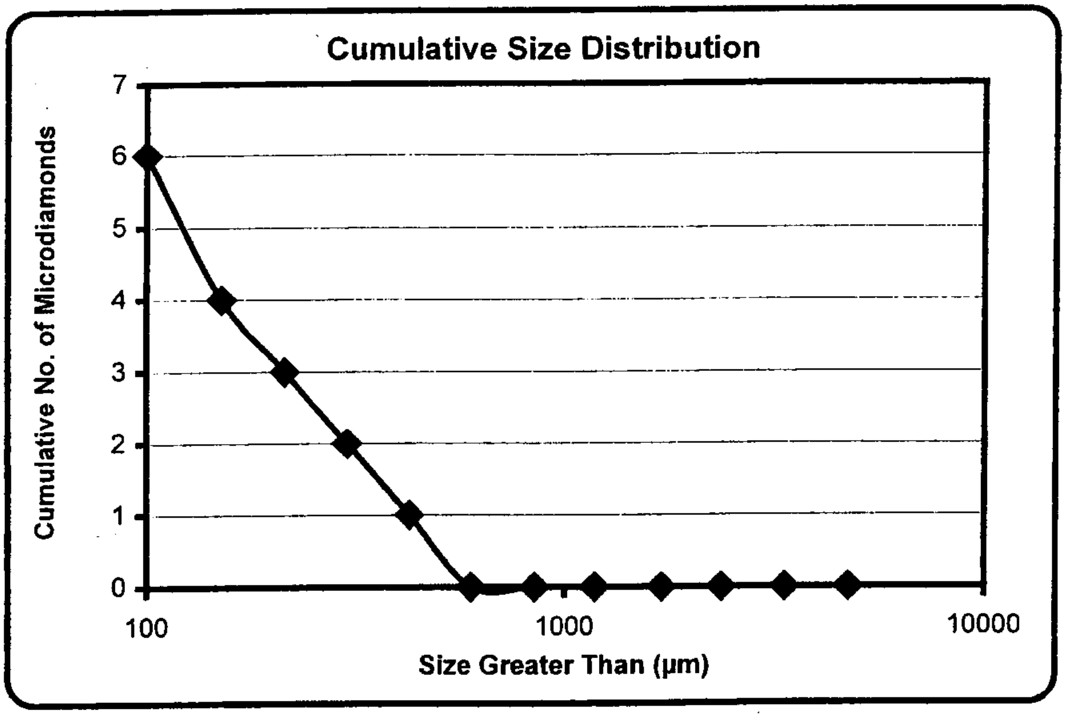
Sample No. JI 325





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October 11, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Sep0007.R00**
Sample No. **JI 325**
Sample Weight: 26.80 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent Preservation	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity		Morphology
+ 4.75 mm fraction									
0					0.000000			Note 1	
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 11, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Sep0007.R00**
Sample No. **JI 325**
Sample Weight: 26.80 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
1	0.57	0.48	0.32		0.000000	White	Translucent	95%	Octahedral, graphite inclusions, stepped faces
1				0.192	0.000960	**Sub-Total**			
-425 / + 300 µm fraction									
1	0.48	0.40	0.25		0.000000	White	Transparent	95%	Octahedral, twinned, graphite inclusions, stepped faces
1				0.089	0.000445	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.23	0.23	0.17		0.000000	White	Transparent	95%	Octahedral, graphite inclusions, stepped faces
1				0.017	0.000085	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.20	0.17	0.12		0.000000	White	Transparent	99+%	Octahedral, graphite inclusions
1				0.017	0.000085	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.20	0.17	0.11		0.000000	White	Transparent	85%	Fragment with Crystal Faces, graphite inclusions, very minor cleavages
2	0.17	0.14	0.16		0.000000	White	Transparent	85%	Fragment with Crystal Faces, graphite inclusions, very minor cleavages
2				0.013	0.000065	**Sub-Total**			
6					0.001640	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

LakefieldResearch

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 11, 2000
LIMS No. **Sep0007.R00**
Sample No. **JI 326**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 55.20 kg
Number of Syndites: 0

Total Weight (carats)*: 0.057
Number of Diamonds: 15

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 11, 2000
LIMS No. **Sep0007.R00**
Sample No. **JI 326**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	1	9.823	0.049
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	2	1.554	0.008
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	1	0.036	0.000
	-212 / +150 µm	5	0.046	0.000
	-150 / +100 µm	6	0.031	0.000
	TOTAL	15	11.490	0.057

Sample Weight: 55.20 kg
Number of Syndites: 0

Total Weight (carats)*: 0.057
Number of Diamonds: 15

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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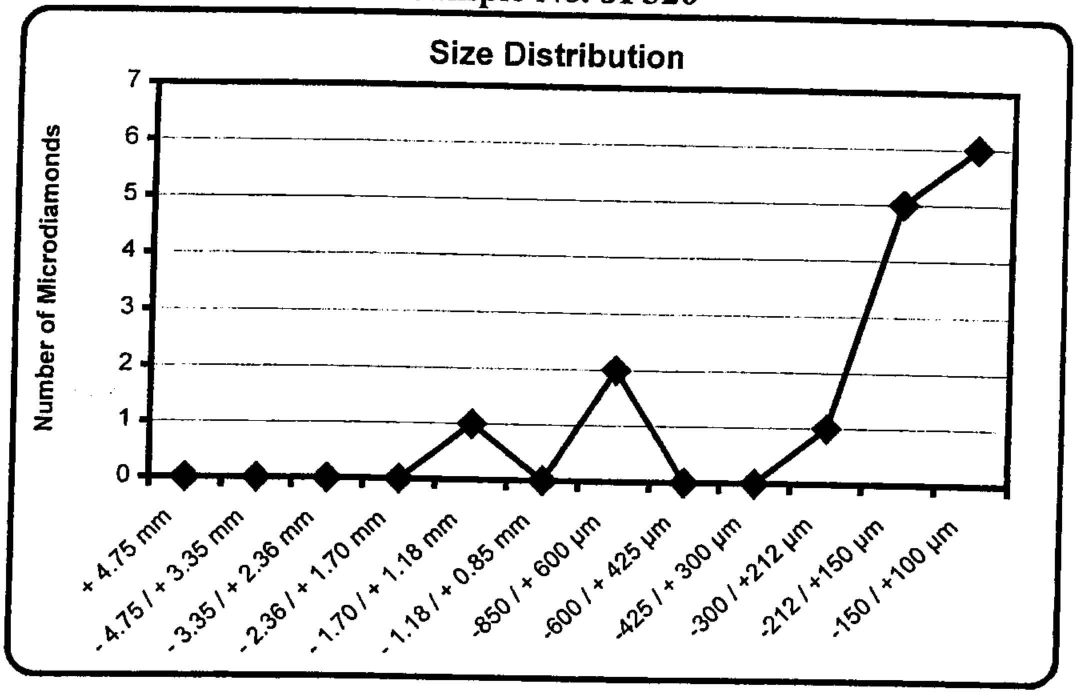
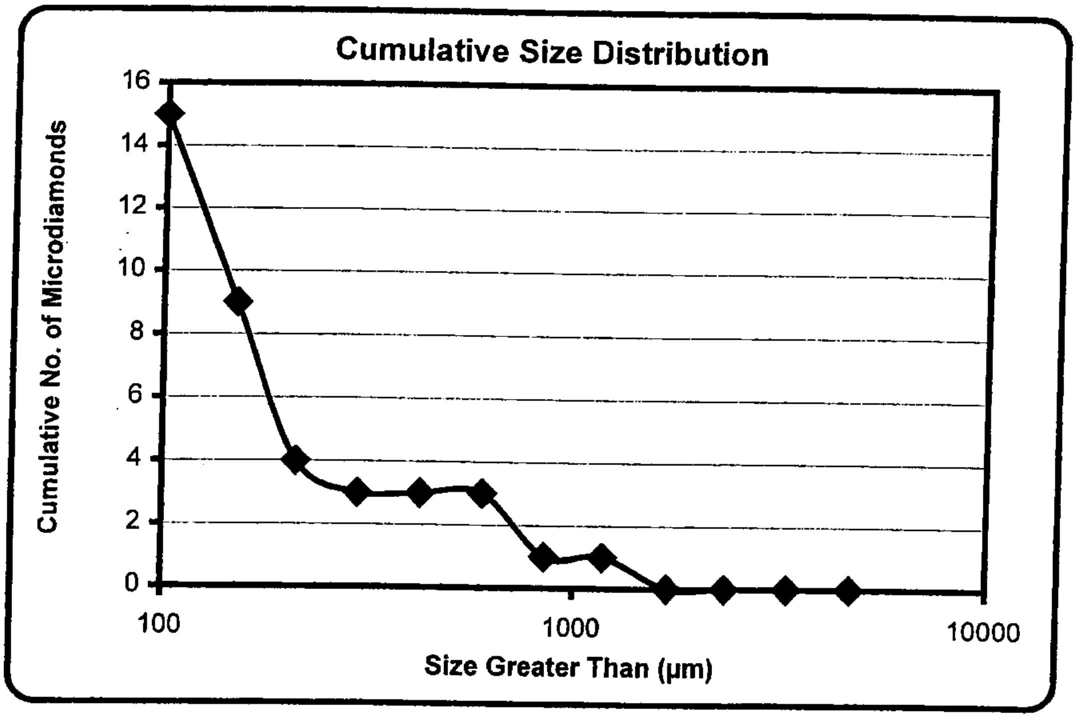
Sample No. JI 326





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October 11, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Sep0007.R00**
Sample No. **JI 326**
Sample Weight: 55.20 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000			Note 1	
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
1	2.00	1.85	1.55	9.823	0.049115	White	Transparent	75%	Dodecahedral, graphite inclusions
1				9.823	0.049115	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 11, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Sep0007.R00**
Sample No. **JI 326**
Sample Weight: 55.20 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-850 / + 600 µm fraction									
1	1.34	1.08	0.50	1.120	0.005600	Off White	Translucent	75%	Fragment with Crystal Faces, significant cleavages
2	1.14	0.97	0.37	0.434	0.002170	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
2				1.554	0.007770	**Sub-Total**			
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
0	0.29	0.26	0.25		0.000000	White	Transparent	95%	Octahedral, graphite inclusions, stepped faces
1				0.036	0.000180	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.23	0.20	0.14		0.000000	White	Transparent	95%	Octahedral, twinned, very minor cleavages, graphite inclusions
2	0.20	0.20	0.10		0.000000	White	Translucent	85%	Octahedral, twinned, stepped faces, very minor cleavages
3	0.23	0.20	0.15		0.000000	White	Transparent	85%	Macle, twinned
4	0.17	0.17	0.12		0.000000	White	Transparent	75%	Dodecahedral
5	0.23	0.17	0.14		0.000000	White	Transparent	85%	Fragment with Crystal Faces, minor cleavages, graphite coating
5				0.046	0.000230	**Sub-Total**			

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October 11, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Sep0007.R00**
Sample No. **JI 326**
Sample Weight: 55.20 kg

No.	Stone Dimension, mm			Weight				Percent Preservation	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity		Morphology
-150 / + 100 µm fraction									
1	0.23	0.14	0.07		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
2	0.26	0.17	0.08		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
3	0.23	0.17	0.08		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
4	0.17	0.17	0.09		0.000000	White	Transparent	99+%	Octahedral, very minor cleavages
5	0.23	0.14	0.10		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages, graphite coating
6	0.14	0.11	0.09		0.000000	White	Transparent	75%	Fragment with Crystal Faces, minor cleavages
6				0.031	0.000155	**Sub-Total**			
15					0.057450	**TOTAL**			

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 17, 2000
LIMS No. **SEP0007.R00**
Sample No. **JI332**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 29.61 kg
Number of Syndites: 0

Total Weight (carats)*: 0.000
Number of Diamonds: 6

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 17, 2000
LIMS No. **SEP0007.R00**
Sample No. **JI332**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 μm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 μm	0	0.000	0.000
	-425 / + 300 μm	1	0.012	0.000
	-300 / +212 μm	0	0.000	0.000
	-212 / +150 μm	3	0.027	0.000
	-150 / +100 μm	2	0.013	0.000
	TOTAL	6	0.052	0.000

Sample Weight: 29.61 kg
Number of Syndites: 0

Total Weight (carats)*: 0.000
Number of Diamonds: 6

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

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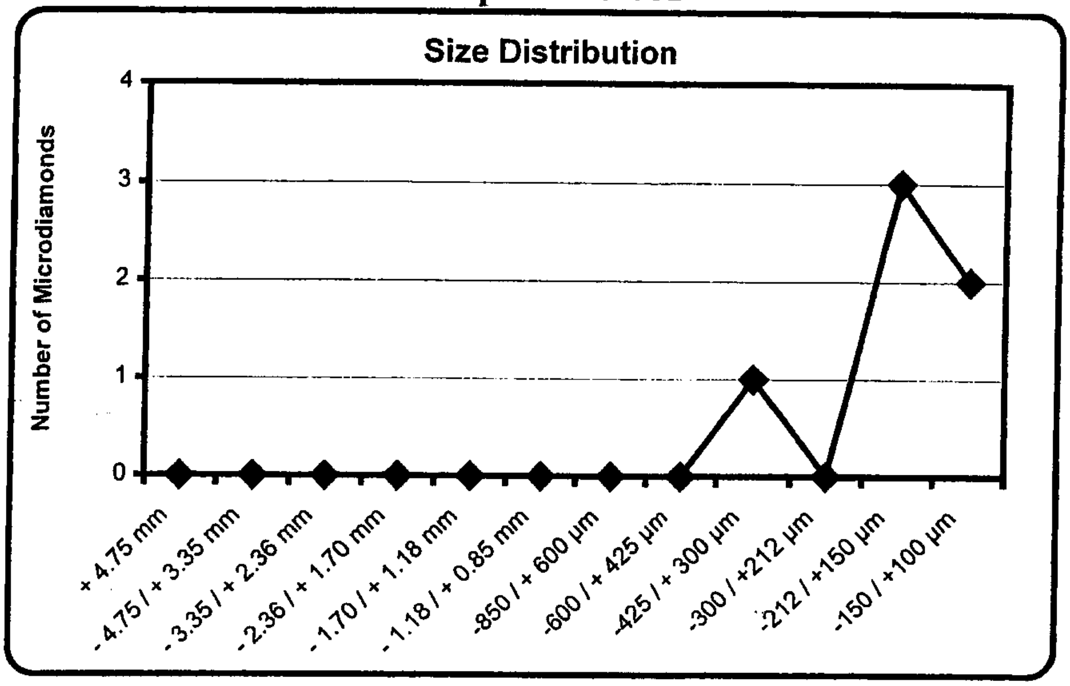
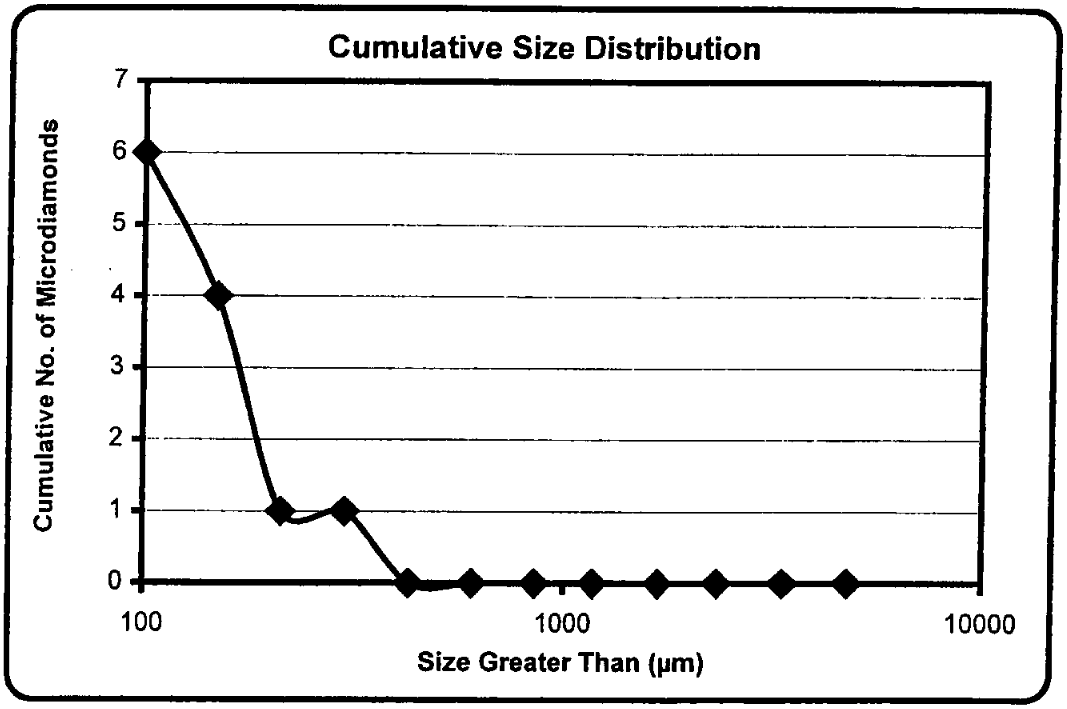
Sample No. JI332





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October 17, 2000

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0007.R00**
Sample No. **JI332**
Sample Weight: 29.61 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 μm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-600 / + 425 μm fraction								

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October 17, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0007.R00**
Sample No. **JI332**
Sample Weight: 29.61 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0	0.37	0.31	0.29		0.000000	White	Translucent	85%	Octahedral, stepped faces, graphite coating
1				0.012	0.000060	**Sub-Total**			
-300 / + 212 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.23	0.23	0.19		0.000000	White	Transparent	95%	Octahedral, stepped faces
2	0.26	0.20	0.17		0.000000	Grey	Translucent	95%	Aggregate, graphite inclusions
3	0.26	0.20	0.09		0.000000	White	Transparent	95%	Macle
3				0.027	0.000135	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.20	0.20	0.06		0.000000	White	Transparent	99+%	Macle, twinned
2	0.14	0.14	0.10		0.000000	White	Transparent	99+%	Octahedral, twinned
2				0.013	0.000065	**Sub-Total**			
6					0.000260	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 19, 2000
LIMS No. **Sep0008.R00**
Sample No. **JI 335**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 56.25 kg
Number of Syndites: 0

Total Weight (carats)*: 0.003
Number of Diamonds: 22

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 19, 2000
LIMS No. **Sep0008.R00**
Sample No. **JI 335**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 μm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 μm	0	0.000	0.000
	-425 / + 300 μm	1	0.199	0.001
	-300 / +212 μm	2	0.106	0.001
	-212 / +150 μm	9	0.154	0.001
	-150 / +100 μm	10	0.089	0.000
	TOTAL	22	0.548	0.003

Sample Weight: 56.25 kg
Number of Syndites: 0

Total Weight (carats)*: 0.003
Number of Diamonds: 22

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill

Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei

Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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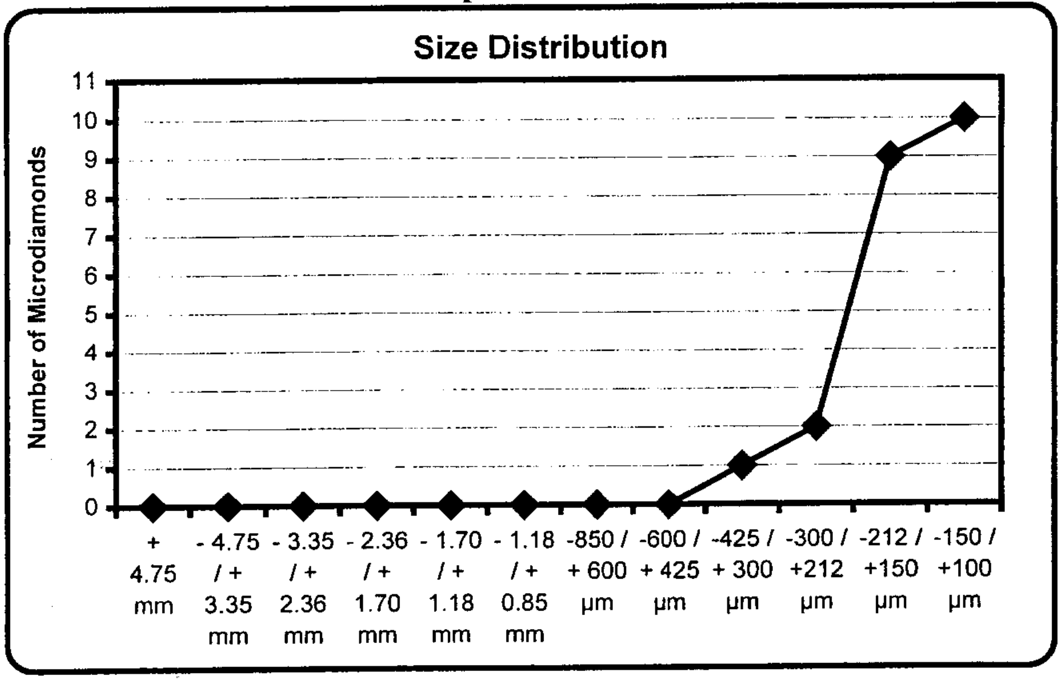
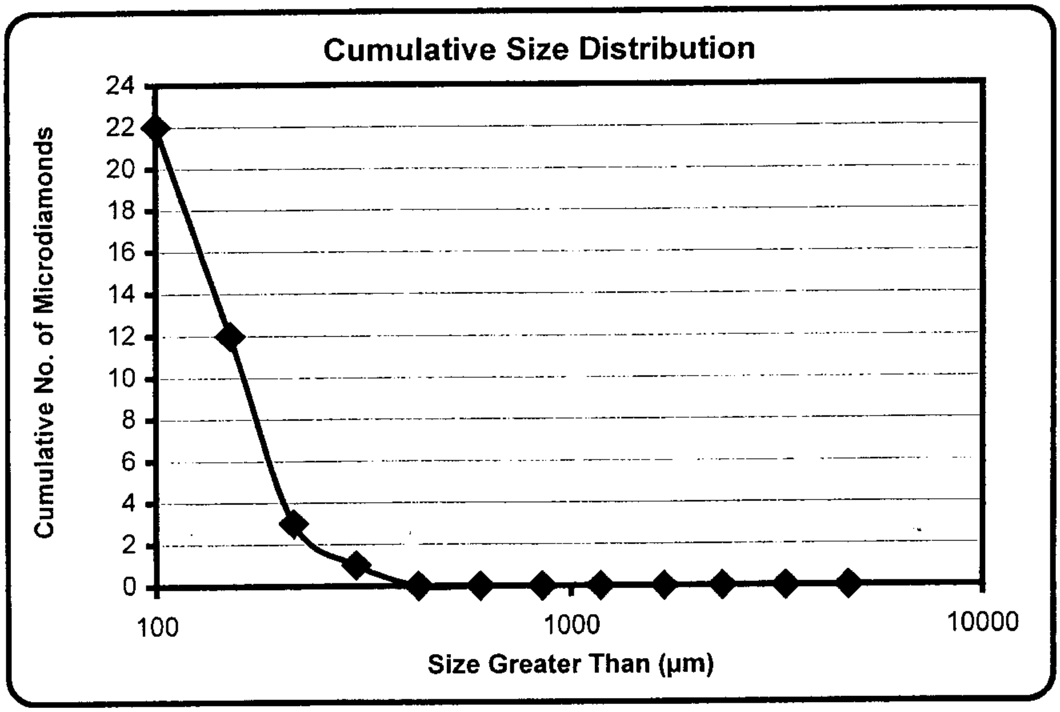
Sample No. JI 335





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October 19, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Sep0008.R00**
Sample No. **JI 335**
Sample Weight: 56.25 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 µm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 19, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Sep0008.R00**
Sample No. **JI 335**
Sample Weight: 56.25 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0	0.68	0.46	0.24		0.000000	White	Transparent	85%	Fragment with Crystal Faces, minor cleavages
1				0.199	0.000995	**Sub-Total**			
-300 / + 212 µm fraction									
0	0.43	0.34	0.22		0.000000	White	Translucent	95%	Octahedral, twinned, very minor cleavages
1	0.26	0.26	0.17		0.000000	White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages
2				0.106	0.000530	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.31	0.20	0.19		0.000000	White	Transparent	85%	Fragment with Crystal Faces, minor cleavages
2	0.26	0.23	0.14		0.000000	White	Translucent	95%	Fragment with Crystal Faces, minor cleavages
3	0.26	0.20	0.11		0.000000	White	Translucent	75%	Aggregate
4	0.26	0.20	0.16		0.000000	White	Translucent	99+%	Octahedral, twinned, very minor cleavages
5	0.26	0.20	0.13		0.000000	White	Transparent	99+%	Octahedral, twinned, very minor cleavages
6	0.26	0.23	0.17		0.000000	White	Transparent	99+%	Octahedral, twinned, stepped faces, graphite coating
7	0.23	0.17	0.09		0.000000	White	Translucent	95%	Octahedral, twinned, very minor cleavages
8	0.26	0.26	0.15		0.000000	White	Transparent	62.5%	Fragment with Crystal Faces, minor cleavages
9	0.20	0.17	0.16		0.000000	White	Transparent	99+%	Octahedral, partially frosted
9				0.154	0.000770	**Sub-Total**			

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October 19, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Sep0008.R00**
Sample No. **JI 335**
Sample Weight: 56.25 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	-150 / + 100 µm fraction								
1	0.20	0.17	0.10		0.000000	White	Transparent	99+%	Octahedral, graphite inclusions
2	0.17	0.14	0.14		0.000000	White	Transparent	99+%	Octahedral
3	0.20	0.11	0.07		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages
4	0.20	0.20	0.13		0.000000	White	Transparent	95%	Octahedral
5	0.17	0.17	0.10		0.000000	White	Transparent	99+%	Octahedral
6	0.17	0.11	0.07		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
7	0.20	0.17	0.11		0.000000	Grey	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages, graphite inclusions
8	0.17	0.14	0.09		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages, graphite coating
9	0.17	0.11	0.08		0.000000	White	Transparent	95%	Octahedral, twinned
10	0.14	0.14	0.07		0.000000	White	Transparent	95%	Macle
10				0.089	0.000445	**Sub-Total**			
22					0.002740	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 335**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 54.10 kg
Number of Syndites: 0

Total Weight (carats)*: 0.009
Number of Diamonds: 24

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

A. Mezei
Quality Control
Maria Mezei
Diamond Selection Specialist

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 335**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 μm	1	1.382	0.007
Stones Described Individually / Group Weighed	-600 / + 425 μm	0	0.000	0.000
	-425 / + 300 μm	2	0.219	0.001
	-300 / +212 μm	0	0.000	0.000
	-212 / +150 μm	2	0.040	0.000
	-150 / +100 μm	19	0.112	0.001
	TOTAL	24	1.753	0.009

Sample Weight: 54.10 kg
Number of Syndites: 0

Total Weight (carats)*: 0.009
Number of Diamonds: 24

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

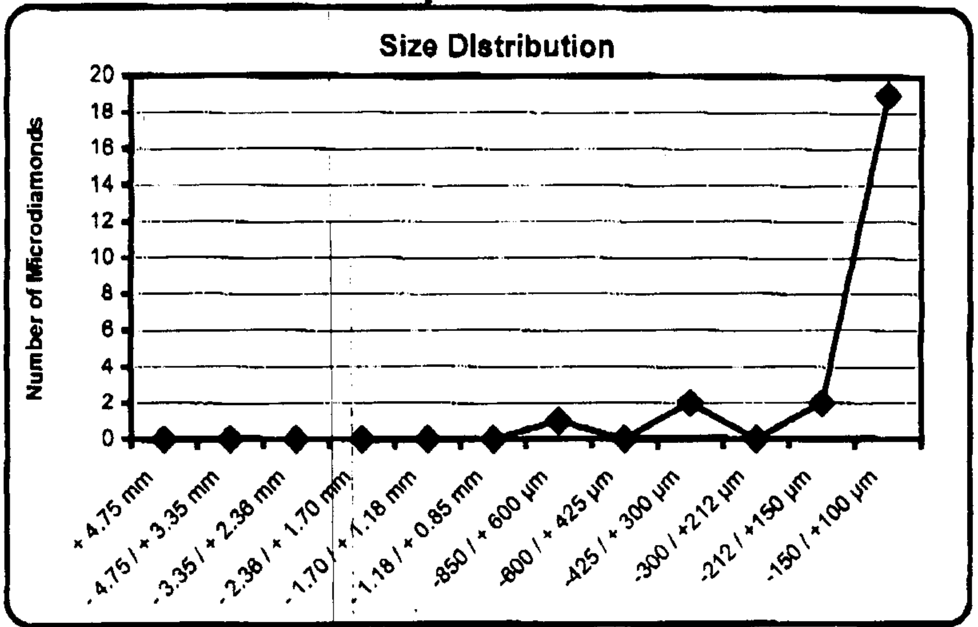
Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

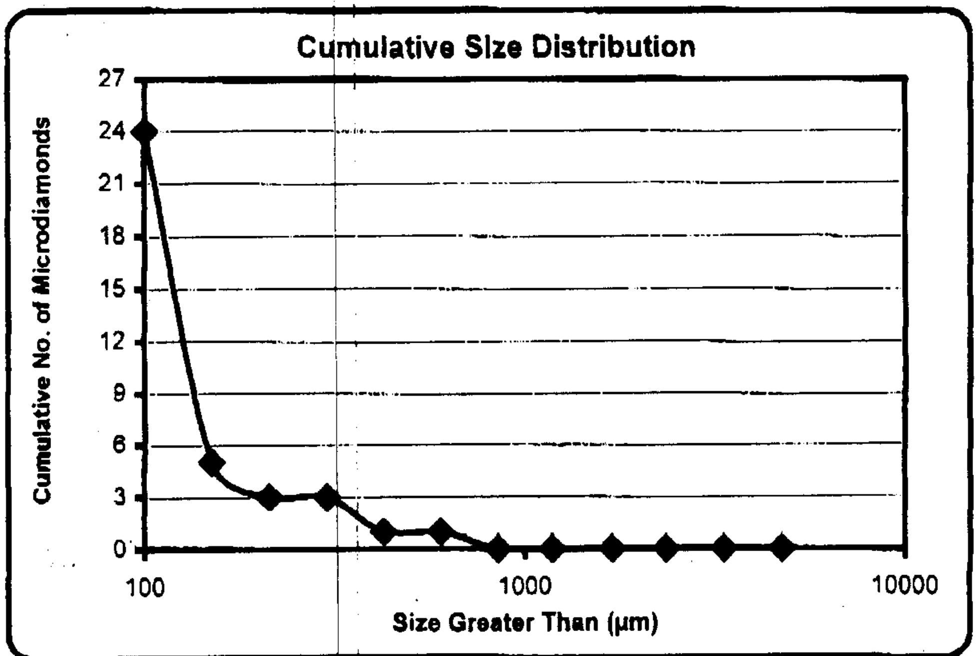
M. Mezei
Quality Control
Maria Mezei
Diamond Selection Specialist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. JI 335





LAKEFIELD RESEARCH LIMITED
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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 335**
Sample Weight: 54.10 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 µm fraction								
0	1.14	0.80	0.90	1.382	0.006910	Brown	Transparent	62.5%	Dodecahedral
1				1.382	0.006910	**Sub-Total**			

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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 335**
Sample Weight: 54.10 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
1	0.43	0.37	0.31		0.000000	White	Transparent	95%	Octahedral, stepped faces, graphite coating
2	0.60	0.43	0.38		0.000000	White	Opaque	75%	Fragment with Crystal Faces, minor cleavages
2				0.219	0.001095	**Sub-Total**			
-300 / + 212 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.40	0.26	0.15		0.000000	White	Transparent	85%	Fragment with Crystal Faces, twinned, graphite inclusions, very minor cleavages
2	0.26	0.23	0.14		0.000000	Off White	Transparent	85%	Fragment with Crystal Faces
2				0.040	0.000200	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.29	0.17	0.09		0.000000	White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages
2	0.31	0.17	0.12		0.000000	White	Transparent	85%	Fragment with Crystal Faces, minor cleavages
3	0.31	0.17	0.10		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
4	0.23	0.17	0.12		0.000000	White	Transparent	85%	Fragment with Crystal Faces, graphite inclusions
5	0.26	0.17	0.07		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
6	0.20	0.17	0.14		0.000000	White	Transparent	85%	Fragment with Crystal Faces, twinned, minor cleavages

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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Oct0003.R00**
Sample No. **JI 335**
Sample Weight: 54.10 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
7	0.20	0.17	0.09		0.000000	White	Transparent	95%	Macle, twinned, graphite coating
8	0.17	0.17	0.14		0.000000	White	Transparent	99+%	Octahedral
9	0.20	0.17	0.10		0.000000	White	Transparent	99+%	Octahedral, twinned, very minor cleavages
10	0.17	0.14	0.08		0.000000	White	Transparent	95%	Octahedral, twinned
11	0.17	0.14	0.14		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, graphite coating
12	0.17	0.14	0.08		0.000000	White	Transparent	99+%	Macle, twinned
13	0.14	0.14	0.10		0.000000	White	Transparent	99+%	Macle, twinned
14	0.14	0.14	0.14		0.000000	White	Transparent	99+%	Octahedral, graphite coating
15	0.17	0.14	0.10		0.000000	White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages
16	0.17	0.11	0.11		0.000000	White	Transparent	99+%	Octahedral, twinned
17	0.11	0.11	0.11		0.000000	White	Transparent	95%	Macle, twinned, graphite coating
18	0.14	0.09	0.10		0.000000	White	Transparent	85%	Fragment with Crystal Faces, minor cleavages, graphite coating
19	0.20	0.14	0.13		0.000000	White	Transparent	95%	Octahedral, twinned, stepped faces
19				0.112	0.000560	Sub-Total			
24					0.008765	TOTAL			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 19, 2000
LIMS No. **Sep0008.R00**
Sample No. **JI 347**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 57.56 kg
Number of Syndites: 0

Total Weight (carats)*: 0.002
Number of Diamonds: 19

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Mezei!
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 19, 2000
LIMS No. **Sep0008.R00**
Sample No. **JI 347**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	2	0.136	0.001
	-212 / +150 µm	7	0.137	0.001
	-150 / +100 µm	10	0.097	0.000
	TOTAL	19	0.370	0.002

Sample Weight: 57.56 kg
Number of Syndites: 0

Total Weight (carats)*: 0.002
Number of Diamonds: 19

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Quality Control
Tracy Gill
Mineralogy Technician

Note:
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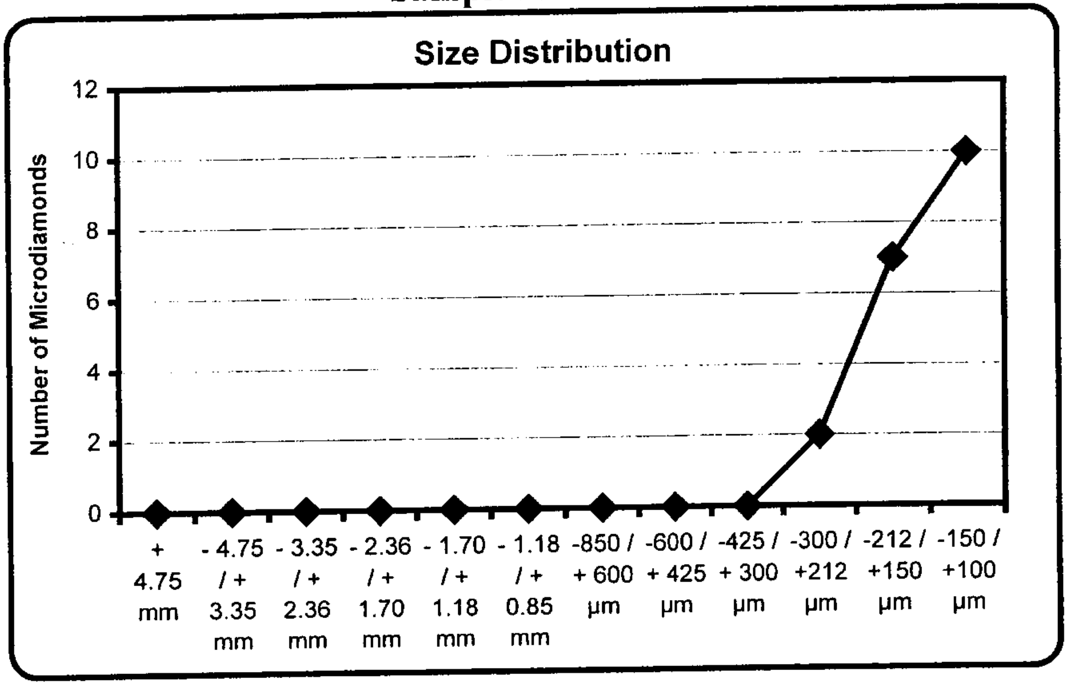
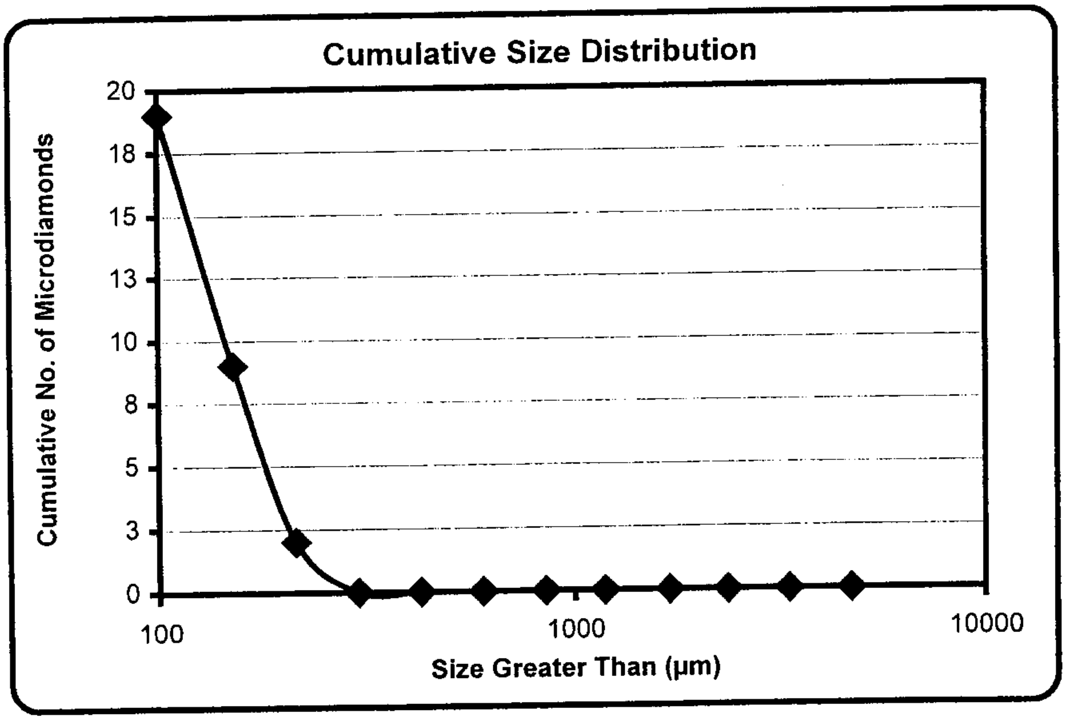
Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. JI 347





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October 19, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Sep0008.R00**
Sample No. **JI 347**
Sample Weight: 57.56 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 19, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Sep0008.R00**
Sample No. **JI 347**
Sample Weight: 57.56 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
0	0.40	0.37	0.20		0.000000	White	Transparent	99+%	Octahedral, twinned
1	0.43	0.29	0.18		0.000000	Off White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
2				0.136	0.000680	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.29	0.26	0.16		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
2	0.26	0.23	0.18		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
3	0.31	0.26	0.15		0.000000	White	Translucent	62.5%	Fragment with Crystal Faces, minor cleavages, graphite inclusions
4	0.26	0.23	0.12		0.000000	White	Transparent	85%	Fragment with Crystal Faces, significant cleavages, graphite inclusions
5	0.26	0.20	0.14		0.000000	White	Transparent	99+%	Octahedral, graphite coating
6	0.23	0.23	0.13		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
7	0.26	0.20	0.11		0.000000	White	Transparent	95%	Macle, twinned
7				0.137	0.000685	**Sub-Total**			

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October 19. 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Sep0008.R00**
Sample No. **JI 347**
Sample Weight: 57.56 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-150 / + 100 µm fraction									
1	0.20	0.17	0.12		0.000000	White	Transparent	95%	Macle, twinned
2	0.23	0.17	0.14		0.000000	White	Transparent	99+%	Octahedral, twinned
3	0.20	0.14	0.12		0.000000	Off White	Transparent	95%	Octahedral, twinned
4	0.20	0.17	0.10		0.000000	White	Transparent	95%	Octahedral
5	0.17	0.14	0.14		0.000000	White	Transparent	85%	Octahedral
6	0.17	0.17	0.13		0.000000	White	Transparent	95%	Octahedral, stepped faces, graphite coating
7	0.20	0.14	0.11		0.000000	White	Transparent	99+%	Octahedral, twinned
8	0.20	0.11	0.09		0.000000	Pink	Transparent	Note 1	Fragment on which crystal faces unrecognizable, very minor cleavages
9	0.20	0.14	0.07		0.000000	White	Transparent	75%	Fragment with Crystal Faces, minor cleavages
10	0.17	0.14	0.08		0.000000	White	Transparent	75%	Dodecahedral, very minor cleavages
10				0.097	0.000485	**Sub-Total**			
19					0.001850	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 347**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 59.14 kg
Number of Syndites: 0

Total Weight (carats)*: 0.001
Number of Diamonds: 5

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Aozei
Selection and Description
for. Robert Buchan
Consulting Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 347**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	3	0.132	0.001
	-212 / +150 µm	1	0.021	0.000
	-150 / +100 µm	1	0.008	0.000
	TOTAL	5	0.161	0.001

Sample Weight: 59.14 kg
Number of Syndites: 0

Total Weight (carats)*: 0.001
Number of Diamonds: 5

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

N. Lozeu :
Selection and Description
for Robert Buchan
Consulting Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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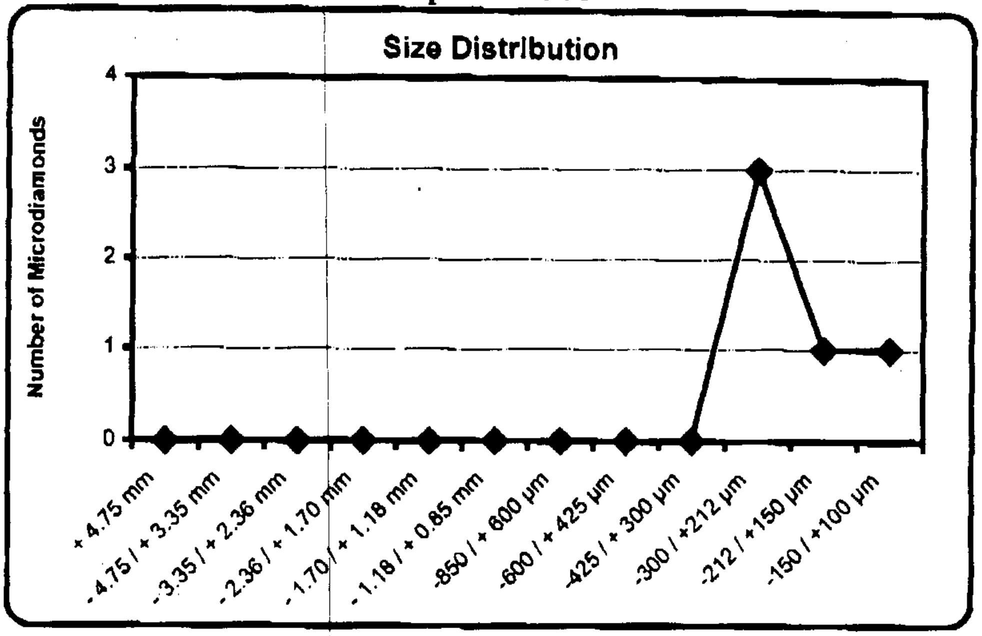
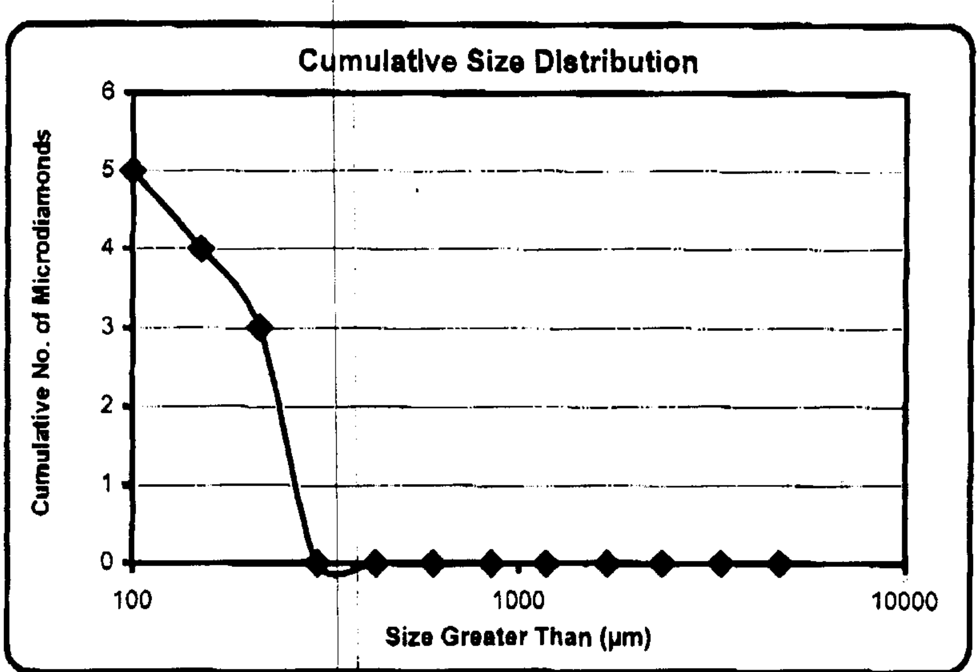
Sample No. JI 347





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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 347**
Sample Weight: 59.14 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+4.75 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 μm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 347**
Sample Weight: 59.14 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.31	0.26	0.28		0.000000	White	Transparent	99+%	Octahedral, stepped faces, very minor cleavages
2	0.48	0.20	0.13		0.000000	White	Transparent	75%	Fragment on which crystal faces unrecognizable, graphite inclusion, minor cleavages
3	0.31	0.31	0.18		0.000000	White	Transparent	99+%	Octahedral, stepped faces, very minor cleavages
3				0.132	0.000660	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.23	0.14	0.16		0.000000	White	Transparent	99+%	Macle, very minor cleavages
1				0.021	0.000105	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.11	0.11	0.10		0.000000	White	Transparent	99+%	Octahedral, graphite coating, very minor cleavages
1				0.008	0.000040	**Sub-Total**			
5					0.000805	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 12, 2000
LIMS No. **Sep0008.R00**
Sample No. **JI 367**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 53.35 kg
Number of Syndites: 0

Total Weight (carats)*: 0.177
Number of Diamonds: 21

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

LakefieldResearch

Lakefield Research Limited
185 Concession St., Box 4300
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 12, 2000
LIMS No. **Sep0008.R00**
Sample No. **JI 367**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	1	35.123	0.176
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 μm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 μm	2	0.160	0.001
	-425 / + 300 μm	0	0.000	0.000
	-300 / +212 μm	0	0.000	0.000
	-212 / +150 μm	5	0.061	0.000
	-150 / +100 μm	13	0.052	0.000
	TOTAL	21	35.396	0.177

Sample Weight: 53.35 kg
Number of Syndites: 0

Total Weight (carats)*: 0.177
Number of Diamonds: 21

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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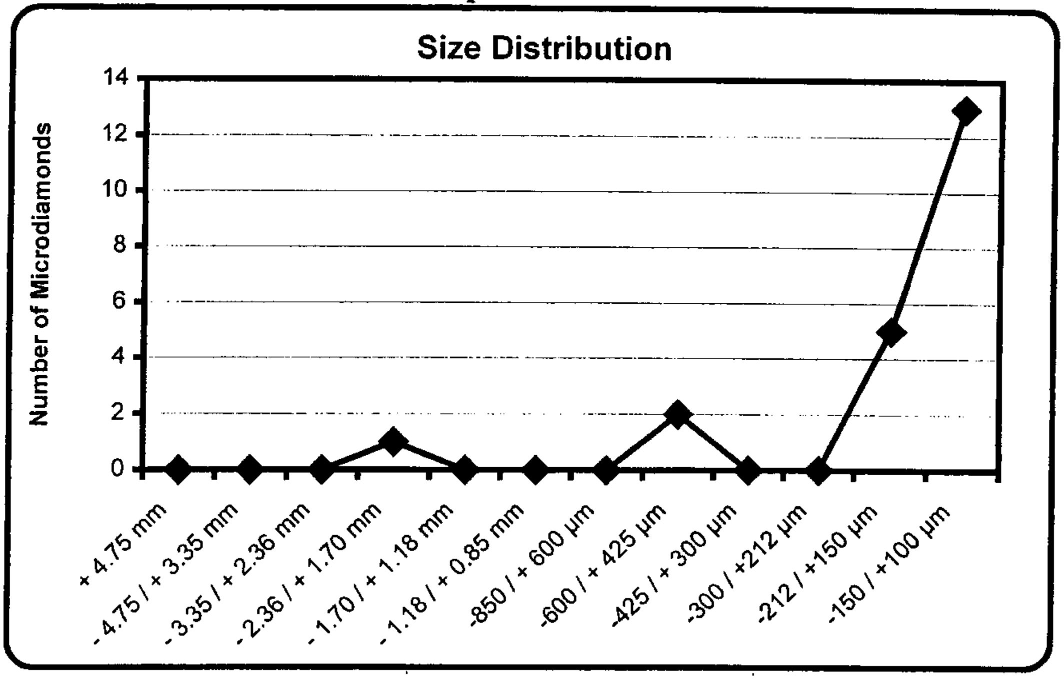
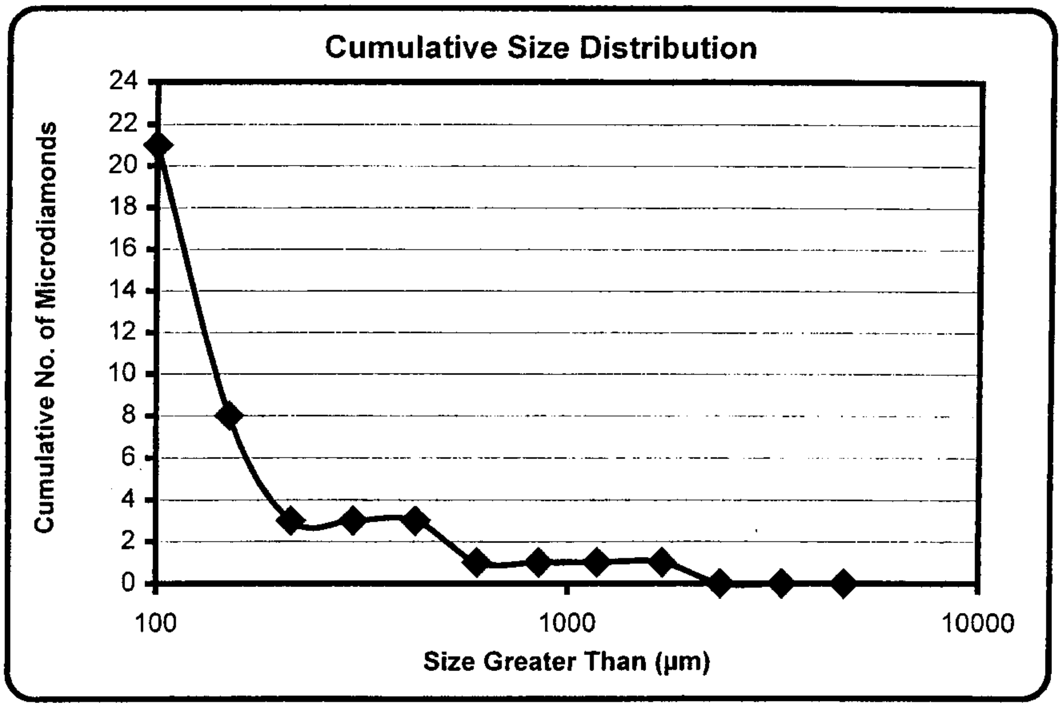
Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. JI 367





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October 12, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Sep0008.R00**
Sample No. **JI 367**
Sample Weight: 53.35 kg

No.	tone Dimension, m			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000			Note 1	
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
1	3.99	2.65	1.65	35.123	0.175615	Brown	Transparent	75%	Dodecahedral, other inclusions, significant cleavages
1				35.123	0.175615	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 12, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Sep0008.R00**
Sample No. **JI 367**
Sample Weight: 53.35 kg

No.	tone Dimension, m			Weight		Colour	Clarity	Percent Preservation	Stone Description Morphology
	X	Y	Z	mg	Carats				
	-850 / + 600 µm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-600 / + 425 µm fraction								
1	0.48	0.43	0.16		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite inclusions
2	0.66	0.54	0.12		0.000000	White	Transparent	75%	Fragment with Crystal Faces, significant cleavages
2				0.160	0.000800	**Sub-Total**			
	-425 / + 300 µm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-300 / + 212 µm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-212 / + 150 µm fraction								
1	0.34	0.23	0.11		0.000000	White	Transparent	99+%	Octahedral, twinned
2	0.23	0.20	0.17		0.000000	White	Transparent	95%	Octahedral, stepped faces
3	0.23	0.20	0.12		0.000000	White	Transparent	99+%	Octahedral, twinned
4	0.17	0.14	0.14		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
5	0.20	0.14	0.10		0.000000	White	Transparent	99+%	Octahedral, graphite inclusions, twinned
5				0.061	0.000305	**Sub-Total**			

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October 12, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Sep0008.R00**
Sample No. **JI 367**
Sample Weight: 53.35 kg

No.	tone Dimension, m			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-150 / + 100 μm fraction									
1	0.23	0.14	0.10		0.000000	White	Transparent	99+%	Octahedral
2	0.14	0.14	0.08		0.000000	White	Transparent	95%	Octahedral, twinned
3	0.23	0.26	0.11		0.000000	White	Transparent	99+%	Octahedral, twinned
4	0.17	0.14	0.08		0.000000	White	Transparent	99+%	Octahedral, twinned
5	0.23	0.14	0.07		0.000000	White	Transparent	95%	Octahedral, twinned
6	0.17	0.11	0.09		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite inclusions
7	0.14	0.14	0.07		0.000000	White	Translucent	75%	Macle, graphite inclusions, partially frosted
8	0.20	0.17	0.09		0.000000	White	Transparent	95%	Octahedral, twinned
9	0.14	0.14	0.08		0.000000	White	Transparent	99+%	Octahedral, twinned
10	0.14	0.11	0.07		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages, graphite coating
11	0.14	0.11	0.06		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
12	0.17	0.14	0.07		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages, graphite inclusions, partially frosted
13	0.17	0.14	0.08		0.000000	White	Transparent	85%	Octahedral, stepped faces, graphite inclusions
13				0.052	0.000260	**Sub-Total**			

21		0.176980	**TOTAL**

Note 1 Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 1, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 367**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 55.05 kg
Number of Syndites: 0

Total Weight (carats)*: 0.002
Number of Diamonds: 6

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

for
Quality Control
Robert Buchan
Consulting Mineralogist

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 1, 2000
LIMS No. **Oct0003.R00**
Sample No. **JI 367**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 μm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 μm	1	0.255	0.001
	-425 / + 300 μm	2	0.186	0.001
	-300 / +212 μm	1	0.040	0.000
	-212 / +150 μm	1	0.007	0.000
	-150 / +100 μm	1	0.004	0.000
	TOTAL	6	0.492	0.002

Sample Weight: 55.05 kg
Number of Syndites: 0

Total Weight (carats)*: 0.002
Number of Diamonds: 6

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill

Selection and Description
Tracy Gill
Mineralogy Technician

M. Chezee

Quality Control
for Robert Buchan
Consulting Mineralogist

Note:
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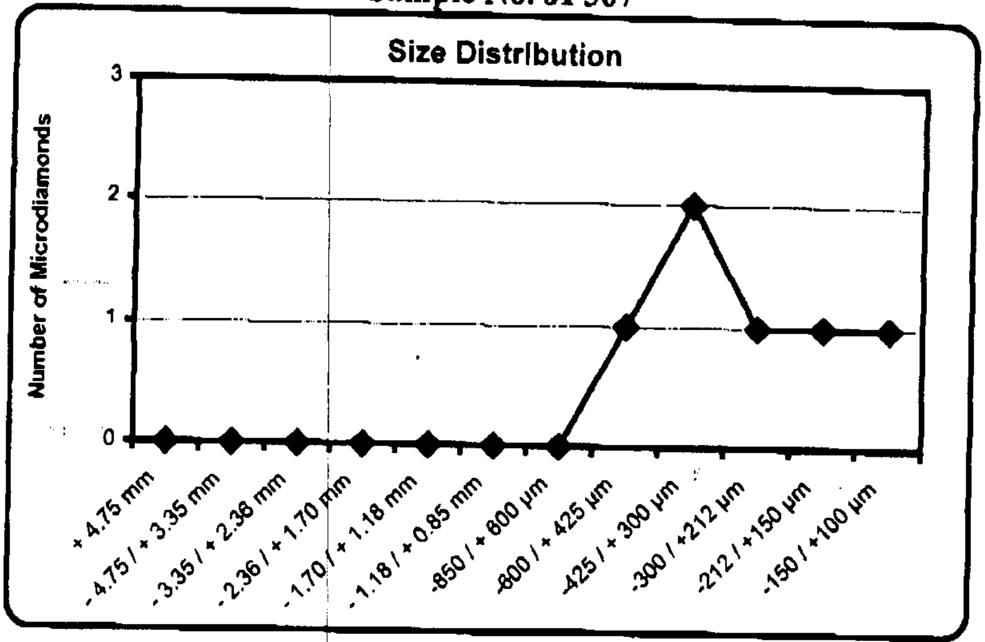
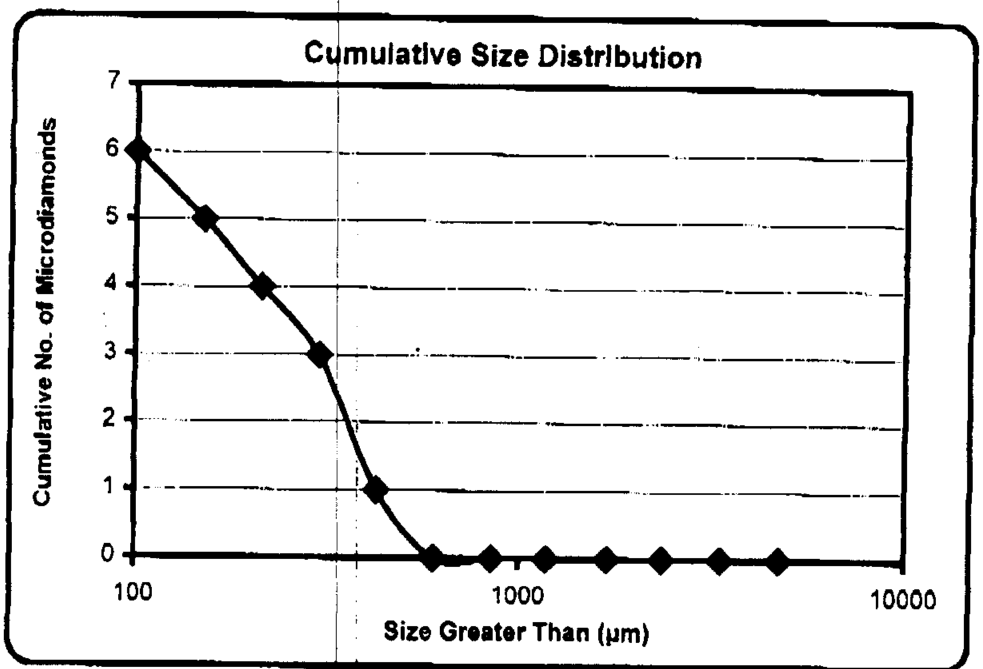
Sample No. JI 367





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November 1, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **Oct0003.R00**
Sample No. **JI 367**
Sample Weight: 55.05 kg

Client: **Twin Mining Corporation**

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-850 / + 600 μm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			

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November 1, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **Oct0003.R00**
Sample No. **JI 367**
Sample Weight: 55.05 kg

No.	Stone Dimension, mm			Weight				Percent Preservation	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity		Morphology
	-600 / + 425 µm fraction								
1	1.11	0.63	0.20		0.000000	Amber	Transparent	85%	Fragment with Crystal Faces, very significant cleavages
1				0.255	0.001275	**Sub-Total**			
	-425 / + 300 µm fraction								
1	0.57	0.46	0.30		0.000000	Off White	Transparent	95%	Octahedral, twinned
2	0.51	0.43	0.21		0.000000	White	Transparent	85%	Fragment with Crystal Faces, significant cleavages
2				0.186	0.000930	**Sub-Total**			
	-300 / + 212 µm fraction								
1	0.40	0.29	0.25		0.000000	White	Transparent	99+%	Octahedral, stepped faces
1				0.040	0.000200	**Sub-Total**			
	-212 / + 150 µm fraction								
1	0.20	0.14	0.11		0.000000	White	Transparent	85%	Fragment with Crystal Faces, stepped faces, very minor cleavages, graphite inclusions
1				0.007	0.000035	**Sub-Total**			
	-150 / + 100 µm fraction								
1	0.17	0.17	0.06		0.000000	White	Transparent	85%	Fragment with Crystal Faces, minor cleavages
1				0.004	0.000020	**Sub-Total**			
6					0.002460	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

ANNEX 8

Lakefield Research Limited reports - Diamond Recovery by Caustic Dissolution for Trench JI-4 samples JI 410, Trench JI-5 and adjacent surface kimberlite fragments, and, Pit JI-6 sample JI 610

September-November 2000

Samples submitted by Twin Mining Corporation

LakefieldResearch

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **OCT0003.R00**
Sample No. **JI 410**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 34.14 kg
Number of Syndites: 0

Total Weight (carats)*: 0.006
Number of Diamonds: 21

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Diamond Selection Specialist

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **OCT0003.R00**
Sample No. **JI 410**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	1	0.973	0.005
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	4	0.186	0.001
	-212 / +150 µm	1	0.007	0.000
	-150 / +100 µm	15	0.063	0.000
	TOTAL	21	1.229	0.006

Sample Weight: 34.14 kg
Number of Syndites: 0

Total Weight (carats)*: 0.006
Number of Diamonds: 21

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Diamond Selection Specialist

Note:
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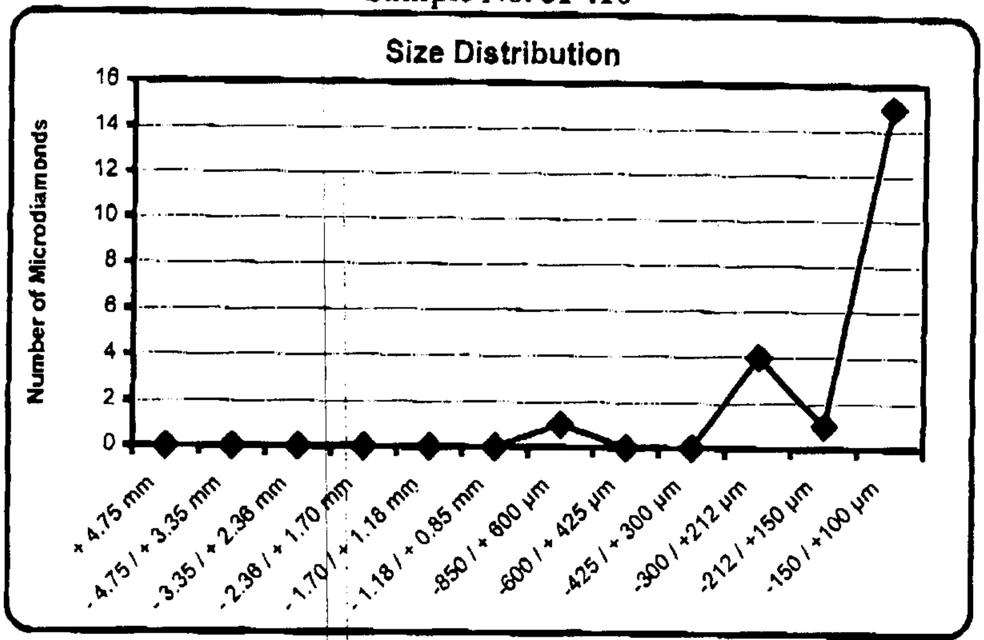
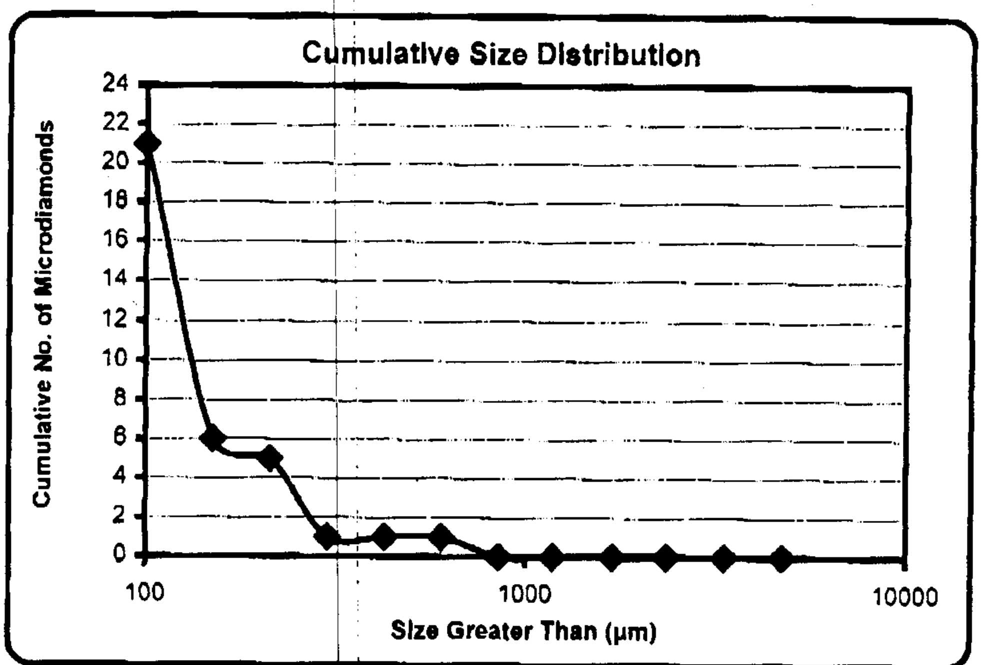
Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. JI 410





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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **OCT0003.R00**
Sample No. **JI 410**
Sample Weight: 34.14 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
+ 4.75 mm fraction									
0					0.000000			Note 1	
0				0.000	0.000000	**Sub-Total**			
-4.75 / + 3.35 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-3.35 / + 2.36 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-2.36 / + 1.70 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.70 / + 1.18 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-1.18 / + 0.85 mm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-850 / + 600 µm fraction									
1	1.05	1.00	0.56	0.973	0.004865	White	Transparent	85%	Fragment with Crystal Faces, twinned, graphite coating, stepped faces
1				0.973	0.004865	**Sub-Total**			

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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **OCT0003.R00**
Sample No. **JI 410**
Sample Weight: 34.14 kg

No.	Stone Dimension, mm X	Y	Z	Weight mg	Carats	Colour	Clarity	Percent Preservation	Stone Description Morphology
-600 / + 425 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.48	0.26	0.22		0.000000	White	Transparent	85%	Fragment with Crystal Faces, stepped faces, minor cleavages
2	0.34	0.20	0.22		0.000000	White	Transparent	95%	Octahedral, stepped faces
3	0.34	0.31	0.29		0.000000	White	Transparent	95%	Octahedral, twinned, graphite coating
4	0.48	0.31	0.19		0.000000	White	Transparent	85%	Octahedral, twinned, stepped faces
4				0.186	0.000930	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.20	0.14	0.18		0.000000	White	Transparent	85%	Fragment with Crystal Faces, twinned, graphite coating, very minor cleavages
1				0.007	0.000035	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.26	0.14	0.13		0.000000	White	Transparent	85%	Fragment with Crystal Faces, twinned
2	0.20	0.14	0.11		0.000000	White	Transparent	85%	Fragment with Crystal Faces, stepped faces, graphite coating
3	0.20	0.14	0.12		0.000000	Off White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages
4	0.17	0.17	0.12		0.000000	White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages
5	0.20	0.17	0.10		0.000000	White	Transparent	85%	Fragment with Crystal Faces, twinned, very minor cleavages

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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **OCT0003.R00**

Client: **Twin Mining Corporation**

Sample No. **JI 410**

Sample Weight: 34.14 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
6	0.17	0.14	0.12		0.000000	White	Transparent	99+%	Octahedral, twinned, stepped faces
7	0.17	0.14	0.12		0.000000	White	Transparent	85%	Fragment with Crystal Faces, stepped faces, graphite coating
8	0.17	0.14	0.07		0.000000	White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages, graphite coating
9	0.17	0.14	0.08		0.000000	White	Transparent	85%	Fragment with Crystal Faces
10	0.17	0.17	0.12		0.000000	White	Transparent	85%	Aggregate
11	0.14	0.09	0.11		0.000000	White	Transparent	85%	Fragment with Crystal Faces, twinned
12	0.14	0.14	0.10		0.000000	White	Transparent	85%	Fragment with Crystal Faces
13	0.23	0.14	0.10		0.000000	White	Transparent	85%	Octahedral, twinned, graphite coating
14	0.31	0.14	0.12		0.000000	Brown	Transparent	95%	Octahedral, twinned
15	0.17	0.11	0.09		0.000000	White	Transparent	85%	Fragment with Crystal Faces, minor cleavages
15				0.063	0.000315	Sub-Total			
21					0.006145	TOTAL			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 5, 2000
LIMS No. **SEP0009.R00**
Sample No. **JI 410**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Rock fragments and silicates
-6+20	Ferromagnetic Non-mag	Oxides and silicates
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 63.90 kg
Number of Syndites: 0

Total Weight (carats)*: 0.001
Number of Diamonds: 27

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 5, 2000
LIMS No. **SEP0009.R00**
Sample No. **JI 410**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	0	0.000	0.000
	-425 / + 300 µm	1	0.128	0.001
	-300 / +212 µm	1	0.011	0.000
	-212 / +150 µm	5	0.040	0.000
	-150 / +100 µm	20	0.080	0.000
	TOTAL	27	0.259	0.001

Sample Weight: 63.90 kg
Number of Syndites: 0

Total Weight (carats)*: 0.001
Number of Diamonds: 27

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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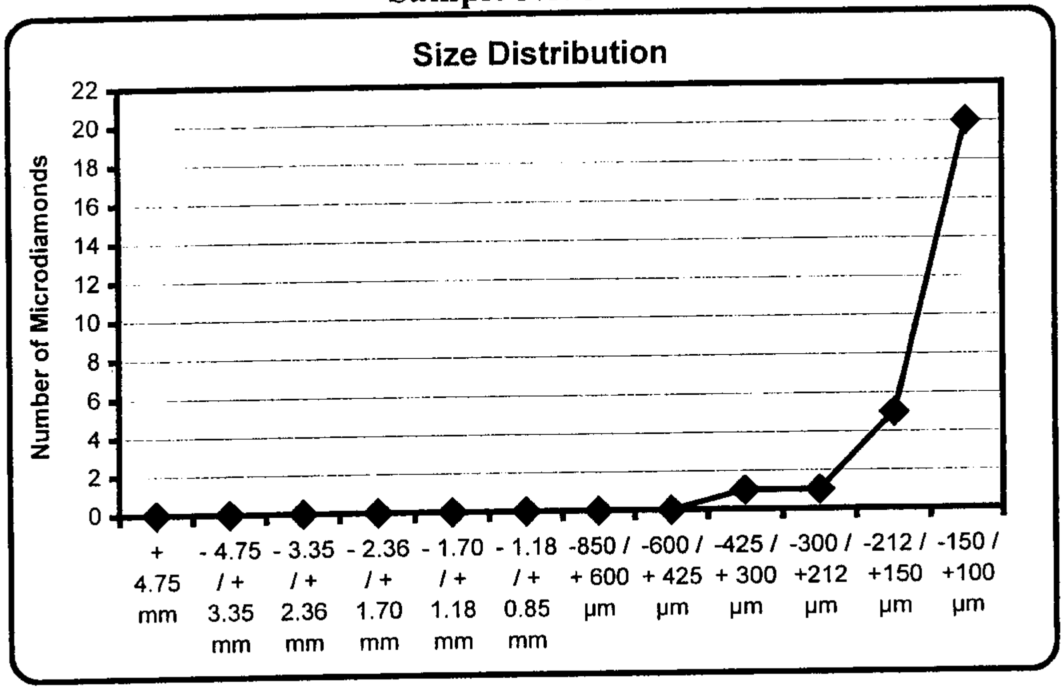
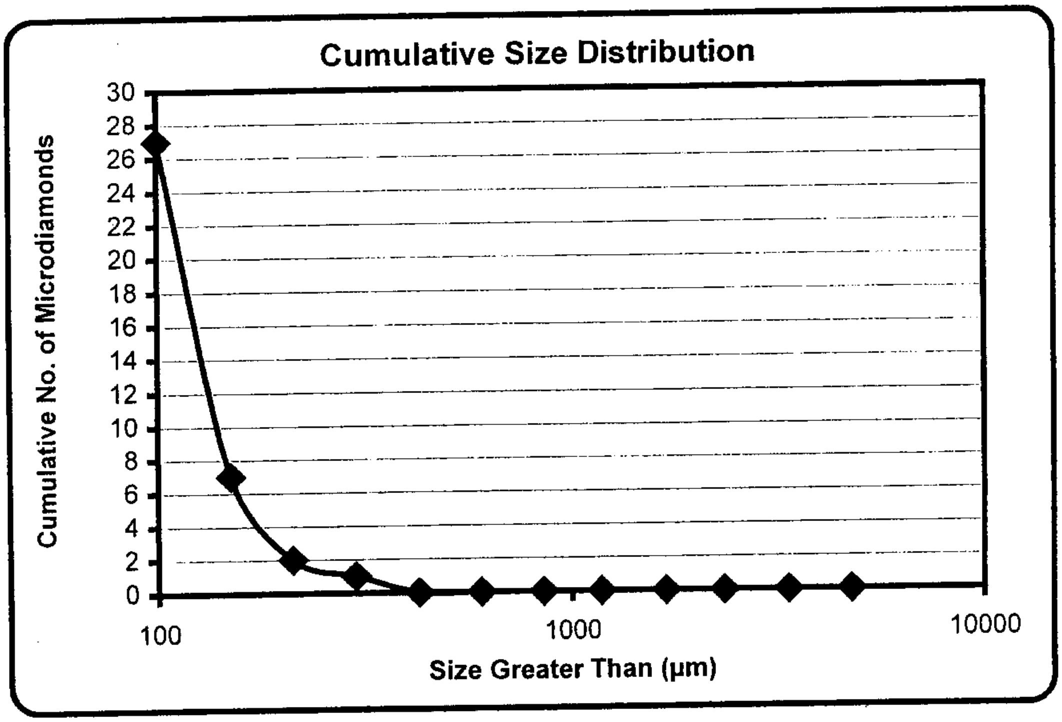
Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. JI 410





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October 5, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0009.R00**
Sample No. **JI 410**
Sample Weight: 63.90 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 µm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			

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October 5, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0009.R00**
Sample No. **JI 410**
Sample Weight: 63.90 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	-600 / + 425 µm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-425 / + 300 µm fraction								
1	0.51	0.40	0.41		0.000000	White	Transparent	99+%	Octahedral, graphite inclusions
1				0.128	0.000640	**Sub-Total**			
	-300 / + 212 µm fraction								
1	0.31	0.29	0.14		0.000000	White	Transparent	99+%	Macle, graphite coating, very minor cleavages
1				0.011	0.000055	**Sub-Total**			
	-212 / + 150 µm fraction								
1	0.23	0.23	0.11		0.000000	White	Transparent	99+%	Octahedral
2	0.23	0.17	0.20		0.000000	White	Transparent	99+%	Octahedral
3	0.26	0.20	0.13		0.000000	White	Translucent	85%	Aggregate
4	0.29	0.29	0.04		0.000000	White	Transparent	99+%	Macle, twinned
5	0.20	0.17	0.12		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite coating
5				0.040	0.000200	**Sub-Total**			
	-150 / + 100 µm fraction								
1	0.20	0.17	0.11		0.000000	White	Transparent	95%	Octahedral, graphite coating, very minor cleavages
2	0.23	0.14	0.12		0.000000	White	Transparent	99+%	Octahedral, graphite coating, minor cleavages
3	0.20	0.17	0.13		0.000000	White	Transparent	99+%	Octahedral, graphite inclusions, stepped faces, very minor cleavages
4	0.23	0.20	0.09		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages

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October 5, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0009.R00**
Sample No. **JI 410**
Sample Weight: 63.90 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
5	0.26	0.17	0.07		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
6	0.17	0.14	0.10		0.000000	White	Transparent	95%	Octahedral, graphite inclusions, very minor cleavages
7	0.20	0.11	0.08		0.000000	White	Transparent	95%	Octahedral, twinned, very minor cleavages
8	0.14	0.14	0.09		0.000000	White	Transparent	99+%	Octahedral
9	0.14	0.14	0.10		0.000000	White	Transparent	95%	Octahedral
10	0.14	0.11	0.06		0.000000	White	Transparent	95%	Macle, twinned
11	0.17	0.11	0.08		0.000000	White	Transparent	95%	Octahedral
12	0.14	0.14	0.09		0.000000	White	Transparent	95%	Octahedral, graphite coating, very minor cleavages
13	0.14	0.14	0.09		0.000000	White	Transparent	95%	Octahedral, graphite coating, stepped faces
14	0.14	0.14	0.08		0.000000	White	Transparent	99+%	Octahedral, twinned, very minor cleavages
15	0.14	0.11	0.07		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, graphite inclusions, minor cleavages
16	0.17	0.17	0.10		0.000000	White	Transparent	99+%	Octahedral, twinned, graphite coating
17	0.17	0.14	0.08		0.000000	White	Transparent	85%	Irregular, minor cleavages
18	0.14	0.14	0.11		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
19	0.14	0.11	0.09		0.000000	White	Transparent	95%	Octahedral, twinned
20	0.11	0.11	0.08		0.000000	White	Transparent	95%	Octahedral, stepped faces
20				0.080	0.000400	**Sub-Total**			

27		0.001295	**TOTAL**

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 6, 2000
LIMS No. **SEP0009.R00**
Sample No. **JI 410 sand from SEP1003**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 96.64 kg
Number of Syndites: 0

Total Weight (carats)*: 0.149
Number of Diamonds: 57

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: October 6, 2000
LIMS No. **SEP0009.R00**
Sample No. **JI 410 sand from SEP1003**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	1	27.722	0.139
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 μm	1	0.591	0.002
Stones Described Individually / Group Weighed	-600 / + 425 μm	1	0.789	0.004
	-425 / + 300 μm	2	0.190	0.001
	-300 / +212 μm	1	0.040	0.000
	-212 / +150 μm	18	0.305	0.002
	-150 / +100 μm	33	0.172	0.001
	TOTAL	57	29.809	0.149

Sample Weight: 96.64 kg
Number of Syndites: 0

Total Weight (carats)*: 0.149
Number of Diamonds: 57

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

M. Mezei
Selection and Description
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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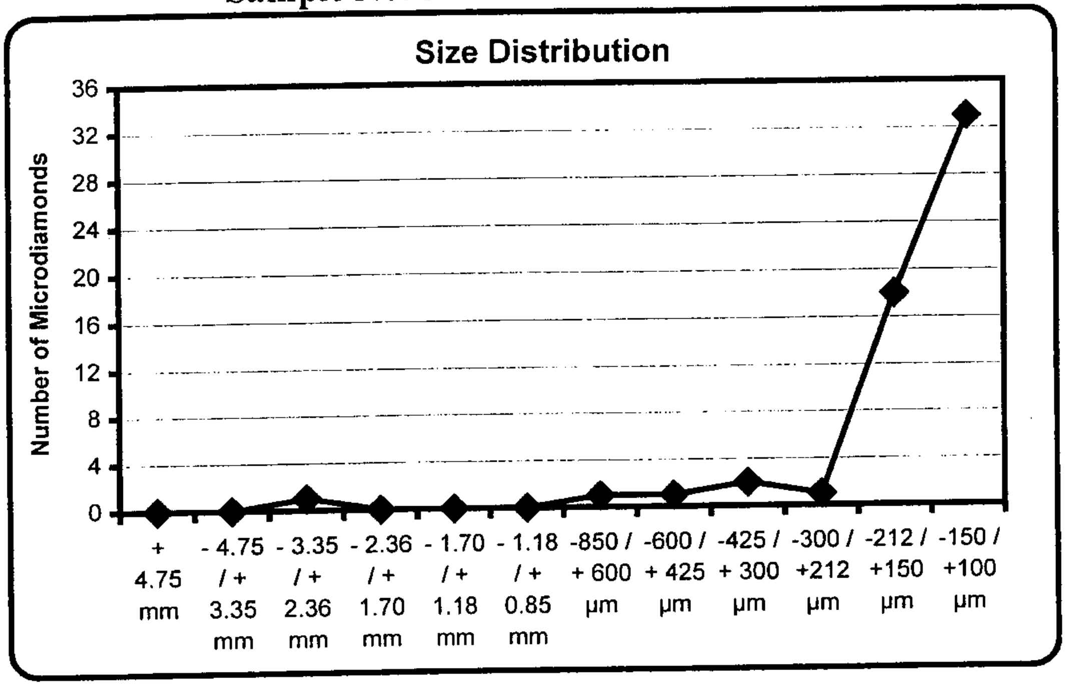
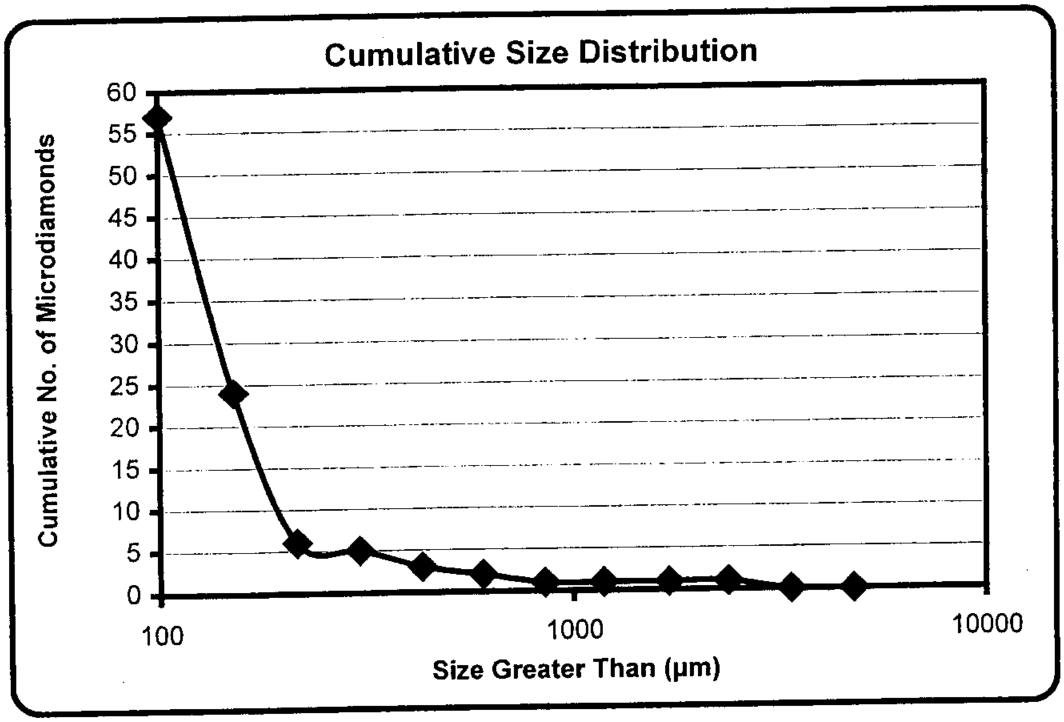
Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

Sample No. JI 410 sand from SEP1003





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October 6, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0009.R00**
Sample No. **JI 410 sand from SEP1003**

Client: **Twin Mining Corporation**

Sample Weight: 96.64 kg

No	tone Dimension, m			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0	2.96	2.85	1.89	27.722	0.138610	White	Translucent	75%	Fragment with Crystal Faces, very significant cleavages, other inclusions
1				27.722	0.138610	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 μm fraction								
1	0.80	0.77	0.26	0.491	0.002455	White	Transparent	75%	Fragment with Crystal Faces, very minor cleavages
1				0.591	0.002455	**Sub-Total**			
	-600 / + 425 μm fraction								
1	1.85	0.66	0.20		0.000000	Brown	Transparent	75%	Fragment with Crystal Faces, minor cleavages
1				0.789	0.003945	**Sub-Total**			

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October 6, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0009.R00**
Sample No. **JI 410 sand from SEP1003**
Sample Weight: 96.64 kg

No	tone Dimension, m			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-425 / + 300 µm fraction									
1	0.68	0.43	0.14		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
2	0.43	0.34	0.18		0.000000	White	Translucent	95%	Octahedral, twinned
2				0.190	0.000950	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.48	0.40	0.17		0.000000	Off White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
1				0.040	0.000200	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.29	0.29	0.19		0.000000	White	Translucent	85%	Octahedral, graphite inclusions, stepped faces
2	0.26	0.23	0.16		0.000000	White	Transparent	99+%	Octahedral, twinned
3	0.29	0.23	0.11		0.000000	White	Transparent	99+%	Octahedral, graphite inclusions, twinned
4	0.26	0.26	0.15		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
5	0.34	0.23	0.17		0.000000	White	Transparent	85%	Fragment with Crystal Faces, minor cleavages
6	0.31	0.17	0.16		0.000000	White	Transparent	95%	Octahedral, twinned
7	0.23	0.20	0.12		0.000000	White	Transparent	99+%	Octahedral
8	0.23	0.20	0.15		0.000000	White	Transparent	99+%	Octahedral, twinned
9	0.17	0.14	0.14		0.000000	White	Transparent	95%	Octahedral, twinned
10	0.23	0.20	0.12		0.000000	White	Transparent	95%	Octahedral, twinned
11	0.23	0.20	0.17		0.000000	White	Transparent	95%	Octahedral, twinned, graphite coating
12	0.23	0.20	0.10		0.000000	White	Transparent	95%	Octahedral, graphite inclusions
13	0.20	0.17	0.15		0.000000	White	Transparent	75%	Irregular
14	0.29	0.17	0.14		0.000000	White	Translucent	75%	Irregular, graphite coating

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October 6, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0009.R00**
Sample No. **JI 410 sand from SEP1003**

Client: **Twin Mining Corporation**

Sample Weight: 96.64 kg

No	tone Dimension, m			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
15	0.29	0.20	0.11		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
16	0.23	0.17	0.17		0.000000	White	Translucent	85%	Fragment with Crystal Faces, significant cleavages, graphite coating, twinned
17	0.26	0.17	0.15		0.000000	White	Transparent	99+%	Octahedral, twinned
18	0.20	0.20	0.16		0.000000	White	Transparent	99+%	Octahedral, twinned
18				0.305	0.001525	**Sub-Total**			
-150 / + 100 μm fraction									
1	0.14	0.14	0.11		0.000000	White	Transparent	99+%	Octahedral
2	0.14	0.14	0.11		0.000000	White	Transparent	99+%	Octahedral
3	0.11	0.11	0.10		0.000000	White	Transparent	99+%	Octahedral
4	0.14	0.11	0.14		0.000000	White	Transparent	95%	Macle, twinned
5	0.17	0.11	0.11		0.000000	White	Transparent	85%	Octahedral, twinned, graphite coating
6	0.26	0.14	0.13		0.000000	White	Transparent	99+%	Octahedral, twinned
7	0.17	0.14	0.11		0.000000	White	Transparent	75%	Fragment with Crystal Faces, minor cleavages
8	0.20	0.14	0.10		0.000000	White	Transparent	99+%	Octahedral, twinned
9	0.17	0.14	0.09		0.000000	White	Transparent	85%	Fragment with Crystal Faces, minor cleavages
10	0.20	0.14	0.09		0.000000	Off White	Translucent	85%	Octahedral, twinned
11	0.17	0.14	0.07		0.000000	White	Transparent	62.5%	Tetrahexahedral, very minor cleavages
12	0.20	0.11	0.10		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
13	0.23	0.11	0.09		0.000000	White	Transparent	85%	Octahedral, twinned
14	0.20	0.14	0.12		0.000000	White	Transparent	75%	Tetrahexahedral, minor cleavages
15	0.20	0.14	0.07		0.000000	White	Transparent	62.5%	Fragment with Crystal Faces, minor cleavages
16	0.14	0.11	0.08		0.000000	White	Transparent	75%	Fragment with Crystal Faces, minor cleavages
17	0.14	0.11	0.10		0.000000	Pink	Transparent	99+%	Octahedral, twinned

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October 6, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

LIMS No. **SEP0009.R00**
Sample No. **JI 410 sand from SEP1003**

Client: **Twin Mining Corporation**

Sample Weight: 96.64 kg

No	tone Dimension, m			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
18	0.14	0.11	0.11		0.000000	White	Transparent	99+%	Octahedral, twinned
19	0.14	0.11	0.11		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
20	0.14	0.14	0.07		0.000000	White	Translucent	85%	Fragment with Crystal Faces, minor cleavages
21	0.14	0.14	0.05		0.000000	White	Transparent	85%	Macle, twinned
22	0.14	0.11	0.07		0.000000	White	Transparent	85%	Macle, twinned
23	0.14	0.11	0.08		0.000000	White	Transparent	95%	Octahedral, twinned, graphite inclusions
24	0.23	0.11	0.06		0.000000	White	Translucent	75%	Irregular
25	0.17	0.11	0.04		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages, graphite inclusions
26	0.17	0.14	0.05		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages, graphite coating
27	0.29	0.11	0.05		0.000000	White	Translucent	62.5%	Fragment with Crystal Faces, minor cleavages
28	0.17	0.14	0.07		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
29	0.17	0.14	0.06		0.000000	White	Translucent	Note 1	Fragment on which crystal faces unrecognizable, significant cleavages
30	0.20	0.17	0.14		0.000000	White	Transparent	95%	Octahedral, twinned, graphite coating
31	0.20	0.17	0.09		0.000000	White	Translucent	85%	Octahedral, partially frosted
32	0.14	0.14	0.04		0.000000	White	Transparent	99+%	Macle
33	0.17	0.14	0.10		0.000000	White	Transparent	99+%	Octahedral, graphite coating
33				0.172	0.000860	**Sub-Total**			

57		0.148545	**TOTAL**

Note Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **OCT0003.R00**
Sample No. **JI 510**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Rock fragments, oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides, silicates, and graphite

Sample Weight: 6.37 kg
Number of Syndites: 0

Total Weight (carats)*: 0.003
Number of Diamonds: 9

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

M. Cozec
Selection and Description
for Robert Buchan
Consulting Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

Accredited by the Standards Council of Canada to the ISO/IEC Guide 25 standard for specific registered tests.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: November 14, 2000
LIMS No. **OCT0003.R00**
Sample No. **JI 510**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	0	0.000	0.000
Stones Described Individually / Group Weighed	-600 / + 425 µm	1	0.241	0.001
	-425 / + 300 µm	1	0.130	0.001
	-300 / +212 µm	1	0.045	0.000
	-212 / +150 µm	5	0.087	0.000
	-150 / +100 µm	1	0.005	0.000
	TOTAL	9	0.508	0.003

Sample Weight: 6.37 kg
Number of Syndites: 0

Total Weight (carats)*: 0.003
Number of Diamonds: 9

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

A. Aoze'.
Selection and Description
for. Robert Buchan
Consulting Mineralogist

Tracy Gill
Quality Control
Tracy Gill
Mineralogy Technician

Note:
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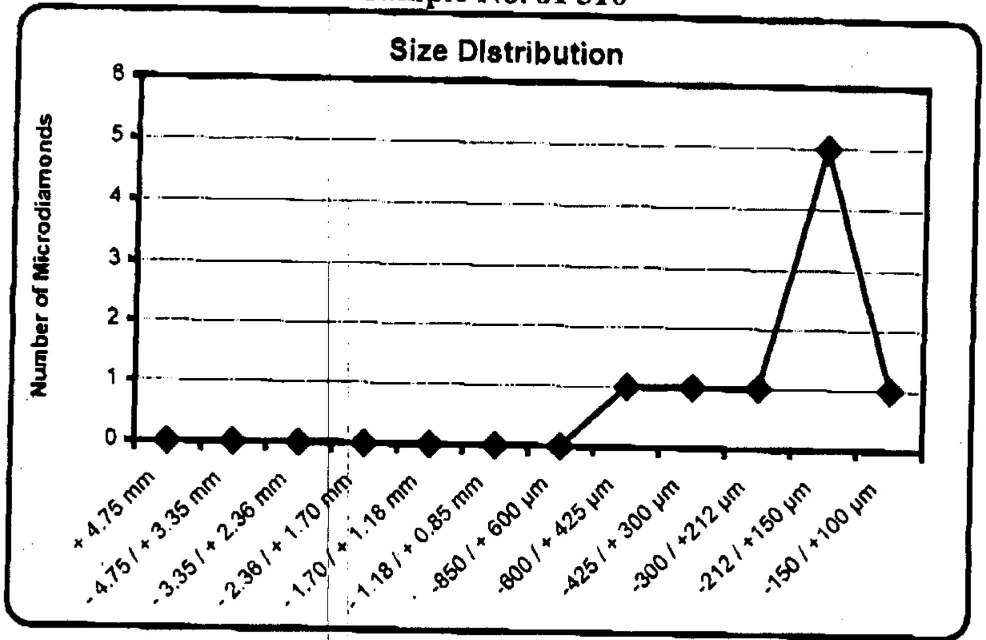
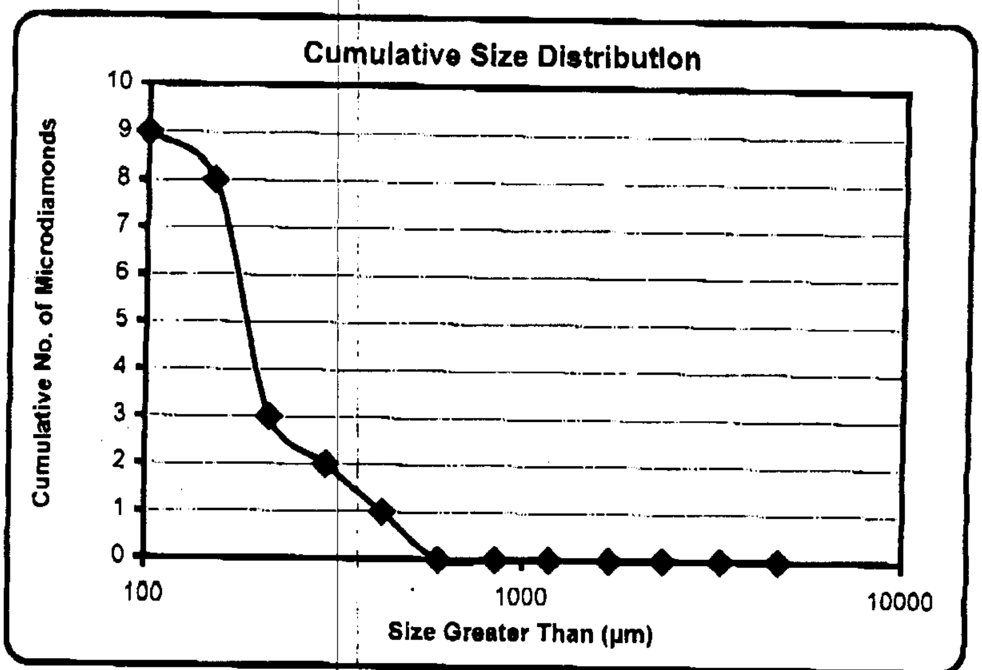
Sample No. JI 510





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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **OCT0003.R00**
Sample No. **JI 510**
Sample Weight: 6.37 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000			Note 1	
0				0.000	0.000000	Sub-Total			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			
	-850 / + 600 μm fraction								
0					0.000000				
0				0.000	0.000000	Sub-Total			

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November 14, 2000

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **OCT0003.R00**
Sample No. **JI 510**
Sample Weight: 6.37 kg

No.	Stone Dimension, mm X	Y	Z	Weight mg	Carats	Colour	Clarity	Percent Preservation	Stone Description Morphology
	-600 / + 425 μm fraction								
1	0.43	0.40	0.44		0.000000	White	Transparent	75%	Tetrahexahedral, very minor cleavages
1				0.241	0.001205	**Sub-Total**			
	-425 / + 300 μm fraction								
1	0.43	0.34	0.37		0.000000	Brown	Transparent	95%	Fragment with Crystal Faces, minor cleavages, twinned
1				0.130	0.000650	**Sub-Total**			
	-300 / + 212 μm fraction								
1	0.29	0.26	0.18		0.000000	White	Transparent	95%	Fragment with Crystal Faces, very minor cleavages, twinned
1				0.045	0.000225	**Sub-Total**			
	-212 / + 150 μm fraction								
1	0.20	0.17	0.14		0.000000	White	Transparent	85%	Fragment with Crystal Faces, significant cleavages, twinned
2	0.23	0.20	0.14		0.000000	White	#N/A	95%	Octahedral, graphite inclusion, minor cleavages, twinned
3	0.20	0.17	0.15		0.000000	White	Transparent	95%	Octahedral, very minor cleavages
4	0.26	0.17	0.14		0.000000	White	Transparent	95%	Octahedral, frosted, very minor cleavages
5	0.23	0.23	0.13		0.000000	White	Transparent	85%	Fragment with Crystal Faces, very minor cleavages, twinned, graphite inclusions
5				0.087	0.000435	**Sub-Total**			
	-150 / + 100 μm fraction								
1	0.11	0.11	0.09		0.000000	White	Transparent	95%	Fragment on which crystal faces unrecognizable, significant cleavages
1				0.005	0.000025	**Sub-Total**			
9					0.002540	**TOTAL**			

Note 1: Diamond Fragments - No Crystal Faces - Preservation (Resorption) cannot be estimated.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: September 28, 1998
LIMS No. **SEP0009.R00**
Sample No. **JI 610 from SEP1003**

Mesh	Fraction	Dissolution Residue Description
+6	Ferromagnetic Non-mag	Not applicable
-6+20	Ferromagnetic Non-mag	Rock fragments, silicates, and oxides
+100	Ferromagnetic Mag	Oxides and silicates
-20+100	Paramagnetic Mag (0.1 amp)	Not applicable
-20+100	Paramagnetic Mag (0.3 amp)	Not applicable
-20+100	Diamagnetic Mag (0.5 amp)	Oxides and silicates
-20+100	Diamagnetic Non-mag (0.5 amp)	Oxides and silicates

Sample Weight: 20.73 kg
Number of Syndites: 0

Total Weight (carats)*: 0.023
Number of Diamonds: 12

* Total Weight (carats) was calculated from mg weights. All reported mg weights are measured to within 0.002 mg.

Tracy Gill
Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei
Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
Lakefield Research Limited is not responsible for the determination of the origin, quality or value of any diamonds recovered. Each +35 mesh (Tyler sieve; +0.420 mm) stone was individually weighed, and the -35 mesh stones were weighed in groups. Stone dimensions are limited to accuracy of three dimensional measurements of irregular shapes using a petrographic microscope.

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DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**
Client: **Twin Mining Corporation**

Date: September 28, 1998
LIMS No. **SEP0009.R00**
Sample No. **JI 610 from SEP1003**

	Diamond Size Fractions	Number of Stones in Group	Group Weight (mg)	Group Carats (calculated)
Stones Described and Weighed Individually	+ 4.75 mm	0	0.000	0.000
	- 4.75 / + 3.35 mm	0	0.000	0.000
	- 3.35 / + 2.36 mm	0	0.000	0.000
	- 2.36 / + 1.70 mm	0	0.000	0.000
	- 1.70 / + 1.18 mm	0	0.000	0.000
	- 1.18 / + 0.85 mm	0	0.000	0.000
	-850 / + 600 µm	2	3.961	0.020
Stones Described Individually / Group Weighed	-600 / + 425 µm	1	0.223	0.001
	-425 / + 300 µm	0	0.000	0.000
	-300 / +212 µm	1	0.029	0.000
	-212 / +150 µm	3	0.360	0.002
	-150 / +100 µm	5	0.031	0.000
	TOTAL	12	4.604	0.023

Sample Weight: 20.73 kg
Number of Syndites: 0

Total Weight (carats)*: 0.023
Number of Diamonds: 12

* Total Weight (carats) was calculated from mg weights. All reported mg weights are weighed to within 0.002 mg.

Tracy Gill

Selection and Description
Tracy Gill
Mineralogy Technician

M. Mezei

Quality Control
Maria Mezei
Assistant Rare and Precious Gem Mineralogist

Note:
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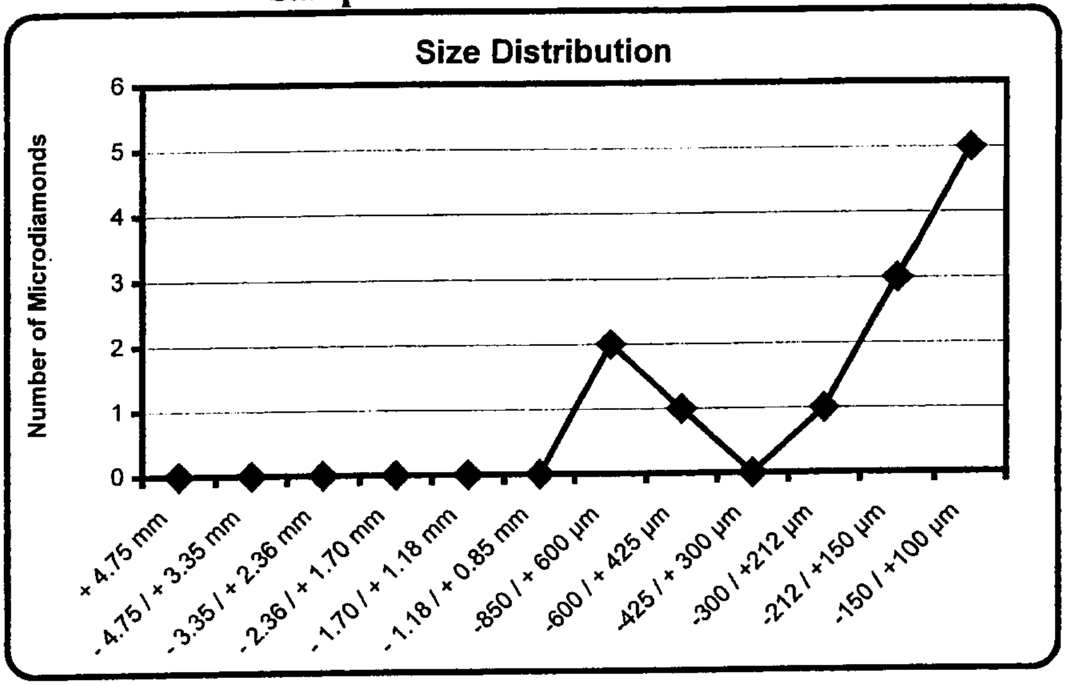
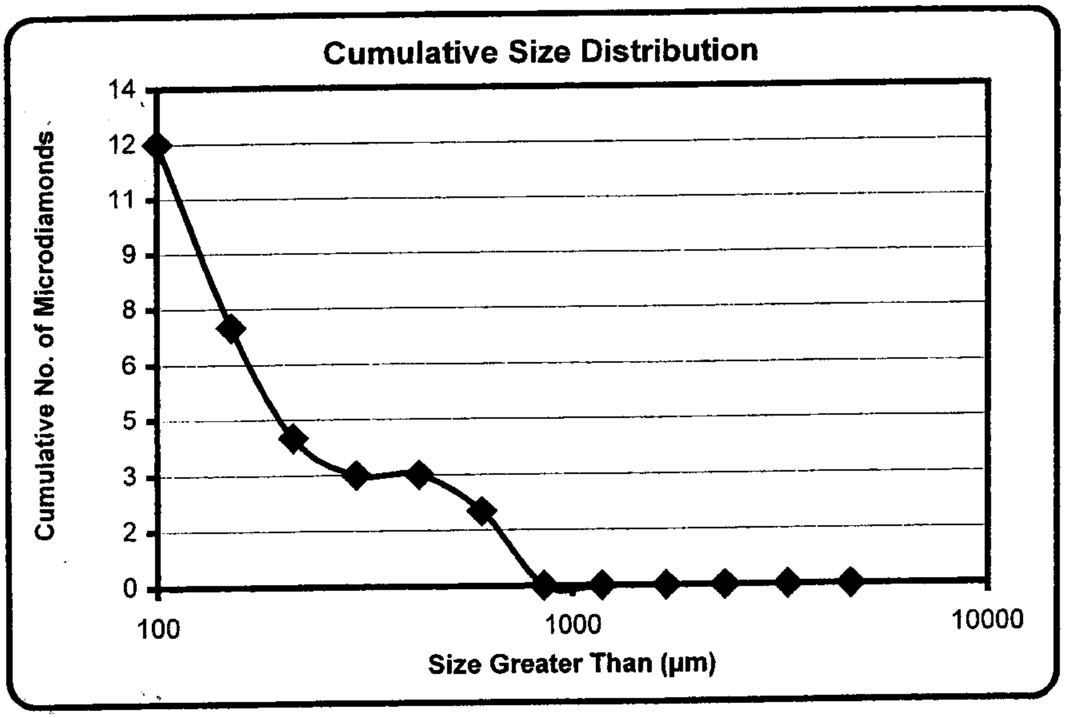
Sample No. JI 610 from SEP1003





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September 28, 1998

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0009.R00**
Sample No. **JI 610 from SEP1003**
Sample Weight: 20.73 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
	+ 4.75 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-4.75 / + 3.35 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-3.35 / + 2.36 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-2.36 / + 1.70 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.70 / + 1.18 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-1.18 / + 0.85 mm fraction								
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
	-850 / + 600 µm fraction								
1	1.48	1.14	1.03	2.817	0.014085	White	Transparent	85%	Fragment with Crystal Faces, significant cleavages
2	1.03	0.83	0.20	1.144	0.005720	White	Transparent	85%	Fragment with Crystal Faces, significant cleavages
2				3.961	0.019805	**Sub-Total**			

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September 28, 1998

DIAMOND RECOVERY BY CAUSTIC DISSOLUTION

Project: **8901-221**

Client: **Twin Mining Corporation**

LIMS No. **SEP0009.R00**
Sample No. **JI 610 from SEP1003**
Sample Weight: 20.73 kg

No.	Stone Dimension, mm			Weight				Percent	Stone Description
	X	Y	Z	mg	Carats	Colour	Clarity	Preservation	Morphology
-600 / + 425 µm fraction									
1	1.00	0.71	0.12		0.000000	Off White	Transparent	75%	Dodecahedral, minor cleavages
1				0.223	0.001115	**Sub-Total**			
-425 / + 300 µm fraction									
0					0.000000				
0				0.000	0.000000	**Sub-Total**			
-300 / + 212 µm fraction									
1	0.31	0.29	0.14		0.000000	White	Translucent	85%	Fragment with Crystal Faces, significant cleavages
1				0.029	0.000145	**Sub-Total**			
-212 / + 150 µm fraction									
1	0.43	0.34	0.14		0.000000	Off White	Transparent	Note 1	Fragment on which crystal faces unrecognizable
2	0.26	0.23	0.13		0.000000	Off White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, graphite inclusions, minor cleavages
3	0.20	0.17	0.12		0.000000	White	Transparent	99+%	Octahedral, graphite coating
3				0.360	0.001800	**Sub-Total**			
-150 / + 100 µm fraction									
1	0.14	0.14	0.12		0.000000	White	Transparent	Note 1	Fragment on which crystal faces unrecognizable, minor cleavages
2	0.20	0.14	0.06		0.000000	White	Transparent	99+%	Octahedral, twinned
3	0.17	0.14	0.07		0.000000	White	Translucent	95%	Octahedral, twinned
4	0.23	0.14	0.12		0.000000	White	Translucent	62.5%	Irregular
5	0.14	0.11	0.06		0.000000	White	Translucent	75%	Fragment with Crystal Faces, significant cleavages
5				0.031	0.000155	**Sub-Total**			

12		0.023020	**TOTAL**

ANNEX 9

Lakefield Research Limited report -

Petrography of Kimberlite Samples

November 2000

Samples submitted by Twin Mining Corporation

Petrography report on Freightrain claim kimberlite samples had not been submitted by Lakefield Research at the time of writing this representation work report. Two copies will be forwarded to the Mining Recorded as soon as it is received from Lakefield.

Dallas W. Davis