

2004

Investment and Economic Analysis  
Resources Wildlife and Economic Development

NWT

# Economic Trends

## the diamond industry economic impacts

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The Northwest Territories diamond industry has grown astronomically in the past five years - from nothing to the world's third largest supplier of rough diamonds.

BHP Billiton opened Canada's first diamond mine, the Ekati™ mine, in 1998. In 2003, the Diavik mine was opened by Rio Tinto. A third mine, De Beer's Snap Lake Project, is currently undergoing regulatory review and is expected to start production in 2007.

In 2003, production from the Ekati™ and Diavik mines totalled approximately \$1.72 billion, about 12% of world diamond production by value. The operations of these two mines placed the NWT ahead of South Africa (11%) and behind only Russia (18%) and Botswana (29%) in terms of diamond production. (Source- Diamond Intelligence Briefs, April 25, 2003)

As would be expected, diamond mining has made a significant impact on the NWT economy. Over their life, the two operating mines, along with the planned third mine, will contribute \$25.7 billion to the NWT's GDP. These mines are expected to generate 124,528 person years of employment (direct, indirect and induced); slightly more than half - 63,056 person years - will be created in the rest of Canada.

All three mines are expected to generate over \$7 billion in total government revenues. However, under current fiscal arrangements with Canada, net GNWT revenues will be limited to only about \$260 million of that total (Conference Board of Canada estimate).

Access to rough diamonds has created an opportunity to promote cutting and polishing in the NWT. In addition to employment, cutting and polishing promotes northern jewelry design, manufacturing and retailing.



**Figure 1:** Diamonds from the Ekati™ Diamond mine; the first operating diamond mine in Canada



# diamond mine development & production

Mine Overview (Minerals, Oil and Gas Division of RWED, GNWT)

## BHP Billiton Ekati™ Diamond Mine

The Ekati™ diamond mine was opened on October 14, 1998 in the sub-Arctic barren lands of the NWT, 300 kilometers northeast of the city of Yellowknife. Approximately 150 kimberlite pipes have been identified on the property; 20 of these have been bulk sampled.

“The Ekati™ diamond mine is primarily an open-pit mine with one test underground operation (Koala North). The mine plan envisages mining a number of kimberlite pipes (Panda, Koala, Misery, Fox, Beartooth, Sable and Pigeon), two of which (Panda and Koala) will be later mined by underground methods.” Source: BHP Billiton's web page

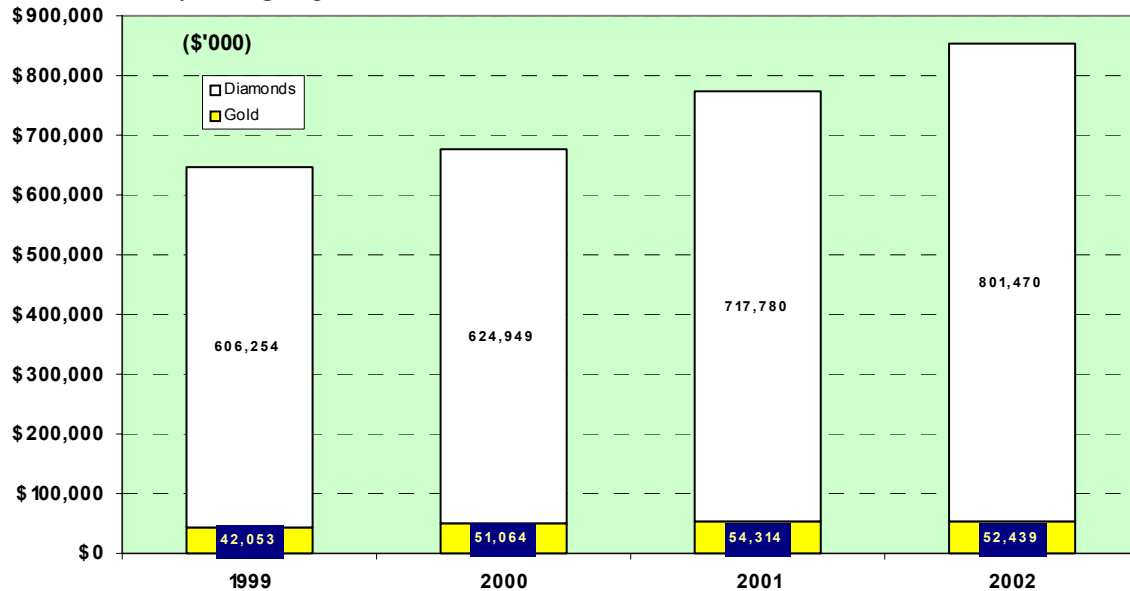
Ore reserves as of June 2003 were 47.7 million tonnes grading at 0.8 carats per tonne using a 2 millimeter square mesh screen stone size cutoff (one carat equals 0.2 grams).

During 2003, it is expected that the Ekati™ Mine will process 4.5 million tonnes of kimberlite ore. Some 47.6 million tonnes of waste material will be produced over the same period. Diamond production is expected to exceed 5 million carats. This will account for around 3% of 2003 global production by weight, or about 6% by value, attesting to the high quality of Ekati™ diamonds.

The ore is currently being processed at an average rate of 12,000 tonnes per day, up from the original 9,000 tonnes as indicated in the mine's original feasibility study. The mine is slated to cease production in 2014 or 2015.

“During 2002, approximately 900 employees worked directly for the mine and a further 1,947 employees worked for mine contractors. Slightly more than 55% were northern residents.” (source: *BHP Billiton Annual Report on Northern and Aboriginal Employment 2002*)

Chart 1: Value of Mining Shipments From the NWT



Source: Minerals Oil and Gas Division, RWED, GNWT

# diamond mine development & production

## Mine Overview (Minerals, Oil and Gas Division of RWED, GNWT)

### The Diavik Diamond Mine

Permitting and licensing approvals for the Diavik mine development were obtained from the federal government in late 1999. Construction of the mine, a \$1.25 billion investment, was completed in January 2003. During the 2001 winter road season, 4,089 truckloads of fuel, construction materials and equipment were hauled to the project site; a further 3,000 truckloads of supplies reached the mine site during the 2002 winter road season.

Diavik reserves are estimated at 27.1 million tonnes grading at 3.9 carats per tonne, making this one of the world's richest mines. The life of the mine is estimated at 20 years, with production averaging 5.4 million carats per year. Diamond prices over the life of the mine are expected to be \$66.57USD per carat (in 2003 dollars).

The original mine plan called for 1.5 million tonnes of ore to be processed annually. However, the plan was recently revised and now calls for 2.1 million tonnes of ore to be mined in 2004. Of this amount, 1.7 million tonnes will be processed with diamond production totaling 8.2 million carats. The remaining 400,000 tonnes of ore will be stockpiled and processed when capacity allows.

In addition to seeking reserve increases within the A-154 North pipe, exploration efforts will target new reserves in the immediate mine area as well as over the broader Diavik property. Budgeted exploration expenditures have been increased from \$4 million in 2003 to \$6 million for 2004. Emphasis will be placed on the evaluation of 27 kimberlite pipes located within a central core of the Diavik claim supplemented by ongoing, wider exploration for new pipes.

As of the end of September 2003, Diavik produced 2.7 million carats of diamonds. During the same period approximately 19 million tonnes of waste rock and 1 million tonnes of kimberlite ore were mined. Aber, 40% owner of the Diavik mine, received \$96.22USD per carat for the first parcel of diamonds sold by the company.

The work force at Diavik currently numbers 625, of which 73% are Northern and 37% are Aboriginal.



## diamond mine development & production

Mine Overview (Minerals, Oil and Gas Division of RWED, GNWT)

### Snap Lake Project

The DeBeers' Snap Lake Project is located approximately 220 kilometers northeast of Yellowknife. A project description to allow development of the mine was submitted in February, 2001 to the Mackenzie Valley Land and Water Board. Subject to the water licence approval, mine construction is anticipated to begin in 2005, with production commencing in 2007. The Snap Lake ore body is a kimberlite dyke with a mineable resource of 22.8 million tonnes. Mining will be by underground methods with a plant throughput of 3,000 tonnes per day. The ore body grades at 1.46 carats per tonne with the diamonds valued at \$83USD per carat. Mine life is estimated to be approximately 21 years. The project will employ up to 450 people during construction and approximately 525 people during operations. The mine's annual production will account for about three percent (3%) of the world's diamond production by value.

### Gahcho Kue Project

De Beers' Gahcho Kue (Kennady Lake) Project is located approximately 300 km northeast of Yellowknife. Pre-feasibility studies are currently underway and the two best pipes contain an indicated resource of 14 million tonnes at 1.64 carats per tonne, with the diamonds valued at ~\$55USD per carat. Should Gahcho Kue commence production, it is estimated the mine could produce three percent (3%) of the world's annual diamond production by value.

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*For information on diamond mine development and production please contact Warwick Bullen at 867-873-7086 or email [warwick\\_bullen@gov.nt.ca](mailto:warwick_bullen@gov.nt.ca)*

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### Map of the Northwest Territories Showing Approximate Mine Locations



Source: Investment and Economic Analysis, RWED, GNWT

## adding value to diamonds

(Contributed by the Diamond Projects Division, RWED)

### **Sirius Diamonds NWT Ltd.**

Sirius was established in June of 1999. The factory employs approximately 25 people. Sirius is a participant in the GNWT Diamond Certification Program and are producers of the very popular “Polar Bear” brand of polished diamonds.

### **Arslanian Cutting Works NWT Ltd. (ACW)**

Originally established in December of 2000, Arslanian Cutting Works employs approximately 45 workers. It is a participant in the GNWT Diamond Certification Program and markets production through Tri-Star in New York and Basal Diamond in Montreal.

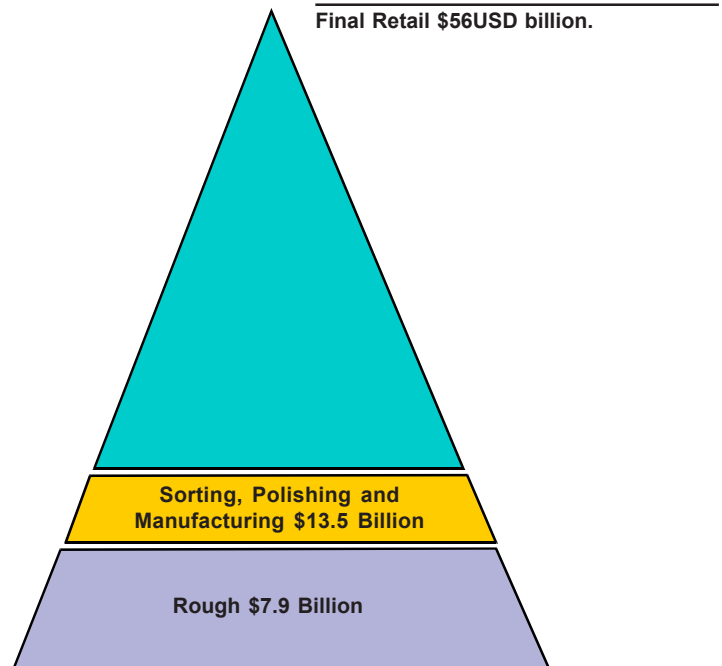
### **Canada Dene Diamonds Ltd. (CDD)**

Canada Dene Diamonds (CDD) began production in mid-2003. CDD is a joint venture between the Deton’Cho Corporation and Schachter & Namdar, an Israeli diamond company. CDD employs approximately 15 people. CDD is a participant in the GNWT Diamond Certification Program, and markets production through Schachter & Namdar’s office in New York.

### **Laurelton Diamonds**

Laurelton Diamonds, 100% owned by Tiffany & Co. (New York), began production in late 2003; the company employs approximately 15 people in Yellowknife. Its polished diamond production is marketed through the Tiffany retail outlets.

**Chart 2: The Diamond Pipeline**



*The diamond pipeline is a representation in value of the steps in the diamond chain, from mining of rough to retailing of polished diamond jewelry. The progression through the diamond pipeline shows how world rough diamond production of \$7.9USD billion ultimately translates into \$56USD billion in worldwide diamond jewelry sales.*

Source: NWT Diamond Projects Division, RWED, GNWT

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## positive impacts on the traditional and new economy

Based on a joint household survey by the NWT Bureau of Statistics and the Department of Wildlife, Resources and Economic Development

### Impacts of Diamond Development on Dogrib Communities

In late 2002, the NWT Bureau of Statistics and the Department of Resources Wildlife and Economic Development (RWED) completed a regional employment and harvesting survey. The survey involved a sample of 3,079 NWT residents. Detailed information on the survey and its methodology is available from the Bureau of Statistics web site (<http://www.stats.gov.nt.ca>).

Harvesting information was collected on trapping, hunting and fishing, gathering berries, and gathering plants for medicinal purposes. Household information was also collected on the consumption of fire wood (number of cords), arts and crafts production and country foods.

While seasonal employment patterns and survey timing make comparisons difficult, it is evident diamond mine development has significantly improved labour market conditions, especially in the North Slave.

Table 1 compares trends in the “Dogrib communities” to the overall Aboriginal population. During the 1999 to 2002 period, Dogrib communities accounted for only 16% of labour force growth, yet they accounted for 29% of the aboriginal employment increase and 42% of the aboriginal unemployment decline.

While employment has increased, traditional harvesting in “Dogrib” communities has also remained stable or increased. Chart 3, on page 7, shows that trapping participation in the Dogrib communities has actually increased since 1999. Chart 4 shows that participation in other harvesting activity (berry picking and medicinal plant usage) also remains strong.

Employment income allows residents to purchase new equipment, particularly snowmobiles. (Hobart 1990) This allows easier and broader access to the land. Similar trends were noted in Northern Quebec, where wage earners used their earnings to charter airplanes and trucks to reach harvesting areas more quickly and with more provisions. Increased mobility also spread hunting activity over a wider area and facilitated access to more remote, infrequently harvested regions. The purchase of used equipment such as snowmobiles, all-terrain vehicles, canoes, boats, and outboard motors at a good price from high income-earners enabled other members of the community to also benefit (Feil 1991).

Direct mine employment is only part of the Dogrib success story. According to community sources, up to 10% of Dogrib youth work directly for Dogrib companies. During the last decade or so, the Dogrib Treaty 11 Council has developed an extensive network of band-owned companies that build roads and houses, operate an airport, run a sporting-goods store, haul diamond ore, fight forest fires and recruit community workers. The council has also formed partnerships with some of Canada’s largest companies, including SNC-Lavalin.

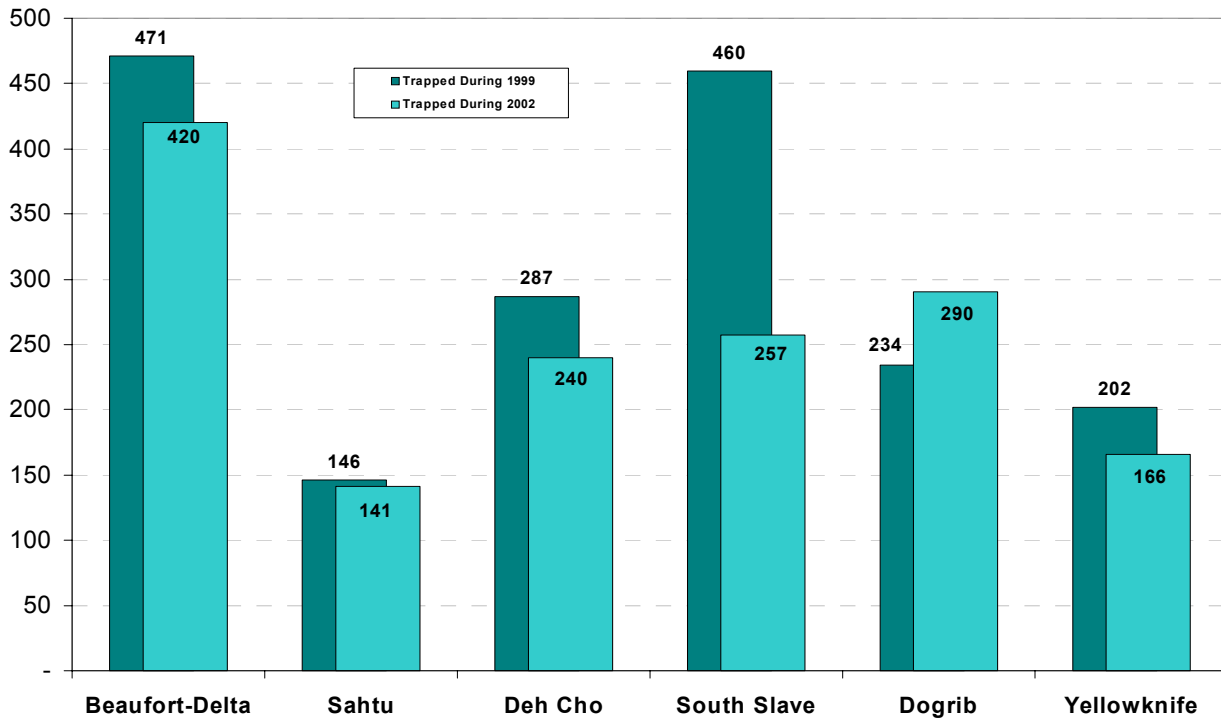
The joint venture with SNC-Lavalin Limited was awarded the Canadian Council of Professional Engineers’ National Award for Engineering Achievement. The Award recognizes work on the design and construction of the Diavik A154 Dike, critical to the mine’s development.

Table 1: Changes in the Aboriginal Labour Force Between 1999 and 2002 Surveys  
Number of Residents

	Labour Force Increase	Employment Increase	Unemployment Decline
Aboriginal Population	446	868	-422
Dogrib	72	248	-176
Dogrib Share	16%	29%	42%

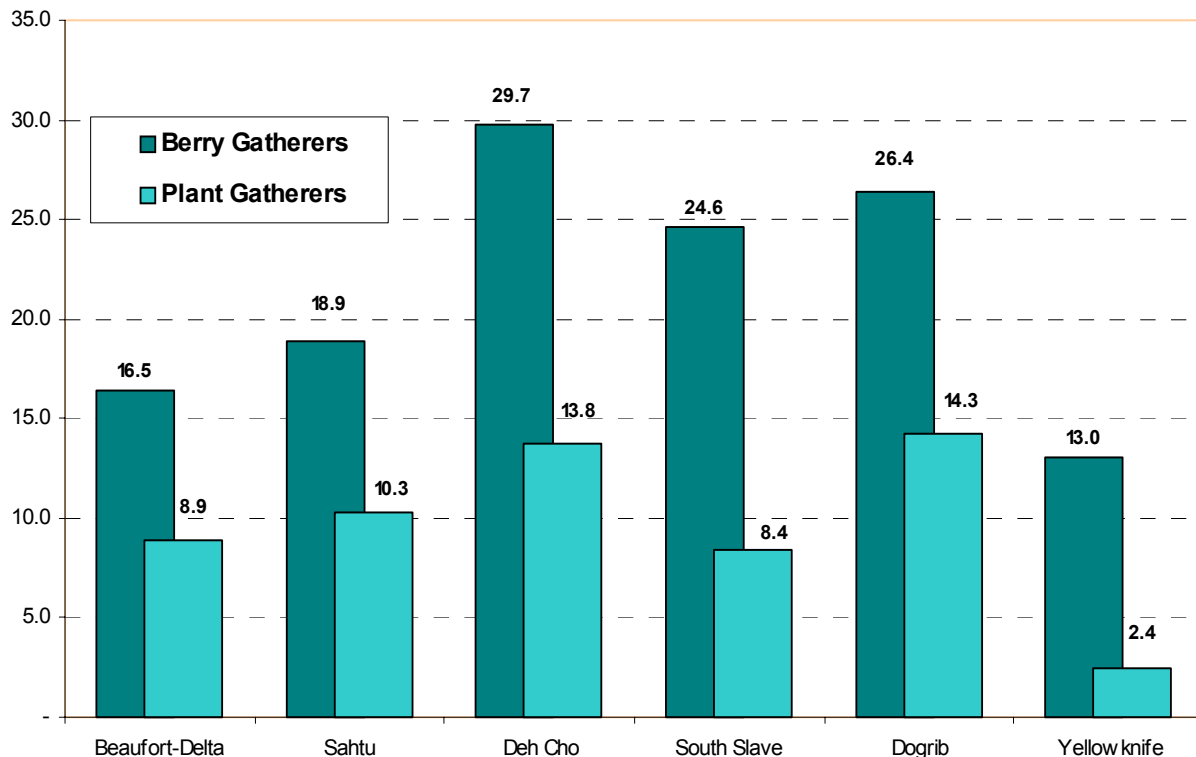
Source: 2002/03 Household Survey, NWT Bureau of Statistics

**Chart 3: Number of trappers 2002/03**



Source: 2002/03 Household Survey, NWT Bureau of Statistics

**Chart 4: Participation rate in Berry Picking and Plant Gathering 2002/03**

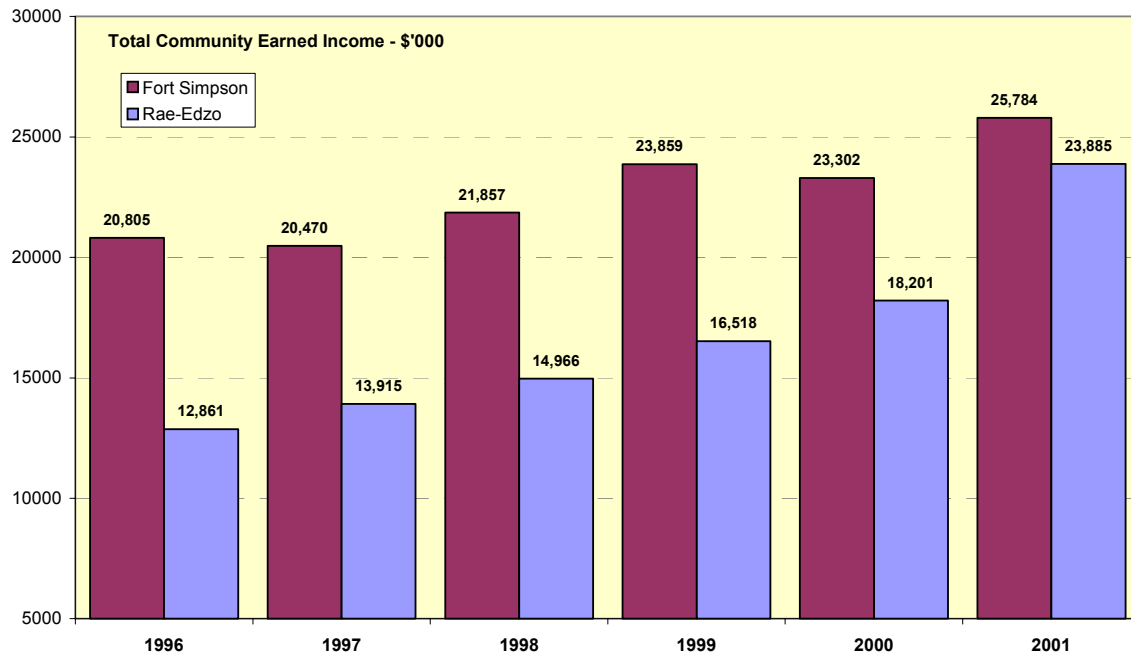


Source: 2002/03 Household Survey, NWT Bureau of Statistics

## rapid employment and income gains in rae edzo

Through a combination of employment and business development, Rae Edzo has been able to significantly increase community employment and wealth.

**Chart 5: Total Earned Income in Fort Simpson and Rae Edzo**



Source: NWT Bureau of Statistics - Total Earned Income

These business ventures combined with mine employment have added significantly to community economic wealth. As shown in Chart 5, total income in Rae Edzo has almost doubled. Overall community income has increased from \$12.8 million in 1996 to 23.9 million in 2001.

Table 2, shows the four NWT communities with the highest percentage growth in earned income. Three of these benefit directly from diamond employment and business opportunities.

*Table 2: Total Community Earned Incomes (Revenue Canada) in \$'000 - Fastest Growing*

	2001	1996	Growth	% Growth
<b>Rae-Edzo</b>	\$ 23,885	\$ 12,861	\$ 11,024	86%
<b>Fort Liard</b>	\$ 9,061	\$ 4,410	\$ 4,651	105%
<b>Lutselk'e</b>	\$ 4,074	\$ 1,814	\$ 2,260	125%
<b>Rae Lakes</b>	\$ 3,363	\$ 1,352	\$ 2,011	149%

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