

DENISON MINES CORP.

Form 6-K

July 10, 2007

**FORM 6-K**  
**UNITED STATES**  
**SECURITIES AND EXCHANGE COMMISSION**  
**Washington, D.C. 20549**

**Report of Foreign Private Issuer**  
**Pursuant to Rule 13a-16 or 15d-16**  
**of the Securities Exchange Act of 1934**

**Date: July 6, 2007**

**Commission File Number: 001-33414**

**Denison Mines Corp.**

(Translation of registrant's name into English)

Atrium on Bay, 595 Bay Street, Suite 402, Toronto, Ontario M5G 2C2

(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.  
Form 20-F  Form 40-F

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1):

**Note:** Regulation S-T Rule 101(b)(1) only permits the submission in paper of a Form 6-K if submitted solely to provide an attached annual report to security holders.

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**Note:** Regulation S-T Rule 101(b)(7) only permits the submission in paper of a Form 6-K if submitted to furnish a report or other document that the registrant foreign private issuer must furnish and make public under the laws of the jurisdiction in which the registrant is incorporated, domiciled or legally organized (the registrant's home country), or under the rules of the home country exchange on which the registrant's securities are traded, as long as the report or other document is not a press release, is not required to be and has not been distributed to the registrant's security holders, and, if discussing a material event, has already been the subject of a Form 6-K submission or other Commission filing on EDGAR.

Indicate by check mark whether by furnishing the information contained in this Form, the registrant is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes  No

If "Yes" is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82- \_\_\_\_\_

**Signatures**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

**Denison Mines Corp.**

*/s/ Brenda Lazare*

Brenda Lazare

Canadian Counsel and Corporate Secretary

Date: July 6, 2007

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EXHIBIT INDEX

| Exhibit Number | Description  |
|----------------|--|
| 1.             | Two consent letters from Scott Wilson RPA dated July 5, 2007;  |
| 2.             | NI43-101 Report entitled, Technical Report on the Elliot Lake Property, Elliot Lake District, Ontario, Canada, prepared for Denison Mines Corp. dated June 29, 2007; and |
| 3.             | Press Release dated July 5, 2007   |

**SCOTT WILSON RPA**

**Exhibit 1**

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**FILED BY SEDAR**

British Columbia Securities Commission  
Alberta Securities Commission  
Saskatchewan Financial Services Commission  
The Manitoba Securities Commission  
Ontario Securities Commission  
Autorité des marchés financiers  
New Brunswick Securities Commission  
Nova Scotia Securities Commission  
Prince Edward Island Department of Provincial Affairs and Attorney General  
Securities Division, Department of Justice Government of Newfoundland and Labrador  
Dear Sirs/Mesdames:

**Re: Denison Mines Corp. (the Company )**

**Filing of Technical Report dated June 29, 2007**

I, Leo Hwozdyk, P.Eng., do hereby consent to the filing of the report titled Technical Report on the Elliot Lake Property, Elliot Lake District, Ontario, Canada (the Report), prepared for Denison Mines Corp. and dated June 29, 2007, on SEDAR. I also consent to the filing of the Report with the securities regulatory authorities referred to above and any publication by them, including electronic publication in the public company files on their websites accessible by the public.

Dated this 5<sup>th</sup> day of July, 2007

/s/ Leo R. Hwozdyk

Leo R. Hwozdyk, P.Eng.  
Associate Mining Engineer

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Alberta Securities Commission  
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The Manitoba Securities Commission  
Ontario Securities Commission  
Autorité des marchés financiers  
New Brunswick Securities Commission  
Nova Scotia Securities Commission  
Prince Edward Island Department of Provincial Affairs and Attorney General  
Securities Division, Department of Justice Government of Newfoundland and Labrador

Dear Sirs/Mesdames:

**Re: Denison Mines Corp. (the Company )**

**Filing of Technical Report dated June 29, 2007**

I, Lawrence Cochrane, P.Eng., do hereby consent to the filing of the report titled Technical Report on the Elliot Lake Property, Elliot Lake District, Ontario, Canada (the Report), prepared for Denison Mines Corp. and dated June 29, 2007, on SEDAR. I also consent to the filing of the Report with the securities regulatory authorities referred to above and any publication by them, including electronic publication in the public company files on their websites accessible by the public.

Dated this 5<sup>th</sup> day of July, 2007

/s/ L.B. Cochrane

Lawrence B. Cochrane, Ph.D., P.Eng.

Principal Geologist

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**Exhibit 2**

**TECHNICAL REPORT ON THE  
ELLIOT LAKE PROPERTY, ELLIOT  
LAKE DISTRICT, ONTARIO, CANADA  
PREPARED FOR  
DENISON MINES CORP.**

**NI 43-101 Report**

**Authors:**

**Lawrence B. Cochrane, Ph.D., P. Eng.**

**Leo R. Hwozdyk, P. Eng.**

**June 29, 2007**

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**1 SUMMARY**

**EXECUTIVE SUMMARY**

Scott Wilson Roscoe Postle Associates Inc. (Scott Wilson RPA) was retained by Denison Mines Corp. (Denison) to prepare an independent Technical Report on the Denison Mine Property at Elliot Lake. The Denison Mine Property contains the Denison and Stanrock Mines, which were closed in 1992 following 35 years of continuous production of U<sub>3</sub>O<sub>8</sub>. The purpose of this report is to review and comment on the historic estimate of the mineral resources remaining on the Denison Mine property. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects.

A site visit was conducted on May 29, 2007, by Mr. Leo Hwozdyk, representing Scott Wilson RPA, accompanied by Mr. Ian Ludgate, Manager of Denison Environmental Services. The purpose of the visit was to tour the various mine installation sites and report on their status.

Tables listing the final mineral resources and mineral reserves as estimated in April 1992 by the technical staff at the Mine, when the Denison Mine was closed, were provided to Scott Wilson RPA by Denison. These tables list the mineral resources and mineral reserves by mining area, classification, cut-off grades and by individual conglomerate reefs within the mining area. Scott Wilson RPA contracted Mr. A. MacEachern, the former Mine Geologist at the Denison Mine and the person who determined the final resource estimates in 1992, to provide a report describing the methods used to estimate the mineral resource remaining at the time of the mine closure.

The uranium mineralization at the Denison Property is contained within quartz-pebble conglomerate beds that vary in thickness from about five feet up to twelve feet. The conglomerate beds, or reefs, are contained within two zones, the Main Zone and the Upper Zone, and each zone contains multiple conglomerate beds separated by barren quartzite beds. The Main Zone and the Upper Zone are separated by 120 ft. of quartzite.

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The historic resources were estimated using classical polygonal methods in 500 ft. by 500 ft. blocks. The grade and thickness of the individual conglomerate beds were estimated by averaging the grade/thickness of the individual drill holes within the block. In the mined areas, packsack diamond drill holes and chip sampling were used in conjunction with the mapping to outline the mineralization. Adjustments were made to the grade and thickness based on underground observations of grade/thickness changes and trends. For the undeveloped resources, and in particular for the outlying resources, where the drill hole spacing was wider, the estimates of grade/thickness were based on extrapolation of the information from the mined blocks.

A minimum bed thickness of six feet was used for resource estimation. Where the bed was less than six feet, it was diluted at a grade of 0.20 lb/ton  $U_3O_8$  to reach the six-foot thickness. A constant tonnage factor of 11.6 ft.<sup>3</sup>/ton was used to estimate the tonnage.

The areas that had been mined were digitized or planimetered to calculate the mined-out area of each reef, and the mined area was not included in the resource estimate.

The mineral resource estimates were classified as Developed and Undeveloped. Developed resources are those resources that have been developed for mining and remain after partial mining. Undeveloped resources are located in blocks beyond existing development workings where no mining has taken place.

The resources were further subdivided into primary mining and pillar mining representing 56% and 70%, respectively, of the total resource available after subtracting mining removal. Resources identified as being contaminated (by intrusion beside the Keyes dyke), or contained within a block that was part of a party wall, are not included in the compilation of the historic resource estimate.

The historic resource estimates were determined at cut-off grades of 0.1 lb/ton, 0.8 lb/ton, 1.0 lb/ton, 1.25 lb/ton, 1.5 lb/ton, and 2.0 lbs/ton  $U_3O_8$ . Table 1-1 lists the historic

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estimate of the resource remaining, using the historic categories, at a cut-off grade of 0.80 lb/ton U<sub>3</sub>O<sub>8</sub> (0.04% U<sub>3</sub>O<sub>8</sub>). A mining recovery of 56% was used for the primary mining stage and 70% for primary plus secondary (pillar) mining. The total resource remaining is also listed. The total resource remaining represents 100% of the mineralization without applying any mining recovery factors. For consistency with current reporting standards for mineral resources, Scott Wilson RPA recommends that the historic resource estimates also be reported without applying mining recovery factors.

The historic resource estimates are based on the technical and economic parameters used by Denison at the time of the mine closure in 1992 and do not reflect current technical and economic parameters. Scott Wilson RPA recommends that the historic resource estimates be reported using a 0.80 lb/ton cut-off grade, which represents the undiluted cut-off grade for the underground leaching over the last years of production and excludes the Interbedded Quartzite unit.

**TABLE 1-1 HISTORIC RESOURCE DEVELOPED AND UNDEVELOPED  
DENISON MINE  
Denison Mines Corp. Elliot Lake**

|                    | %    | Primary |                                    |                         | Total Primary & Pillar             |                          |                                    | Total  |                                    |  |
|--------------------|------|---------|------------------------------------|-------------------------|------------------------------------|--------------------------|------------------------------------|--------|------------------------------------|--|
|                    |      | Mined   | Mining Remaining                   | Pillar Mining Remaining | Mining Remaining                   | Mineralization Remaining |                                    |        |                                    |  |
|                    |      | Tons M  | Lb/t U <sub>3</sub> O <sub>8</sub> | Tons M                  | Lb/t U <sub>3</sub> O <sub>8</sub> | Tons M                   | Lb/t U <sub>3</sub> O <sub>8</sub> | Tons M | Lb/t U <sub>3</sub> O <sub>8</sub> |  |
| <b>Developed</b>   | 24.0 | 33.7    | 1.20                               | 19.6                    | 1.55                               | 53.3                     | 1.32                               | 89.2   | 1.29                               |  |
| <b>Undeveloped</b> | 0    | 45.1    | 1.13                               | 11.3                    | 1.13                               | 56.3                     | 1.13                               | 80.5   | 1.13                               |  |
| <b>Total</b>       | 14.0 | 79.1    | 1.17                               | 31.1                    | 1.39                               | 110.2                    | 1.23                               | 169.7  | 1.21                               |  |

Notes:

1. CIM definitions are not used.
2. Historic resource estimates are reported at cut-off grades of 0.8 lb/t U<sub>3</sub>O<sub>8</sub> (0.04% U<sub>3</sub>O<sub>8</sub>).
3. A minimum width of 6 feet was used.
4. The total primary and pillar mining represents the estimated recoverable resource based on the mining methods employed at the Denison Mine in 1992.
5. The total mineralization remaining represents the total amount of mineral remaining in the ground without applying mining recovery factors.
6. The historic resource estimates cannot be verified and the estimates are not necessarily indicative of the mineralization on the property.

The mineral resource and mineral reserve estimates were conducted prior to the effective date of National Instrument 43-101 on February 1, 2001, and do not conform to

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disclosure requirements under the Instrument. No records of the borehole location, borehole logs, sample assays, underground mapping, or surveys of the mine openings are available to validate the estimates. Scott Wilson RPA has been unable to verify the resource estimates, and notes that the historic estimates are not necessarily indicative of the mineralization on the property that is the subject of the technical report.

In the opinion of Scott Wilson RPA, although the historic resource estimate cannot be validated, the estimate is considered to be reasonable based on the estimation methods used at the time. The historic resource estimate is not considered to be relevant to current economic assessment parameters.

Mr. Alan MacEachern, in his memo to Scott Wilson RPA, states that the most developed resources are in blocks where there are workings with complete diamond drill hole samples. He indicates, however, that, in his opinion, some of the blocks lack sufficient drilling data to be classified as measured. Since the detailed data supporting the original resource estimates are not available, it is not possible to verify the portions of the Developed resource that could be classified as measured or the portions of the Developed resource that could be classified as indicated. MacEachern also states that Undeveloped resources beyond the workings are the equivalent of indicated and inferred resources. Again, however, it is not possible to determine the portion of the Undeveloped resource that could be classified as indicated or the portions of the Undeveloped resource that could be classified as inferred.

In addition to drill spacing, there are other factors that influence the classification. For example poor ground conditions, resulting in the deterioration of the pillars, could result in portions of the resource being unrecoverable and, therefore, not qualified to be categorized as a mineral resource.

In the opinion of Scott Wilson RPA, without access to the drilling information, the historic resource cannot be classified directly based on the CIM classification standards incorporated under NI 43-101.

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**RECOMMENDATIONS**

Although the historic mineral resource estimate for the Denison Mine Property cannot be validated, these estimates do provide sufficient information to carry out order-of-magnitude economic assessments (pre-scoping level) to determine if additional exploration and evaluations are warranted. As part of these studies, the following work is recommended:

Conduct a detailed review of the 400 scale plans to determine the distribution of the mineral resources by reef and classification and outline mining blocks for mining evaluation and scheduling.

Determine the mine production potential and schedule assuming similar mining methods as those used at the time of closure.

Estimate mining, processing, tailings management, and administration costs using similar mining and processing methods that were used at the time the mine was closed as a base case.

Estimate the capital costs for the mine, processing plant, and services and tailings management facilities.

Carry out an estimate on the amount of water in the mine; determine the amount of  $U_3O_8$  contained in the mine water and the recovery, to evaluate the potential to extract  $U_3O_8$  while the mine is being dewatered.

Conduct order-of-magnitude economic assessments.

***COST ESTIMATE***

A preliminary cost estimate for preparing a pre-scoping (conceptual) economic assessment using the historic resource estimate and information available is provided in Table 1-2.

1-5

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**TABLE 1-2 PRE-SCOPING LEVEL COST ESTIMATE**  
**Denison Mines Corp. Denison Mine Property**

| <b>Item</b>            | <b>Comments</b>   | <b>Estimated Cost</b> |
|------------------------|---|-----------------------|
| Resource Distribution  | Detailed assessment of 400-scale plans to determine mining blocks | \$15,000              |
| Mine plan and schedule | Schedule blocks and determine mine production rate                | \$15,000              |
| Capex & Opex           | Assume previous production methods                                | \$15,000              |
| Economic Evaluations   |   | \$10,000              |
| Metallurgical tests    | Extraction tests on mine water                                    | \$20,000              |
| Report                 |   | \$10,000              |
| <b>Total</b>           |   | <b>\$85,000</b>       |

## **TECHNICAL SUMMARY**

### **PROPERTY DESCRIPTION AND LOCATION**

The Denison Mine Property is located in the Elliot Lake District approximately 15 km northeast of the City of Elliot Lake, Ontario. Much of the property is located beneath Quirke Lake. Access to the area is via Highway 108 north from Elliot Lake. The property is located in UTM Zone 17, at approximately 5150000 N and 38000 E in Bouck and Buckles Townships.

### **LAND TENURE**

The Denison Mine Property consists of 75 claims which include 34 Licenses of Occupation (MLO), 31 leases, one patent claim, and nine claims designated as FND status. The term FND (Federal Nuclear Decommissioning) is a federal designation that is superior to any underlying provincial designation, including patent claims. FND designated claims are subject to the federal government's Nuclear Safety Act. In this case, FND refers to claims withdrawn from staking related to the decommissioning of the tailings management areas in Elliot Lake. The terms of the FND claims may be specific to each claim. Denison will need to confirm the status of these claims with regard to exploration and development rights. The property covers 4,085 hectares not counting the patent claim and the nine claims designated as FND status.

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**SITE INFRASTRUCTURE**

Currently the major facilities associated with the Denison Mine Property are:  
A tailings management facility including a water treatment plant

An all weather paved access road

**HISTORY**

A total of 138,500 tonnes of uranium metal was produced from the Elliot Lake deposits from 1958 to the end of 1996. The average grade of the mine production from 12 mines was about 0.09% to 0.10%  $U_3O_8$ .

The original 83 claims containing the Denison Mine deposit were acquired by Denison in 1954. The claims covered the down-plunge extension of the mineral zones identified near surface by the Joubin syndicate which were subsequently developed through the Nordic Mine. Surface drilling that same year resulted in the discovery of the Denison deposit. In 1957, the reserves were estimated at 136.8 million tons averaging 2.78 lbs/ton  $U_3O_8$  (0.139%  $U_3O_8$ ) in the conglomerate beds within the Main Zone. The No. 1 Shaft was sunk to a depth of 1,856 ft. and the No. 2 Shaft was sunk to a depth of 2,766 ft. The mine was brought into production in 1957.

The Can-Met deposit, located southeast and adjacent to the Denison deposit, was discovered in the same year and two shafts were sunk on the deposit in 1957. The initial reserves were estimated at 6.6 million tons at an average grade of 1.83 lbs/ton  $U_3O_8$  (0.092%  $U_3O_8$ ). In 1960, Can-Met Exploration Ltd. amalgamated with Consolidated Denison Mines Ltd. to form Denison Mines Ltd.

The Stanrock property, located due south of the Denison Mine, was purchased by Stancan Uranium Mines Limited (Stancan) in 1954 and Stancan explored the property in 1956 and 1957. Two shafts were sunk on the property. Denison amalgamated with Stanrock Uranium Mines Ltd. in 1973. The Denison and Stanrock Mines operated from 1957 through to March 11, 1992.



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The total production from the Denison Mine was 69.4 million tons grading 2.25 lbs/ton  $U_3O_8$  (0.123%  $U_3O_8$ ). Total shipments of  $U_3O_8$  product were 147.3 million lbs from mined ore, recovery of mine water, recovery from underground leaching, and recycle materials from Cameco Corporation.

The mine was closed in 1992 due to the low price of  $U_3O_8$  resulting from an oversupply on world markets and the opening of higher-grade mines in Saskatchewan. All the buildings were dismantled, the mine openings were sealed, and the disturbed lands were reclaimed and re-vegetated. Approximately 69 million tons of tailings were remaining and these tailings were stored in two engineered basins designated as TMA1 and TMA2 (Tailings Management Area2). A third tailings management area (TMA3) was built to contain approximately 6 million tons of tailings from the Stanrock Mine. The tailings are stored under a water cover of approximately 0.9 m to control acid generation. The work on the tailings management areas was completed in 1996 and the discharge from the tailings has been constantly monitored for about 11 years to ensure the discharge standards are met. The tailings areas are regulated through a Uranium Mine Decommissioning Licence issued by the Canadian Nuclear Safety Commission. Since mine closure in 1992, the facilities have remained in compliance.

**GEOLOGY**

The Elliot Lake area lies within the Southern Province of the Canadian Shield. The Southern Province consists of a thick sequence of clastic sediments with minor sequences of marine limestone and extrusive volcanic rocks. The clastic sequence is intruded by mafic and felsic intrusion. The clastic sequence is referred to as the Huronian Supergroup and these sediments were deposited in the early Proterozoic (2450 Ma to 2115 Ma) on Archean-aged metavolcanic and metasedimentary rocks and granite intrusive rocks of the Superior Province. The majority of the uranium occurrences are hosted in the lower portion of the Matinenda Formation which contain the basal sedimentary units of the Huronian. The Huronian sediments were intruded by sills and dykes of the Nipissing diabase that are dated at 2115 Ma.

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In the Elliot Lake area, the Huronian rocks are folded to form a shallow westward plunging, gently folded syncline designated as the Quirke syncline. The limbs of the Quirke syncline generally dip from 10° to 40° towards its axis.

Although the coarser grained quartzite beds in the lower Matinenda Formation commonly contain low-grade uranium mineralization, the higher grade and more consistent zones of uranium mineralization, are hosted within the beds of quartz-pebble conglomerate with disseminated pyrite in the matrix. The uranium-bearing conglomerate beds are found within thicker sections of the Matinenda Formation that overlie depressions in the underlying basement. These depressions are termed channels and the Denison Mine property is located within the Quirke channel on the north flank of the Quirke syncline.

At the Denison Mine, the uranium mineralization is contained within two zones, the Main Zone and the Upper Zone, and each zone contains multiple beds of uraniferous, pyritic, quartz pebble conglomerate, which are commonly called reefs. The Main Zone and the Upper Zone are separated by 120 ft. of quartzite. The reefs strike 105° to 120° and the dip ranges from flat-lying to -60° south. Most of the reefs containing the remaining resources dip at -10° to -20° south.

Each zone consists of interbanded conglomerate reefs and quartzite. Some reefs can be followed for considerable distances, while others pinch and swell and are cut off by cross bedding over relatively short distances. The better grade reefs have a minimal number of thinner quartzite bands, well packed thicker conglomerate beds and coarse pyrite.

The Elliot Lake deposits are interpreted to be modified paleoplacer deposits and the source rocks are believed to be pegmatitic granite located to the north. The uranium was released from the granites as a result of weathering and transported as uraninite to the site of deposition in channel systems in sedimentary basins formed in the Early Proterozoic. Subsequent diagenesis resulted in the formation of the conglomerate beds intercalated

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within coarse sandstone with scattered pebbles and siltstone. Pyrite and other heavy minerals were also with the quartz pebbles. In general, the uranium grade increases with increasing pyrite content and pebble size. At the Denison Mine, the highest grade uranium mineralization occurred to the lee of basement highs where the flow was more abruptly reduced.

Post-depositional modification of the uranium involved leaching of iron, uranium, thorium, and silica from the detrital grains. The uranium and silica were deposited as coffinite; quartz and detrital monazite were altered to urano-thorite; and uranium reacted with  $TiO_2$  to form brannerite. This post-depositional modification may have been caused by low Eh near-neutral ground water. The uranium in the Denison Mine occurs primarily in the minerals brannerite and uraninite.

**ENVIRONMENTAL CONSIDERATIONS**

The Denison Mine Property contains a tailings management area facility for the tailings remaining from the former Stanrock Mine operation. The facility contains approximately 6 million tons of tailings and is designated TMA-3. There are two other tailings management facilities (TMA-1 and TMA-2) that are located on the Denison property immediately west of the Denison Mine Property. TMA-1 and TMA-2 contain approximately 69 million tons of tailings resulting from the previous production at the Denison Mine. These tailings management areas are operated under the terms of Uranium Mine Decommissioning permits issued by the Canadian Nuclear Safety Commission. The tailings are contained within engineered structures and the tailings are under a water cover of approximately 0.9 m. Programs to ensure the safe operation of these decommissioned properties include: site security, radiation protection programs, health and safety programs, inspection programs, tailings management operating programs, monitoring and reporting programs, and emergency and contingency response programs as part of the licensing requirements. Denison has a financial assurance plan with the province of Ontario and the Canadian Nuclear Safety Commission.

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**2 INTRODUCTION AND TERMS OF REFERENCE**

Scott Wilson Roscoe Postle Associates Inc. (Scott Wilson RPA) was retained by Mr. W. Kerr, Vice President of Exploration for Denison Mines Corp. (Denison), to prepare an independent Technical Report on Denison's property at Elliot Lake covering the former Denison and Stanrock Mines (Denison Mine Property), which were closed in 1992. The purpose of this report is to provide Denison with the estimate of the historical mineral resources remaining in the former producing Denison and Stanrock Mines in the Elliot Lake District and comment on the relevance of the historic estimates. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects.

Denison is a Canadian mining company based in Toronto and listed on the Toronto Stock Exchange under the symbol DML, and on the American Stock Exchange under the symbol of DNN. Denison's major activities are the mining, milling, extraction and sale of uranium, and the exploration and development of mineral properties. The company holds mining assets in the Athabasca Basin region of Saskatchewan and the southwest United States. Denison's share of production from the McClean Lake Mill in Saskatchewan in 2006 was 404,000 lbs of  $U_3O_8$  and production at the White Mesa Mill in Utah was approximately 280,000 lbs of  $U_3O_8$ . Denison has exploration and development properties in Canada, the United States, Argentina, Mongolia, and indirectly in Australia and Zambia through its investments. Denison also has a mine decommissioning and environmental services division with offices at Elliot Lake, Ontario, and is the manager of Uranium Participation Corporation, a company that invests in, holds, and sells  $U_3O_8$  and  $UF_6$ .

Currently, the major assets and facilities associated with the Denison Mine Property are:

A historical mineral resource

A tailings management facility including a water treatment plant

An all weather paved access road

Sealed shafts and raises

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A ramp from surface to the 800-foot level

Low voltage power supply 7,500/12,500

**SOURCES OF INFORMATION**

On March 12, 2007, Mr. Larry MacCormack, representing Scott Wilson RPA, visited the offices of Denison in Toronto to receive two boxes of data relating to the Denison Mine Property. The principal piece of information recovered from this data set is a letter report with accompanying tables and plans that list the mineral resource and mineral reserve estimates remaining in the Denison Mine at the time of closure.

Subsequently, on March 14 and 15, Mr. MacCormack visited the Denison Environmental Services offices in Elliot Lake in the company of Mr. Alan MacEachern, former Mine Geologist at the Denison Mine and Mr. Ian Ludgate, Manager of Denison Environmental Services, to search for and examine data relating to the Denison property that had been stored at that facility. An examination of map drawers and a library search resulted in only a minimal amount of historical data being located.

On May 29, 2007, Mr. Leo Hwozdyk, P.Eng., a consulting mining engineer with Scott Wilson RPA, carried out a site visit, accompanied by Mr. Ian Ludgate, Manager of Denison Environmental Services. Mr. Hwozdyk was the former Mine Engineer at the Denison Mine. The purpose of the visit was to tour the various mine installation sites and report on their status.

This Technical Report was prepared by Lawrence B. Cochrane, Ph.D., P.Eng., Scott Wilson RPA Principal Geologist, and Leo Hwozdyk, P.Eng., Associate Mining Engineer with Scott Wilson RPA. The principal documents used to determine the historic resources remaining at the Denison properties in Elliot Lake and to provide comments on the estimation methods used are listed below.

9 October 1991 Elliot Lake Mining Claims and Land Tenures , with 4 blueprint Ministry of Northern Development and Mines Index to Land Disposition plans of townships Bouck, Buckles, Gunterman and Joubin, dated Sept. 30, 1991, coloured to show Denison properties.

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Final Ore Reserves (Resources) 11 March 1992 with the following tables and plans prepared by Mr. A. MacEachern:

Seven 1 = 400 plans numbered 31-2044 to 31-2050 showing the resource blocks.

Eighteen tables listing tonnage, grade/thickness, recovery factors, mining areas, resource categories and cut-off grades.

A map showing Denison and Rio Algom Land Holdings (Oct. 2004).

There are no drill logs, drill assays, drill sections, geologic plans, or any other data supporting the historic resource estimate available. These data have all been lost.

Mr. A. MacEachern submitted a memo to Scott Wilson RPA clarifying and expanding on the information in the above documents. The memo has been incorporated into this report.

Other sources of information are listed at the end of this report in Section 22 References.

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**LIST OF ABBREVIATIONS**

All the information is reported in the imperial system for consistency with the historic reports. All currency in this report is Canadian dollars (C\$) unless otherwise noted.

|                    |                             |                   |                                |
|--------------------|-----------------------------|-------------------|--------------------------------|
| μ                  | Micron                      | kPa               | kilopascal                     |
| °C                 | degree Celsius              | kVA               | kilovolt-amperes               |
| °F                 | degree Fahrenheit           | kW                | kilowatt                       |
| μg                 | microgram                   | kWh               | kilowatt-hour                  |
| A                  | Ampere                      | L                 | litre                          |
| a                  | Annum                       | L/s               | litres per second              |
| bbl                | Barrels                     | m                 | metre                          |
| Btu                | British thermal units       | Ma                | Millions of years              |
| C\$                | Canadian dollars            | m <sup>2</sup>    | square metre                   |
| cal                | Calorie                     | m <sup>3</sup>    | cubic metre                    |
| cfm                | cubic feet per minute       | min               | Minute                         |
| cm                 | centimetre                  | MASL              | metres above sea level         |
| cm <sup>2</sup>    | square centimetre           | mm                | Millimeter                     |
| d                  | Day                         | mph               | miles per hour                 |
| dia.               | Diameter                    | MVA               | megavolt-amperes               |
| dmt                | dry metric tonne            | MW                | Megawatt                       |
| dwt                | dead-weight ton             | MWh               | megawatt-hour                  |
| ft                 | Foot                        | m <sup>3</sup> /h | cubic metres per hour          |
| ft/s               | foot per second             | opt, oz/ton       | ounce per short ton            |
| ft <sup>2</sup>    | square foot                 | oz                | Troy ounce (31.1035g)          |
| ft <sup>3</sup>    | cubic foot                  | oz/dmt            | ounce per dry metric tonne     |
| g                  | gram                        | ppm               | part per million               |
| G                  | giga (billion)              | psia              | pound per square inch absolute |
| Gal                | Imperial gallon             | psig              | pound per square inch gauge    |
| g/L                | gram per litre              | RL                | relative elevation             |
| g/t                | gram per tonne              | s                 | Second                         |
| Gpm                | Imperial gallons per minute | st                | short ton                      |
| gr/ft <sup>3</sup> | grain per cubic foot        | stpa              | short ton per year             |
| gr/m <sup>3</sup>  | grain per cubic metre       | stpd              | short ton per day              |
| hr                 | hour                        | t                 | metric tonne                   |
| ha                 | hectare                     | tpa               | metric tonne per year          |
| hp                 | horsepower                  | tpd               | metric tonne per day           |
| in                 | inch                        | US\$              | United States dollar           |
| in <sup>2</sup>    | square inch                 | USg               | United States gallon           |
| J                  | Joule                       | USgpm             | US gallon per minute           |
| k                  | kilo (thousand)             | V                 | Volt                           |
| kcal               | kilocalorie                 | W                 | Watt                           |
| kg                 | kilogram                    | wmt               | wet metric tonne               |
| km                 | kilometre                   | yd <sup>3</sup>   | cubic yard                     |
| km/h               | kilometre per hour          | yr                | Year                           |
| km <sup>2</sup>    | square kilometre            |                   |                                |

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**3 RELIANCE ON OTHER EXPERTS**

This report has been prepared by Scott Wilson Roscoe Postle Associates Inc. (Scott Wilson RPA) for Denison Mines Corp. (Denison). The information, conclusions, opinions, and estimates contained herein are based on:

Information available to Scott Wilson RPA at the time of preparation of this report,

Assumptions, conditions, and qualifications as set forth in this report, and

Data, reports, and other information supplied by Denison and other third party sources.

For the purpose of this report, Scott Wilson RPA has relied on ownership information provided by Denison. Scott Wilson RPA has not carried out research on the legal aspects of the property title or mineral rights for the Denison Mine Property and expresses no opinion as to the ownership status of the property.

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**4 PROPERTY DESCRIPTION AND LOCATION**

The Denison Mine Property is located in the Elliot Lake District approximately 15 km northeast of the City of Elliot Lake, Ontario. Access to the area is via Highway 108 north from the City of Elliot Lake and the Stanrock Mine Road. The property is located in UTM Zone 17, at approximately 5150000 N and 38000 E in Bouck and Buckles Townships. A location map is shown in Figure 4-1.

**LAND TENURE**

The Elliot Lake property of Denison initially comprised two mining leases, the Denison Mine property lease situated in Bouck Township and Buckles Township and the Stanrock property lease lying wholly within Buckles Township. The property is referred to as the Denison Mine Property. The property map is shown in Figure 4-2.

Scott Wilson RPA reviewed the claim status on the web site of the Ontario Ministry of Mines and Northern Development (MNDM) to determine the status of the claims covering the area hosting the historic resource and reserve estimates compiled in the computer-generated tables made available by Denison. The list of claims is shown in Table 4-1. The Denison Mine Property consists of 75 claims, which include 34 Licences of Occupation (MLO), 31 leases, one patent claim, and nine claims designated as FND status.

The term FND (Federal Nuclear Decommissioning) is a federal designation that is superior to any underlying provincial designation including patent claims. FND designated claims are subject to the federal government's Nuclear Safety Act. In this case, FND refers to claims withdrawn from staking related to the decommissioning of the tailings management areas in Elliot Lake. The terms of the FND claims may be specific to each claim. Denison will need to confirm the status of these claims with regard to exploration and development rights.

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The total area covered by the MLO and lease-held claims is 4,085.41 hectares. The claim boundaries are not surveyed.

**TABLE 4-1 LIST OF CLAIMS COVERING THE MINE WORKINGS AND  
HISTORIC RESOURCE AND RESERVE ESTIMATES  
Denison Mines Corp. Elliot Lake**

| Claim No. | Type                        | Area   | Tenure | Twp             |
|-----------|-----------------------------|--------|--------|-----------------|
| S67433    | Licence of Occupation (MLO) | 178.54 | M Only | Bouck           |
| S67434    | (MLO)                       | 178.54 | M Only | Bouck           |
| S100431   | 10 Year lease(Jan,2010)     | 3.07   | M Only | Buckles         |
| S67832    | (MLO)                       | 25.04  | M Only | Buckles         |
| S68375    | (MLO)                       | 43.94  | M Only | Bouck           |
| S68376    | (MLO)                       | 43.94* | M Only | Bouck           |
| S96595    | 10 Year lease(Apr,2008)     | 12.56  | M & S  | Bouck           |
| S96593    | 10 Year lease(Apr,2008)     | 19.95  | M & S  | Bouck           |
| S99109    | 10 Year lease(Jan,2010)     | 9.05   | M Only | Buckles         |
| S120653   | 21 Year lease(Sep.2007)     | 5.21   | M Only | Buckles & Bouck |
| S120652   | 21 Year lease(Sep,2007)     | 6.96   | M Only | Buckles         |
| S75785    | 10 Year lease(Aug,2016)     | 14.77  | M & S  | Buckles         |
| S96592    | 10 Year lease(Oct,2016)     | 15.71  | M & S  | Buckles         |
| S96591    | 10 Year lease(Oct,2016)     | 16.96  | M & S  | Bouck           |
| S96590    | 10 Year lease(Oct,2016)     | 10.95  | M & S  | Buckles         |
| S96589    | 10 Year lease(Oct,2016)     | 17.54  | M & S  | Buckles         |
| S75782    | 10 Year lease(Aug,2016)     | 10.72  | M & S  | Buckles         |
| S75784    | 10 Year lease(Oct,2016)     | 13.39  | M & S  | Buckles         |
| S67833    | FND                         |        |        | Buckles         |
| S67834    | FND                         |        |        | Buckles         |
| S67835    | FND                         |        |        | Buckles         |
| S67836    | FND                         |        |        | Buckles         |
| S67837    | FND                         |        |        | Buckles         |
| S67840    | FND                         |        |        | Buckles         |
| S67841    | FND                         |        |        | Buckles         |
| S67842    | FND                         |        |        | Buckles         |
| S67843    | FND                         |        |        | Buckles         |
| S67838    | (MLO)                       | 25.04  | M Only | Buckles         |

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| Claim No. | Type                    | Area   | Tenure | Twp     |
|-----------|-------------------------|--------|--------|---------|
| S67839    | (MLO)                   | 25.04  | M Only | Buckles |
| S69615    | 10 Year Lease(Sep,2016) | 10.60  | M & S  | Buckles |
| S69620    | 10 Year Lease(Sep,2016) | 11.82  | M & S  | Buckles |
| S69621    | 10 Year Lease(Sep,2016) | 9.91   | M & S  | Buckles |
| S69626    | 10 Year Lease(Sep,2016) | 12.47  | M & S  | Buckles |
| S69627    | 10 Year Lease(Sep,2016) | 9.71   | M & S  | Buckles |
| S69631    | 10 Year Lease(Sep,2016) | 10.13  | M & S  | Buckles |
| S69630    | 10 Year Lease(Sep,2016) | 9.75   | M & S  | Buckles |
| S69629    | 10 Year Lease(Sep,2016) | 9.30   | M & S  | Buckles |
| S69628    | 10 Year Lease(Sep,2016) | 11.57  | M & S  | Buckles |
| S69623    | 10 Year Lease(Sep,2016) | 16.55  | M & S  | Buckles |
| S69624    | 10 Year Lease(Sep,2016) | 3.33   | M & S  | Buckles |
| S69625    | 10 Year Lease(Sep,2016) | 12.85  | M & S  | Buckles |
| S69622    | 10 Year Lease(Sep,2016) | 2.38   | M & S  | Buckles |
| S69616    | 10 Year Lease(Sep,2016) | 5.26   | M & S  | Buckles |
| S69617    | 10 Year Lease(Sep,2016) | 2.50   | M & S  | Buckles |
| S69618    | 10 Year Lease(Sep,2016) | 20.21  | M & S  | Buckles |
| S69619    | 10 Year Lease(Sep,2016) | 17.13  | M & S  | Buckles |
| S68374    | (MLO)                   | 43.94  | M Only | Bouck   |
| S68372    | (MLO)                   | 43.94  | M Only | Bouck   |
| S68373    | (MLO)                   | 43.94  | M Only | Bouck   |
| S86076    | (MLO)                   | 134.84 | M Only | Bouck   |
| S86077    | (MLO)                   | 134.84 | M Only | Bouck   |
| S86078    | (MLO)                   | 134.84 | M Only | Bouck   |
| S86125    | (MLO)                   | 134.84 | M Only | Bouck   |
| S86123    | (MLO)                   | 134.84 | M Only | Bouck   |
| S86126    | 21 Year Lease(Apr,2018) | 21.79  | M & S  | Buckles |
| S86079    | (MLO)                   | 178.54 | M Only | Bouck   |
| S86080    | (MLO)                   | 178.5  | M Only | Bouck   |
| S86081    | (MLO)                   | 134.8  | M Only | Bouck   |
| S86072    | (MLO)                   | 81.69  | M Only | Bouck   |
| S86075    | (MLO)                   | 134.84 | M Only | Bouck   |
| S86124    | (MLO)                   | 134.84 | M Only | Bouck   |
| S67432    | (MLO)                   | 178.54 | M Only | Bouck   |
| S67431    | (MLO)                   | 178.54 | M Only | Bouck   |

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| <b>Claim No.</b> | <b>Type</b> | <b>Area</b> | <b>Tenure</b> | <b>Twp</b> |
|------------------|-------------|-------------|---------------|------------|
| S67430           | (MLO)       | 178.54      | M Only        | Bouck      |
| S67429           | (MLO)       | 178.54      | M Only        | Bouck      |
| S86070           | (MLO)       | 95.72       | M Only        | Bouck      |
| S86069           | (MLO)       | 95.72       | M Only        | Bouck      |
| S67428           | (MLO)       | 95.72       | M Only        | Bouck      |
| S86071           | (MLO)       | 95.72       | M Only        | Bouck      |
| S86073           | (MLO)       | 95.72       | M Only        | Bouck      |
| S86074           | (MLO)       | 95.72       | M Only        | Bouck      |
| S86118           | (MLO)       | 95.72       | M Only        | Bouck      |
| S67436           | (MLO)       | 95.72       | M Only        | Bouck      |
| S86119           | Patent      |             |               | Bouck      |
| S86064           | (MLO)       | 102.03      | M Only        | Bouck      |
| 75               |             | 4085.41     |               |            |

In addition to these claims, there are also claims held under lease, Licences of Occupation, and patent by Denison, and additional claims shown as FND status west of the block containing the historic resource and reserve estimates at the Denison Mine Property.

There are no royalties, back-in-rights, payments, or other encumbrances attached to the property.

**ENVIRONMENTAL LIABILITIES**

The Denison Mine Property contains a tailings management area facility, with the tailings remaining from the former Stanrock Mine operation. The facility contains approximately 6 million tons of tailings and is designated TMA-3. There are two other tailings management facilities (TMA-1 and TMA-2) that are located on the Denison property immediately west of the Denison Mine Property. TMA-1 and TMA-2 contain approximately 69 million tons of tailings from the Denison Mine. These tailings management areas are operated under the terms of Uranium Mine Decommissioning Licences issued by the Canadian Nuclear Safety Commission. The tailings are contained within engineered structures and the tailings are under a water cover of approximately 0.9

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m (Laliberte et al., 2003). Construction of the tailings management areas was completed in 1996. General programs to ensure the safe operation of these decommissioned properties include: site security, radiation protection programs, health and safety programs, inspection programs, tailings management operating programs, monitoring and reporting programs, and emergency and contingency response programs as part of the licensing requirements. Denison has a financial assurance plan with the province of Ontario and the Canadian Nuclear Safety Commission.

**PERMITTING REQUIREMENTS**

The permitting required for the development of a mine in Ontario falls under the jurisdiction of both the Ontario Provincial Government and the Federal Government. Although the provinces have jurisdiction over exploration and mine development, the federal government retains jurisdiction over inland fisheries and navigable waters. For uranium mines, the federal government also has jurisdiction, which it regulates through the Canadian Nuclear Safety Commission (CNSC).

During the exploration and preliminary evaluation stages, no special permits are required. However, the Ontario Ministry of Labour should be notified if exploration or drilling crews are working on the property. Permits are required when the evaluation moves to the advanced exploration stage. For a uranium property, an environmental assessment is required before the permit can be issued and the environmental assessment requires public hearings.

Advanced exploration means the excavation of an exploratory shaft, adit, or decline, the extraction of material in excess of the prescribed quantity (1,000 tonnes), where the extraction involves the disturbance or movement of prescribed material located above or below the surface of the ground, or the installation of a mill for test purposes or any other prescribed work (includes the excavation of backfilled raises, shafts, or adits).





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**5 ACCESSIBILITY, CLIMATE, LOCAL  
RESOURCES, INFRASTRUCTURE AND  
PHYSIOGRAPHY  
ACCESSIBILITY**

The property is located approximately 15 km northeast of the City of Elliot Lake. It is accessed from Highway 108 by travelling east on the Stanrock Road which is an all weather paved road. The location of the property and access roads relative to the City of Elliot Lake are shown in Figure 5-1.

**PROXIMITY TO POPULATION CENTRES AND TRANSPORT**

Based on the 2006 census, the City of Elliot Lake has a population of 11,549 people. However, in the period from 1956 to 1992 when the uranium mines were operating in the district, the population reached about 25,000 people. Much of the infrastructure supporting the mining industry is still in place.

The City of Elliot Lake is located 160 km west of Sudbury and 180 km east of Sault Ste. Marie. These communities are connected by highway with Elliot Lake. The Sault Ste. Marie, Ontario – Sault Ste. Marie, Michigan border crossing is located 200 mile west of Elliot Lake. The city is located 540 km north of Toronto. There is a railway line 26 km south at the intersection of Highways 108 and 17 (Trans Canada Highway). There are two deep water ports near the same highway intersection on the North Channel of Lake Huron. One port is currently used by Lafarge at the town of Sprague, located 34 km from Elliot Lake, and the other is the old Rio Algom port at Thessalon, now used by a yacht club. Thessalon is located 112 km from Elliot Lake. Elliot Lake airport has a runway that is 30 m wide and 1,372 m long. The airport is maintained year round and is certified by Transport Canada for airline service. Air Bravo Corporation operates an air ambulance service and provides charter service.

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Cameco Corporation operates a uranium refinery at Blind River, located 50 km from the property on Highway 17. Lafarge operates a cement plant at Sprague, which is also located on Highway 17 on the North Shore of Lake Huron.

**CLIMATE**

The climate in the Elliot Lake region is suitable for year round mining and processing operations. The average winter temperature (December to February) is -9°C and the average summer temperature (June to August) is +16°C. The average annual winter snowfall is 285 cm and the average annual rainfall is 80.5 mm for a total precipitation of 109 mm. (A factor of 0.1 is used to convert snowfall to precipitation.) The wind direction is predominantly from the north from December through to April and the southwest and south the rest of the year.

**LOCAL RESOURCES AND SERVICES**

The Elliot Lake hydro system has the capacity to supply electricity to 25,000 people plus six operating mines. The entire hydro infrastructure is still in place, although it is not all in current use. Hook up and commissioning would be required. Natural gas is also available. Elliot Lake has a number of fibre optic service access points within the community, enabling high-speed broadband access.

The median age of the population is 49.4 years, with about 85% of the population over 15 years of age. Based on October to December 2005 statistics, the labour force in Elliot Lake is 3,855, or about 38% of the total population over 15 years of age. This low participation rate reflects the large number of retirees in the City. The unemployment rate at the same period was 13%. Approximately 5% of the population is currently employed in the mining industry. The Denison Mine Property is also within commuting distance to the communities on the north shore of Lake Huron.

There are two fully serviced industrial park areas within the community and existing buildings are available for lease or purchase. Elliot Lake has a full compliment of educational, medical, and social services.

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The City of Elliot Lake was originally developed for the sole purpose of uranium mining and processing and remained a single-resource community until the early 1990s when the mines closed. With the mine closures, Elliot Lake, in conjunction with the mining companies, developed alternative economic plans. The vacant homes were marketed and sold or rented to retirees who have been moving to Elliot Lake since the mine closures. This initiative has helped to stabilize the population and allowed the city to develop a tourism and recreational infrastructure. These two initiatives, retirement living and outdoor tourism, coupled with the development of business opportunities, are described as the three pillars of the local economy by the local Economic Development Office.

The development of a uranium mining and processing facility at Elliot Lake is consistent with the economic objectives and strategy of the City of Elliot Lake, however, the industry will need to ensure that the development and operations are compatible with the retirement and tourism initiatives.



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### **SITE INFRASTRUCTURE AND SURFACE RIGHTS**

The property is an abandoned mine site. All of the buildings and services have been removed and all of the shafts have been capped. There is one tailings management area located on the Denison Mine Property and two tailings management areas located on the adjacent Denison property. Low voltage power 7,500/12,500 is available. The high voltage line was decommissioned north of Elliot Lake.

The location of the former shafts and the tailings management areas are shown in Figure 5-2. Denison No. 1 Shaft collar is in good shape and is capped with removable concrete beams, but the shaft is plugged with debris and not accessible. A surface adit located between No. 1 Shaft and 15 Panel Raise was covered with rock fill. Denison No. 2 Shaft is open to the water level, and the collar is in good shape and is capped with removable concrete beams. Stanrock No. 2 Shaft is plugged with debris and the collar is questionable. Stanrock No. 1 Shaft is opened and in good shape. Both Stanrock shafts are capped with removable concrete beams. CanMet No. 1 Shaft was widened for ventilation purposes and is no longer available as a shaft. There is also debris in the shaft. CanMet No. 2 Shaft may also have some debris in the shaft. Both CanMet shafts were capped with removable concrete beams. Three ventilation raises are located on Pukhy Island, Knowles Island and Roman Island in Quirke Lake. Demolition debris from the decommissioning of these ventilation fan installations has been dumped down the Pukhy Island Raise. Other vertical openings used for disposal of demolition debris include North West, South West, and 15 Panel Raises. The North West and 15 Panel Raises were filled with debris to within approximately 30 m of the collar, then rock fill was added, and the raises were capped with a final layer of glacial till. The South West Raise was half filled with approximately 900,000 yd.<sup>3</sup> of slurry tailings from the Smith Lake tailing containment area as well as demolition debris from the Denison mill. The raise was then capped with removable concrete beams

Figure 5-3 shows the extent of the mine workings at Denison at the time of closure, and this area contains the historic resource and reserve estimates. The mine workings shown in Figure 5-3 do not include the older Stanrock and Canmet mine workings.

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A water treatment plant and a pump station are located on the property to treat the discharge water from the tailings management area. Stanrock has one treatment plant and one pump station. The tailings area is serviced by a public road to the gate and private internal roads. Stanrock tailings are contained by Dams A, B, C, and D. Other dams include Dams G, J, K, F and the Orient Lake outlet berm.

**TOPOGRAPHY, ELEVATION AND VEGETATION**

The Elliot Lake area is underlain by moderately rugged topography, with elevations ranging from 320 m to 430 m. Steep cliffs form south-facing slopes while the north slopes are gentler and tend to follow the dip of the stratigraphy. The ridges trend east-northeast along the strike of the rocks.

Lakes and streams tend to develop along the strike of less resistant strata and generally trend east to west. Some streams and lakes trend northwest following fault structures. The Denison Mine Property is located within the Serpent River drainage system. A large portion of the Denison Mine Property is located underneath Quirke Lake, which drains southeast through the Serpent River into Whiskey Lake and then south to Lake Huron.

The valleys are covered with hemlock and cedar trees and the ridges are wooded with maple, oak, birch and poplar trees.





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## **6 HISTORY**

Uranium mineralization was discovered in Long Township at the Pronto Mine Site near Blind River in 1949. Due to low grades indicated by the initial drilling, the claims were allowed to lapse. The claims were restaked by F. Joubin who suspected that the lower grades may be due to the leaching of the uranium near surface. Drilling was conducted on the claims in April 1953. Although the initial holes showed lower grades, the later holes intersected higher grade uranium with grades averaging 0.13%  $U_3O_8$ . Before releasing the results of the drilling, Joubin and his associates carried out extensive prospecting in the district. The search was focused on the occurrence of pyrite-bearing quartz pebble conglomerates located at or near the contact between the Mississagi sediments and the underlying Archean rocks, based on the geology of the original discovery site.

The publication of the results of the 1953 drilling at the Pronto Mine site and the disclosure of the staking program led to a massive staking rush in the area. The prospecting quickly resulted in the discovery of several zones of radioactive conglomerate in the Elliot Lake area, and more than 1,400 claims were staked. Although several radioactive occurrences were found between Sudbury and Sault Ste. Marie, however, only the properties in the Elliot Lake area became productive.

The original 83 claims containing the Denison Mine deposit were originally acquired by Denison in 1954. The claims covered the down-plunge extension of the mineral zones identified near surface by the Joubin syndicate which were subsequently developed through the Nordic Mine. Surface drilling that same year resulted in the discovery of the Denison deposit. In 1957, the company estimated reserves at 136.8 million tons averaging 2.78 lbs/ton  $U_3O_8$  in the conglomerate reefs within the Main Zone. The No. 1 Shaft was sunk to a depth of 1,856 ft. and the No. 2 Shaft was sunk to a depth of 2,766 ft. The mine was brought into production in 1958.



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The Can-Met deposit, located southeast and adjacent to the Denison deposit, was discovered in the same year and two shafts were sunk on the deposit in 1957. Production from the Denison Mine began in late 1957. The initial reserves were estimated at 6.6 million tons at an average grade of 1.83 lbs per ton  $U_3O_8$ . In 1960, Can-Met Exploration Ltd. amalgamated with Consolidated Denison Mines Ltd. to form Denison Mines Ltd.

The Stanrock property, located due south of the Denison Mine, was purchased by Stancan Uranium Mines Limited (Stancan) in 1954 and Stancan explored the property in 1956 and 1957. Two shafts were sunk on the property. Denison amalgamated with Stanrock Uranium Mines Ltd. in 1973. The Denison and Stanrock Mines operated from 1957 through to March 11, 1992.

A total of 138,500 tonnes of uranium metal was produced from the Elliot Lake deposits from 1958 to the end of 1996. The average grade of the mine production from 12 mines was about 0.09%  $U_3O_8$  to 0.10%  $U_3O_8$ . The total production from the Denison Mine was 69.4 million tons grading 2.25 lbs/t  $U_3O_8$ . Total shipments of  $U_3O_8$  product were 147.3 million lbs from mined ore, recovery from mine water, recovery from underground leaching, and recycle materials from Cameco Corporation.

**HISTORIC MINING METHODS**

***CONVENTIONAL MINING***

Mining method employed at the Denison Mine was primarily room-and-pillar mining. Denison carried out development work in ore and used mobile diesel equipment to load ore to conveyors that transported the ore to the mine shafts.

The mine was separated into mining blocks consisting of 50-foot wide rooms and 29-foot wide rib pillars. The blocks were enclosed by 29-foot wide barrier pillars. The pillars were accessed by a 20-foot wide drift. Figure 6-1 illustrates the geometry of the mining blocks. The primary extraction of the rooms resulted in a mining recovery of

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56% of the mining block. The area of the mining block is shown in Figure 6-1. Following the primary mining, slots were driven to recover a portion of the pillars. The calculated recovery of the total block following the secondary mining of the pillars, based on the design layout, is 72%.

For the historic mineral resource estimates, a mining recovery of 56% was used for the primary mining and 70% when both primary and secondary mining were completed.

Some of the major considerations in the mine design were governed by ground control requirements, reef thickness and environmental considerations. Ground conditions in the Elliot Lake area may be generally described as good to excellent, and support may be controlled by application of sound rock mechanics principles that control the relationship of span, pillar width, ore thickness, with extraction decreasing with increased depth. Extensive incidents of rock bursting have occurred, primarily due to the violent failure of the pillars caused by the increase in the perpendicular stress as a result of the mining (Hedley, 1983).

Reef thickness was a controlling factor in method selection, together with variations in dip. In areas with narrow thickness and steeper dip, conventional mining with jacklegs and slushers was used, whereas in both flatter and thicker areas, mining was carried out using mobile diesel equipment. Expansion of the production near the end of the mine life was centred on the development of low profile equipment in the thinner reefs remaining.

Environmental considerations were also important to ensure sufficient ventilation was provided to control silica dust, diesel emissions, and radiation. The stringent standards require high volumes of ventilation. Design for ventilation requirements was based on 175 cfm per ton mined.



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***UNDERGROUND LEACHING***

Shortly after production began at Elliot Lake, it was recognized that the acidity of the mine water was increasing which was resulting in corrosion problems in pipes and pumps. It was also noted that the uranium content of the acid water was elevated. Starting in 1960, small amounts of uranium were extracted from the mine water being pumped to surface. Programs were begun to wash down old stopes and recover additional uranium from the water.

Sulphuric acid was generated due to bacterial leaching of the pyrite in the ore. The bacterial leaching produced ferric iron and sulphate and the process was self-sustaining. At the Stanrock Mine, the bacterial leaching program was expanded to include caved-in areas, waste piles, and low-grade ore stockpiles underground. This washing operation was continued from December 1962 until the mine closed in 1970. The conventional mining operation was discontinued entirely in 1964 and all production came from bacterial leaching.

Denison had maintained a limited underground bacterial leaching program since the mid-1960s. In 1980, in a project to increase production from leaching activities and to lower the mining costs, Denison initiated a research and development program on the bacterial leaching process to determine the optimal physical, biological and chemical conditions required to increase the leaching rate. The underground testing was carried out on the broken ore blasted into the open stopes after the primary ore extraction was completed. Air lines were installed on the floor of the stopes and dams were built at the stope entrance. The stopes were sealed and then flooded to prepare the broken ore for leaching. The stopes were then drained and air was introduced to accelerate the bacterial leaching process. The stopes were flooded about once a month to refresh the leaching activity.

In one test, underground spray leaching was carried out. A travelway was prepared on one side of the broken ore for the installation of the hoses over the broken ore pile. The leaching was carried out by spraying the piles of broken muck.

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Based on the use of improved bacteria and better preparation of the broken ore and the introduction of oxygen into the stopes, the leaching portion of Denison's production increased to about 20% of its total production in 1990. In 1989, the planned production break assigned to heap leaching was about 1.4 million tons (Denison 1988 Annual Report). The Denison report stated that the uppers drilling (mineralization in the hanging wall of the stopes) accounted for about 83% of the total production and jack leg drilling (pillar recovery) for the remainder. It was expected that 56% of the leaching production would originate from flood leaching and the other 44% from spray leaching and mine water.

Metal recoveries up to 70% on run-of-mine ore were reported by Marchbank (1986), but with leaching times of 12 to 18 months. Further production trials were carried out to improve the recoveries, but no reports are available on these tests.

The bacterial leaching program was curtailed when the mine was closed. Prior to closing, Denison had planned on increasing the portion of production from the underground leaching.

**MINERAL PROCESSING**

***URANIUM EXTRACTION***

The Denison plant consisted of a conventional crushing and grinding circuit. The ore was ground to 60% passing 200 mesh. The slurry was dewatered using neutral thickeners and filters in preparation for leaching. The dewatered pulp, about 75% solids, was pumped into a series of Pachuca tanks connected by launders. The pulp was agitated with air and heated to 75°C with steam. Sulphuric acid at 93% concentration was added to the pulp in the first Pachuca and the acidified pulp was cascaded from one tank to the next. An oxidant was added to accelerate the chemical leaching process. After approximately 40 hours in the Pachuca tanks, about 96% of the uranium had been leached from the ore and was dissolved in the acid solution. (In the 1988 annual report, Denison reported U<sub>3</sub>O<sub>8</sub> recoveries of about 93%.)

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Lime slurry was added to the pulp to adjust acidity. It was thickened either by washing thickeners followed by two-stage washing drum filters or five-stage counter current decantation. The uranium-bearing solution (pregnant solution) was separated from the solids and sent to the ion exchange circuit for uranium recovery. The solids were washed twice to remove valuable entrained solution, treated with lime, and sent as waste to a controlled tailings disposal area.

The pregnant solution was clarified and pumped to the adsorption side of the ion exchange plant. The solution from the underground leaching program was also sent to the clarifiers and combined with the plant production for uranium extraction. The uranium was stripped from the resin using a nitric acid solution and pumped to the precipitation stage. The barren solution was neutralized with lime and pumped to the tailings facility. The solution containing the uranium was partially neutralized with lime and ammonia and impurities were removed by filtration. The remaining solution was then neutralized with ammonia to separate the uranium as ammonium diuranate (yellowcake). The yellowcake was filtered, washed and dried, and packed in steel drums for shipment.

***RECOVERY OF RARE EARTH OXIDES (REO)***

In 1986, Denison built a plant to extract yttrium oxide ( $Y_2O_3$ ), a rare earth, as a by-product from the uranium production. The ion exchange barren solution generated in the uranium processing plant was utilized as the feedstock for the yttrium recovery plant. Denison operated the plant until 1990.

The REO are contained with the mineral monazite and uraninite. Theis (1979) compared the rare earth oxide content of uraninite, based on a sample from Roscoe (1969) to the rare earth oxide content of the rare-earth concentrate produced at the Denison Mine as shown in Table 6-1. The composition of the concentrate suggests that the REO were recovered primarily from uraninite rather than monazite.

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**TABLE 6-1 RELATIVE REO CONTENT OF URANINITE COMPARED TO  
 RARE EARTH CONCENTRATE PRODUCED AT DENISON  
 Denison Mines Corp. Elliot Lake**

| <b>Rare Earth Oxide</b>        | <b>% of Total REO in Uraninite</b> | <b>% of Total REO in Concentrate</b> |
|--------------------------------|------------------------------------|--------------------------------------|
| Y <sub>2</sub> O <sub>3</sub>  | 40.7                               | 40.6                                 |
| Nd <sub>2</sub> O <sub>3</sub> | 12.1                               | 8.7                                  |
| CeO <sub>2</sub>               | 10.6                               | 3.7                                  |
| Dy <sub>2</sub> O <sub>3</sub> | 12.4                               | 10.6                                 |
| Sm <sub>2</sub> O <sub>3</sub> | 6.4                                | 8.1                                  |
| Er <sub>2</sub> O <sub>3</sub> | 6.1                                | 5.1                                  |
| Pr <sub>2</sub> O <sub>3</sub> | 3.1                                | 1.8                                  |
| La <sub>2</sub> O <sub>3</sub> | 1.2                                | 1.3                                  |
| Gd <sub>2</sub> O <sub>3</sub> | 7.8                                | 8.7                                  |

#### **POST CLOSURE ACTIVITY**

The mine was closed in 1992 due to the low price of U<sub>3</sub>O<sub>8</sub> resulting from an oversupply on world markets and the opening of higher-grade mines in Saskatchewan. All the buildings were dismantled, the mine openings were sealed and the disturbed lands were reclaimed and re-vegetated. Approximately 69 million tons of tailings were remaining at the time the mine was closed and these tailings were stored in two engineered basins designated as TMA1 and TMA2 (Tailings Management Areas). At TMA1, a portion of the tailings were moved to TMA2 and a portion was stored underground through the Southwest Raise. The tailings and sludge flowed to deeper parts of the operation mainly towards the south west portion of the mine. Tailings and sludge may need to be relocated within the mine in order to gain access to new areas in any future development.

A third tailings management area (TMA3) was built to contain approximately 6 million tons of tailings from the Stanrock Mine. The tailings are stored under a water cover of approximately 0.9 m to control acid generation (Laliberte et al., 2003). The work on the tailings management areas was completed in 1996 and the discharge from the tailings has been constantly monitored to ensure the discharge standards are met.

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The tailings areas are regulated through a Uranium Mine Decommissioning Licence issued by the Canadian Nuclear Safety Commission. Since mine closure in 1992, the facilities have remained in compliance.

A comprehensive monitoring program termed the *Serpent River Watershed Monitoring Program* is in place to measure and monitor the quality of the natural environment in the area of the Serpent River watershed over time and assess the effectiveness of the tailings management programs on the environment. The analysis of the data collected from the monitoring program demonstrates that the tailings management programs have been successful (Ludgate et al., 2005).

**HISTORIC MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES**

**MINERAL RESOURCES**

At the time the mine closed, Denison completed an estimate of the mineral resources and mineral reserves remaining in the Mine. The information available that describes the estimation method and lists the estimates is as follows:

Copy of a memo titled *Final Ore Reserves (Resources) 11 March 1992* by A. MacEachern which describes the methods used to estimate the historic resources and reserves and the documentation system used.

Seven 1 = 400 plans numbered 31-2044 to 31-2050 showing the location of the resource blocks and the thickness and grade for each reef located in the block. (The resource tonnage and grade are not listed.)

Eighteen summary tables listing tonnage, grade/thickness, recovery factors, mining areas, resource categories and cut-off grades.

***MINING AREAS AND REEF DESIGNATIONS***

The Denison Mine was divided into Mining Areas 00 and 01 to 13. Mining Area 11 was the Upper Zone. All other Mining Areas were on the Main Zone. Two of the 400-scale plans cover Upper Zone (Mining Area 11) and the other five 400-scale plans cover the Main Zone (Mining Areas 00 to 10, and 13). The major portions of the historic resources are located in the Main Zone.



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The resources and reserves were estimated in 500 ft. by 500 ft. blocks to coincide with the existing mine survey coordinate system. Each block was identified by a six digit number. The first two digits are the Mining Area (these do not appear on the plans for space reasons). The second two digits are the block's north-south position (number increases from north to south). The last two digits indicate the block's west-east position (number increases from west to east). A block in the Upper Zone has the same last four digits as the block beneath it in the Main Zone.

In the tables and plans, the reefs and quartzite layers are designated as UR, IQ, LR, and 3R. From the hanging wall to the footwall, these acronyms designate the Upper Reef, Interbedded Quartzite, Lower Reef and the Number 3 Bed, respectively. The Number 3 Bed (3R) occurs only over a small area of the Stanrock Mine below the footwall of the LR. The plans list the individual reefs and quartzite layers with the grade stated as lbs/ton  $U_3O_8$ .

Lower case letters ur, iq, and lr were used to denote the same reefs on the lower plate of the Quirke Lake Overthrust Fault in Mining Areas 09, 10, and 13, Stanrock, CanMet and Canuc blocks.

When necessary due to faults, diabase dykes, natural reef cut-offs, reef grade or thickness, contamination from the Keyes diabase dyke or changes in Mining Area boundaries, the blocks were subdivided. Each block segment is identified by a capital letter as shown on the plans. The grades/thickness shown on the plans is a weighted average of all the block segments over the entire block.

The resource tonnage and grade within each block are not listed on these plans, and tables are not available showing the resource estimates by individual mining blocks. However, using the tonnage factor and the reef thickness, the resource estimate for each reef for each individual block can be determined.

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***DRILLING***

In the mined areas, 42,800 packsack diamond drill holes were drilled to delineate the reefs. Drill hole spacing was usually 20 ft. to 40 ft. in most workings. Each hole, or pair of holes, was drilled 2 ft. to 4 ft. above the hanging wall and below the footwall of the mining zone, and chip samples were taken to complete the vertical section between holes. The core was broken down by conglomerate and quartzite banding into sections of 0.25 ft. to 1.5 ft. and assayed. The grade/thickness of each reef at each drill hole is the weighted average of all bands calculated to the natural mining or reef hanging wall and footwall boundaries, corrected to vertical thickness.

Mining of the Upper Zone occurred only in later years. Before mining started, the Upper Zones had been delineated by drilling up from the Main Zone on a spacing of 200 ft. to 300 ft. and from a few surface diamond drill holes.

***ESTIMATION METHODS***

Sufficient pairs of co-ordinates to accurately establish the geometry of each block were entered into a Dbase IV database to allow accurate calculation of the block areas. The mined areas were digitized or planimetered to establish the mined-out area of each reef and, on the original mine plans, the workings were colour coded to show the mined-out reef.

In another main file the grade/thickness, footwall elevation, dip, and mined-out area of each applicable reef were entered. Each block was given a reporting filter to designate whether it was developed, undeveloped, contaminated (by intrusion beside the Keyes dyke), or whether the block was part of a party wall.

Because of the undulating reef dip, all tonnage calculations were done using vertical reef thickness and areas calculated from horizontal plans. The tonnage factor used was 11.6 cubic feet per short ton.

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The grade/thickness estimates were determined by averaging the grade/thickness of the individual drill holes within the block. Adjustments were made based on underground observations of grade/thickness changes and trends.

For the undeveloped resources, and especially for the outlying resources, where the drill hole spacing was wider, the estimates of grade/thickness were based on extrapolation of the information from the mined blocks.

***CUT-OFF GRADES***

Data sets were generated for the various reporting filters at six cut-off grades stated in pounds per ton  $U_3O_8$  for each Mining Area: 0.10, 0.80, 1.00, 1.50, and 2.00. The data set totals were then tabulated and added using spreadsheets to produce summary tables showing undiluted resources and reserves with 1.5 ft. of dilution grading 0.20 lb/ton  $U_3O_8$ . The dilution factor of 1.5 ft. is an average figure which varied with reef dip and thickness, and mining method.

The 0.10 lb/ton  $U_3O_8$  undiluted cut-off grade approximates the mining and leaching of the complete orebody, including the Interbedded Quartzite.

The 0.80 lb/ton  $U_3O_8$  undiluted cut-off grade represents the underground leaching cut-off grade over the last years of production. It excludes the Interbedded Quartzite.

The 1.00 lb/ton, 1.50 lbs/ton, and 2.00 lbs/ton  $U_3O_8$  undiluted cut-off grades indicate the resources remaining for mining and underground leaching at these cut-off grades, again excluding the Interbedded Quartzite.

***MINIMUM MINING WIDTH***

The reef thickness was placed at the natural hanging wall and footwall boundaries. A minimum mining thickness of six feet (1.8 m) was used for the historic resource estimate. Where the reef was less than six feet thick, it was diluted at a grade of 0.20 lb/ton  $U_3O_8$  to reach the six foot thickness.

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***CLASSIFICATION***

The mineral resources at the Denison properties were classified as Developed and Undeveloped. Developed resources are those resources that have been developed for mining and in which mining development has been driven, mining stopes have been excavated, and a portion of the mineralization has been extracted. Undeveloped mineralization is located in blocks beyond existing development workings where no mining has taken place.

***MINING RECOVERY***

The developed historical resources are further subdivided into resource remaining to be mined in primary stopes and the resource remaining in pillars.

The primary mining assumes that 56% of the initial amount of the resource within the block can be mined using the primary mining stope layouts (refer to Figure 6-1). An estimate has been made of the amount of the resource that could be mined from the pillars to bring the total extraction in the block up to 70% of the initial amount of mineralization within the block (refer to Figure 6-1).

***SUMMARY TABLES***

In the tables, the historic resources and reserves are listed by mining area, mining zone, and reef. The reef thickness is listed and for the historic mineral resources classified as Developed, the percentage mined is provided. The historic resources and reserves are summarized by classification and cut-off grade.

In the summary tables on the spreadsheets, an entry is included labelled S. AMER. This entry refers to the Rio Algom-owned Spanish American mine designated by Denison as Mining Area 14. In the mid-1980s, Denison tried unsuccessfully to acquire this property for its favourable grade and proximity to the Denison No 2 shaft. The Spanish American mine was included because the reserves at this mine could have a major influence on any decision to reopen the Denison Mine. Scott Wilson RPA does not discuss this historic resource estimate in this report because it lies outside the Denison Mine property boundary.

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The spreadsheets also list estimates at the 0.10 lb/ton cut-off grade for contaminated mineralization and mineralization contained within designated boundary pillars. The contaminated mineralization is located adjacent to diabase dykes and exhibits chlorite alteration as a result of the intrusion. The chlorite alteration caused operational problems in the milling due to the increased acid consumption and filtering problems. These resources are only listed at the 0.10 lb/ton cut-off grade and they are not included in the summary tables shown in this report.

The summary of the Developed and Undeveloped mineralization remaining at the Denison Mine is shown in Table 6-2. Tables 6-3 and 6-4 list the cut-off grade in lbs/ton  $U_3O_8$ , the percentage mined, the mineralization remaining that can be extracted using the primary mining method, the additional mineralization remaining that can be extracted from the pillars, and the total mineralization remaining in the mine. The total resource remaining would represent 100% extraction. Scott Wilson RPA estimated the total resource remaining in the ground based on the percentage mined and the mining recovery.

For example, at the 0.01 lb/ton  $U_3O_8$  cut-off grade for the Developed resource, the total amount mined is 18.5% of the original resource present prior to mining. The total initial resource in the ground is estimated at 141.6 million tons. The total mined is 0.185 times 141.6, or 26.2 million tons, and 115.4 million tons remain in the ground as primary mining stopes and pillars. The overall grade is estimated assuming that the grade of the mineralization remaining in the pillars is the same as the grade applied to the portion of the pillar planned for extraction.

For the undeveloped resource, the total tonnage of the resource remaining in the ground is calculated based on the tonnage stated as representing a mining recovery of 70%. The grade is assumed to be the same as the grade estimate at 70% extraction.

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The total resource in the ground does not include material in remnant pillars that remain in blocks where the resource has been previously extracted to the 70% mining recovery limit.

**TABLE 6-2 MINERALIZATION DEVELOPED AND UNDEVELOPED**  
**Denison Mines Corp. Elliot Lake**

| Cut-off<br>lb/ton | %<br>Mined | Primary Mining<br>Remaining |                               | Pillar Mining<br>Remaining |                               | Total Primary &<br>Pillar Mining<br>Remaining |                               | Total<br>Mineralization<br>Remaining |                               |
|-------------------|------------|-----------------------------|-------------------------------|----------------------------|-------------------------------|---|-------------------------------|--------------------------------------|-------------------------------|
|                   |            | Tons                        | lb/ton                        | Tons                       | lb/ton                        | Tons  | lb/ton                        | Tons                                 | lb/ton                        |
|                   |            | M                           | U <sub>3</sub> O <sub>8</sub> | M                          | U <sub>3</sub> O <sub>8</sub> | M   | U <sub>3</sub> O <sub>8</sub> | M                                    | U <sub>3</sub> O <sub>8</sub> |
| 0.01              | 9.9        | 125.5                       | 0.96                          | 42.8                       | 1.17                          | 168.3   | 1.01                          | 244.7                                | 1.05                          |
| 0.80              | 14.0       | 79.1                        | 1.17                          | 31.1                       | 1.39                          | 110.2   | 1.23                          | 169.7                                | 1.21                          |
| 1.00              | 17.5       | 54.5                        | 1.30                          | 24.5                       | 1.54                          | 78.9  | 1.37                          | 115.9                                | 1.40                          |
| 1.25              | 27.1       | 20.3                        | 1.39                          | 14.5                       | 1.84                          | 34.9  | 1.68                          | 50.7                                 | 1.69                          |
| 1.50              | 35.7       | 7.4                         | 1.87                          | 9.2                        | 2.13                          | 16.6  | 2.01                          | 30.1                                 | 2.05                          |
| 2.00              | 41.9       | 2.0                         | 1.73                          | 4.3                        | 2.45                          | 6.3   | 2.39                          | 14.9                                 | 2.33                          |

**TABLE 6-3 MINERALIZATION DEVELOPED**  
**Denison Mines Corp. Elliot Lake**

| Cut-off<br>lb/ton | %<br>Mined | Primary<br>Mining<br>Remaining |                               | Pillar Mining<br>Remaining |                               | Total Primary &<br>Pillar Mining<br>Remaining |                               | Total<br>Mineralization<br>Remaining |                               |
|-------------------|------------|--------------------------------|-------------------------------|----------------------------|-------------------------------|---|-------------------------------|--------------------------------------|-------------------------------|
|                   |            | Tons                           | lb/ton                        | Tons                       | lb/ton                        | Tons  | lb/ton                        | Tons                                 | lb/ton                        |
|                   |            | M                              | U <sub>3</sub> O <sub>8</sub> | M                          | U <sub>3</sub> O <sub>8</sub> | M   | U <sub>3</sub> O <sub>8</sub> | M                                    | U <sub>3</sub> O <sub>8</sub> |
| 0.01              | 18.5       | 53.1                           | 1.01                          | 24.7                       | 1.38                          | 77.8  | 1.12                          | 115.4                                | 1.20                          |
| 0.80              | 24.0       | 33.7                           | 1.20                          | 19.6                       | 1.55                          | 53.3  | 1.32                          | 89.2                                 | 1.29                          |
| 1.00              | 28.5       | 22.9                           | 1.34                          | 16.6                       | 1.69                          | 39.5  | 1.48                          | 59.6                                 | 1.55                          |
| 1.25              | 35.7       | 9.7                            | 1.61                          | 11.6                       | 1.94                          | 21.3  | 1.78                          | 31.1                                 | 1.83                          |
| 1.50              | 43.7       | 7.4                            | 2.02                          | 9.2                        | 2.19                          | 11.3  | 2.14                          | 22.5                                 | 2.16                          |
| 2.00              | 44.7       | 1.3                            | 2.39                          | 4.2                        | 2.45                          | 5.6   | 2.43                          | 10.2                                 | 2.44                          |

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**TABLE 6-4 MINERALIZATION UNDEVELOPED**  
**Denison Mines Corp. Elliot Lake**

| Cut-off<br>lb/ton | Primary Mining<br>Remaining |   | Pillar Mining<br>Remaining |   | Total Primary &<br>Pillar Mining<br>Remaining |   | Total<br>Mineralization<br>Remaining |   |
|-------------------|-----------------------------|---|----------------------------|---|---|---|--------------------------------------|---|
|                   | Tons<br>M                   | lb/ton<br>U <sub>3</sub> O <sub>8</sub> | Tons<br>M                  | lb/ton<br>U <sub>3</sub> O <sub>8</sub> | Tons<br>M                                     | lb/ton<br>U <sub>3</sub> O <sub>8</sub> | Tons<br>M                            | lb/ton<br>U <sub>3</sub> O <sub>8</sub> |
| 0.01              | 72.4                        | 0.92                                    | 18.1                       | 0.92                                    | 90.5  | 0.92                                    | 129.3                                | 0.92                                    |
| 0.80              | 45.1                        | 1.13                                    | 11.3                       | 1.13                                    | 56.3  | 1.13                                    | 80.5                                 | 1.13                                    |
| 1.00              | 31.6                        | 1.24                                    | 7.9                        | 1.13                                    | 39.4  | 1.24                                    | 56.3                                 | 1.24                                    |
| 1.25              | 11.0                        | 1.48                                    | 2.8                        | 1.48                                    | 13.8  | 1.48                                    | 19.6                                 | 1.48                                    |
| 1.50              | 4.3                         | 1.74                                    | 1.1                        | 1.74                                    | 5.3   | 1.74                                    | 7.6                                  | 1.74                                    |
| 2.00              | 2.6                         | 2.08                                    | 0.7                        | 2.08                                    | 0.9   | 2.02                                    | 4.7                                  | 2.08                                    |

**HISTORIC RESERVES**

The computer generated tables also show the resource that was classified as reserves at the time that the mine was closed. The historic reserves are based on the mining methods, conversion factors, metallurgical recoveries, and economic parameters used during the former production period. The historic reserves were derived using a minimum mining width of 6 ft. (1.8 m), with 1.5 ft. added at a grade of 0.20 lb/ton U<sub>3</sub>O<sub>8</sub>.

The reserve estimates are not listed since the historic resources would have to be re-estimated using appropriate technical parameters and updated economic factors.

**HISTORIC VALIDATION OF ESTIMATES**

Once each month the Denison assay laboratory sent a blind sample to other laboratories, including Rio Algom and Atomic Energy Canada Ltd., and assayed a blind sample from each of these facilities in return. MacEachern (1991) reported the assay results for a period of eighteen years and all laboratory results were virtually identical to the second decimal place.

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Unusually high or nugget effect-type analyses were not common. A check assay would be requested and, if the result was still high compared to the log description, the assay would be cut.

Over the 35 years of production at Denison, the correlation between geology predicted grades and actual mill production grades was characterized as very good (MacEachern, 2007).

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**7 GEOLOGICAL SETTING**  
**REGIONAL GEOLOGY**

The Elliot Lake area lies within the Precambrian Canadian Shield of Northern Ontario, Canada, on the boundary between the Southern and Superior Geological Provinces. The Southern Province extends from the Sault Ste. Marie area on the west to the Cobalt area on the east and consists primarily of a thick sequence of clastic sediments with minor sequences of marine limestone and extrusive volcanic rocks. The clastic sequence is referred to as the Huronian Supergroup and these sediments were deposited in the early Proterozoic (2450 Ma to 2115 Ma) on Archean-aged metavolcanic and metasedimentary rocks and granitic intrusive rocks of the Superior Province. The majority of the uranium occurrences are hosted in the lower portion of the Matinenda Formation.

The Huronian sediments were intruded by sills and dykes of the Nipissing diabase that are dated at 2115 Ma (millions of years). The sediments and diabase intrusions were deformed and metamorphosed during the Penokean orogeny (1850 to 1750 Ma), which resulted in folding and thrust faulting.

In the Elliot Lake area, the Huronian rocks are folded to form a shallow westward plunging, gently folded syncline designated as the Quirke syncline. The Quirke syncline is flanked on the north and east by Archean granites and on the south by Archean mafic metavolcanic and metasedimentary rocks. The limbs of the Quirke syncline generally dip from 10° to 40° towards its axis.

The major fault mapped within the immediate Elliot Lake District is the Flack Lake fault, which is located immediately north of the Quirke Lake syncline. The thrust fault strikes parallel with the strike of the bedding and dips south at an angle slightly steeper than the strike of the bedding. The movement on the fault is south side up and the amount of movement was estimated at 400 m.

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Thrust faults also occur within the Denison Mine environment. The Quirke Lake overthrust fault is located in the hanging wall of the deposit. The south side of the fault has been thrust over the north side and the fault offsets the Nipissing diabase dykes and the conglomerate beds. A second unnamed thrust fault is shown on the mine longitudinal section. This fault is located directly above the conglomerate beds in the Pecors argillite. The fault offsets the Nipissing diabase and the sediments.

The thrust faults are a district-wide feature. Robertson (1962) describes the Whiskey Lake and the Batty Lake thrust faults on the south limb of the syncline which exhibit similar orientation and movement and probably formed during the same orogenic period as the Flack Lake Fault and the thrust faults at the Denison Mine.

Although the coarser grained quartzite beds in the lower Matinenda Formation commonly contain low-grade uranium mineralization, the higher grade uranium mineralization is hosted within the beds of quartz-pebble conglomerate with disseminated pyrite in the matrix. In general, the uranium grade increases with increasing pyrite content. The uranium-bearing conglomerate beds are found within thicker sections of the Matinenda Formation that are located over depressions in the underlying basement. The Matinenda Formation has been divided into two members . The lower member, referred to as the Ryan Member, hosts the uranium deposits. The Stinson Member consists of massive quartzite beds.

The thicker sections of the Ryan Member are termed channels and the channels generally strike west-northwest. Figure 7-1 shows the location of the channels along the flanks of the Quirke syncline. The Denison Mine is located within the Quirke channel. The Quirke channel also contained the Quirke, Panel, Spanish American, and Stanrock Mines.

Although the Matinenda Formation is generally deposited on the Archean basement, it has been deposited locally on Huronian volcanic formations (the Livingston Creek Formation) at the south margin of the Quirke syncline.

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**TABLE 7-1 HURONIAN SUPERGROUP, ELLIOT LAKE AREA**  
**Denison Mines Corp. Elliot Lake**

| <b>Formation</b>              | <b>Member</b>   | <b>Description</b>  |
|-------------------------------|---|---|
| <b>Cobalt Group</b>           |   |   |
| Gowganda Formation            |   | Conglomerate  |
| <b>Quirke Lake Group</b>      |   |   |
| Serpent Formation             |   | Feldspathic quartzites  |
| Espanola Formation            |   | Argillite   |
| Bruce Formation               |   | Thinly bedded limestone and siltstone, more massive limestone in upper beds Thickness varies from 50 ft. to 120 ft                                      |
| <b>Hough Lake Group</b>       |   |   |
| Mississagi Formation          |   | Grey quartzite and feldspathic quartzite, well bedded, forms scarps, gradational contact with Pecors (interbanded) cross bedding shows currents from NW |
| Pecors Formation              |   | Argillite and Greywacke, graded bedding   |
| Ramsey Lake Formation         |   | Varies in thickness from 5 to 200 Contact is sharp with McKim, but does overlap on the basement   |
| <b>Elliot Lake Group</b>      |   |   |
| McKim Formation               |   | Banded greywacke and argillite, locally termed Nordic Formation Cross bedding indicates beds were deposited from the NW                                 |
| Matinenda Formation           | Stinson   | Massive grey quartzite with minor pebble beds and coarse-grained grit   |
|                               | Ryan  | Coarse-grained quartzite or arkose, pebble bands, and quartz-pebble conglomerates bands, sericitic alteration with distinctive green colour             |
|                               | Basal Conglomerate or Breccia                                   | Quartz pebbles and fragments of basement rocks, pyrite and pyrrhotite in matrix, often contains uranium mineralization                                  |
| Livingston Creek              |   | Local mafic volcanic with interbanded sediments   |
| <b>Archean Basement Rocks</b> | <b>Metavolcanics, Metasediments, Iron Formation and Granite</b> |   |





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**PROPERTY GEOLOGY**

The uranium mineralization is contained within two zones, the Main Zone and the Upper Zone, and each zone contains multiple conglomerate beds. The zones consist of two sets of uraniferous, pyritic, quartz pebble conglomerate reefs. The Main Zone and the Upper Zone are separated by 120 ft. of quartzite. The reefs strike from 105° to 120° and dip from 0° to -60° south. Most of the remaining resources are contained within reefs that dip from -10° to -20°.

Each reef consists of a number of bands of conglomerate and quartzite. Some bands can be followed for considerable distances, while others pinch and swell and are cut off by cross bedding over relatively short distances. The better grade reefs have a minimal number of thinner quartzite bands, well packed thicker conglomerate bands, and coarser pyrite.

A north-south cross-section through the Denison Mine showing the location of the Main and Upper Zones and the reefs is shown in Figure 7-2.

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**Main Zone**

Most of Denison's production and remaining resources are in the Main Zone. In the tables and plans provided, and discussed under Item 6 History, the units within the Main Zone are designated UR, IQ, LR, and 3R. These are from hanging wall to footwall; the Upper Reef, the Interbedded Quartzite, the Lower Reef, and the Number 3 Bed. Lower case letters ur, iq, and lr are used to denote the same reefs on the lower plate of the Quirke Lake Overthrust Fault at Mining Areas 09, 10, and 13, Stanrock, CanMet and Canuc.

From north to south across the deposit, two very important gradual trends are evident. The IQ thickens from less than one foot to as much as 12 ft. and the UR divides into three units, the Hanging Upper (HU), Quartzite (Q), and Basal Upper (BU), with a resulting significant drop in grade. The Number 3 Bed (3R) occurs only over a small area of the Stanrock Mine below the footwall of the LR.

**Upper Zone**

There are two Upper Zone reefs FR, the F reef, and ER, the E reef. The 400 scale plans show the grade and thickness of the quartzite separating these reefs. Generally, the E reef is thicker, and the F reef was not mined. To the north of the Denison Mine Property at the former Rio Algom Quirke Mine, these reefs graded significantly higher at 2 lbs/ton to 4 lbs/ton  $U_3O_8$ . There are a number of areas where the reefs in the Upper Zone are not present because one or both reefs are cut off or scoured away by the overlying Pecors argillite.

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## **8 DEPOSIT TYPES**

The Elliot Lake deposits are interpreted to be modified paleoplacer deposits and the source rocks are believed to be pegmatitic granite (Robertson 1986) located to the north. The uranium was released from the granites as a result of weathering and transported as uraninite to the site of deposition in channel systems in sedimentary basins formed in the Early Proterozoic. With the current oxygen content of the atmosphere, the uranium minerals would oxidize and dissolve in the ground water and be transported in solution. It is suggested that the erosion and sedimentation took place in the early Proterozoic in a reducing environment as a result of the low oxygen content of the atmosphere prior to 2200 Ma. The uranium was transported as heavy mineral grains along with quartz pebbles, pyrite, and other heavy minerals, such as zircon, rutile, leucoxene and monazite, in fast flowing streams within topographic lows in the Archean bedrock.

The quartz pebbles and the uranium and associated heavy minerals were deposited in areas where the velocity of the streams was reduced, forming conglomerate beds in deltaic piles. Peripheral to the conglomerate beds, poorly sorted feldspathic sand and silt were deposited. The character of these peripheral sediments is indicative of wave action on delta margins and offshore deep water conditions (Robertson 1986). Subsequent diagenesis resulted in the formation of the conglomerate beds intercalated within coarse sandstone with scattered pebbles and siltstone. At the Denison Mine, the highest grade uranium mineralization occurred to the lee of basement highs where the flow was more abruptly reduced (A. MacEachern, personal communication).

Robinson and Spooner (1984) suggest that post-depositional modification of the uranium occurred in three stages. The first involved leaching of iron from detrital ilmeno-magnetite grains and mobility of uranium, thorium, rare earth elements and silica. Uraninite was replaced by coffinite, quartz and detrital monazite were altered to urano- thorite, and uranium reacted with  $TiO_2$  to form brannerite. The next two stages involved the precipitation of secondary pyrite and the formation of secondary quartz and sericite.

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They suggest that this post-depositional modification was caused by low Eh near-neutral ground water.

It appears that the post-depositional modification of the detrital uranium has been limited within the conglomerate beds and the uranium has not been transported any great distances. There is no indication of the formation of major secondary uranium deposits during the period when these deposits were explored and mined.

The exploration model at Elliot Lake consists of drilling the lower Matinenda Formation to test and outline the quartz pebble conglomerate beds based on the modified paleoplacer model. However, any exploration program at Elliot Lake should also consider the potential for secondary enrichment deposits resulting from the interaction of ground water with either hydrothermal fluids or iron-rich rocks. Jefferson et al. (2004) have indicated that several paleo and Mesoproterozoic basins in Canada, including the Huronian Basin, are considered to have potential for unconformity-related uranium deposits. A recent press release by Pele Mountain Resources Inc. (May 7, 2007) described higher-grade uranium mineralization with secondary uranium minerals at Elliot Lake located at the base of the Matinenda Formation within a basal conglomerate bed. This mineralization may be related to faulting, that cross-cuts the Huronian sediments and the underlying basement rocks.

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## **9 MINERALIZATION**

The uranium-bearing minerals, uraninite and brannerite, along with pyrite, and other heavy minerals, occur in the matrix of the conglomerate interstitial to the quartz pebbles. The primary uranium-bearing minerals and accessory heavy minerals are listed in Table 9-1. The hardness and specific gravity of these minerals are also shown. The uraninite is generally concentrated at the base of the conglomerate beds with the largest pebbles, whereas the brannerite, rutile, monazite, and zircon are more concentrated in the upper portion of the beds.

Microprobe work confirmed the existence of a continuous mineral series recognized optically, which ranges from uranium-free leucoxene/rutile to uranium enriched brannerite. Secondary uranium minerals coffinite, thucolite, and pitchblende have been reported from the district, but not from the Denison Mine. Theis (1979) reported that the uranium in the Denison Mine is primarily associated with brannerite and uraninite. Theis reported the following analysis: 65% UO<sub>2</sub>; 6.5% ThO<sub>2</sub>; 18% PbO and 2.5% Y<sub>2</sub>O<sub>3</sub>, with less than 1% Ce<sub>2</sub>O<sub>3</sub>. The brannerite is associated with other titaniferous phases (rutile). Theis recognized two types of brannerite that were texturally distinct. Based on 23 microprobe analyses by Theis, Type 1 grains averaged 47.3% TiO<sub>2</sub>, 30.7% UO<sub>2</sub>, 5.9% SiO<sub>2</sub>, 1.13% Nb<sub>2</sub>O<sub>3</sub>, 1.08% Ce<sub>2</sub>O<sub>3</sub>, 0.89% ThO<sub>2</sub>, 0.68% CaO, and 0.43% Y<sub>2</sub>O<sub>5</sub>. Based on 12 microprobe analyses, Type 2 brannerite grains averaged 36.6% UO<sub>2</sub>, 36.0% TiO<sub>2</sub>, 5.1% CaO, 3.0% SiO<sub>2</sub>, 1.7% Y<sub>2</sub>O<sub>5</sub>, 0.7% Ce<sub>2</sub>O<sub>3</sub> and 0.6% ThO<sub>2</sub>.

9-1

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**TABLE 9-1 URANIUM-BEARING AND ASSOCIATED HEAVY MINERALS**  
**Elliot Lake Camp**  
**Denison Mines Corp. Denison Mine Property**

| <b>Mineral</b> | <b>Formula</b>                                  | <b>Specific Gravity</b> | <b>Hardness</b> | <b>Comments</b>                                 |
|----------------|---|-------------------------|-----------------|---|
| Uraninite      | UO <sub>2</sub>                                 | 7.5 9.7                 | 5.5             | 65% UO <sub>2</sub> , AccessoryTh, Pb, Ce, Y    |
| Brannerite     | (U, Ca, Ce)(Ti, Fe) <sub>2</sub> O <sub>6</sub> | 5.4                     | 4 5             | 30 to 36% UO <sub>2</sub> , Ti, Si, Th, and REE |
| Monazite       | (Ce, La, Nd, Y, Th)PO <sub>4</sub>              | 4.6-5.4                 | 5.0 5.5         | Contains trace UO <sub>2</sub> , dominant REE   |
| Pyrite         | FeS <sub>2</sub>                                | 5.0                     | 6.0 6.5         | Primary and secondary Py noted                  |
| Rutile         | TiO <sub>2</sub>                                | 4.2                     | 6.0 6.5         | Occurs as composite grains with brannerite      |
| Zircon         | ZrSiO <sub>4</sub>                              | 4.6<br>9-2              | 7.5             | Occurs with monazite                            |

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**10 EXPLORATION**

Denison has not conducted any new exploration on the Denison Mine Property since the mine was closed in 1992.

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**11 DRILLING**

There has not been any new drilling on the Denison Mine Property since the mine was closed in 1992.

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**12 SAMPLING METHOD AND APPROACH**

There has not been any sampling done on the property since the mine was closed in 1992.

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**13 SAMPLE PREPARATION, ANALYSES AND SECURITY**

This item is not applicable.

13-1

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**14 DATA VERIFICATION**

This item is not applicable.

14-1

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**15 ADJACENT PROPERTIES**

Scott Wilson RPA is not aware of any information from adjacent properties that was used to prepare the historical resource estimates.

The Denison Mine Property is located directly adjacent to the Spanish American Mine which was owned by Rio Algom Limited, now BHP Billiton. This deposit is located proximal to the Denison No 2 Shaft.

Denison also has several claims located directly west of the Denison Mine Property. These claims do not contain any portion of the historical resource estimates discussed in this report, however, wide-spaced drilling indicates that the claims do contain the favourable conglomerate beds. The exploration potential of these claims is discussed briefly in Item 20.

The locations of the additional Denison properties and the Spanish American property are shown in Figure 15-1.

15-1

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**16 MINERAL PROCESSING AND  
METALLURGICAL TESTING**

The metallurgical processing methods used and the metal recoveries achieved during the former operations are described under Item 6 History. There has not been any new test work conducted on the metallurgy since the mine was closed.

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**17 MINERAL RESOURCE AND MINERAL  
RESERVE ESTIMATES**

No mineral resources or reserves were estimated by Scott Wilson RPA for the purposes of this report.

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**18 OTHER RELEVANT DATA AND  
INFORMATION**

**FIRST NATIONS AND NORTH SHORE COMMUNITIES**

The Serpent River First Nation and the village of Spragge are located in the southern portion of the Serpent River drainage basin near the outlet of the river into Georgian Bay. In addition to Elliot Lake, these communities could be affected by any future mine or plant development and operations.

The First Nations also have traditional hunting and fishing rights in the Serpent River Basin and they are an important stakeholder in any project in the area. They expressed many concerns during the public hearings held following the closure of the mines to determine the tailings management plans in the Elliot Lake camp (Kirkwood, 1996).

**EXPLORATION POTENTIAL**

In the memo of October 9, 1991, MacEachern discusses the exploration potential of Denison's Elliot Lake Properties (MacEachern 1991).

Much of the property originally held by Denison in 1991 has been released by Denison and many of the claims are covered under the FND status. A new review would have to be conducted on the properties currently held.

The claim blocks located to the south and southeast of the Stanrock property have been dropped and recently restaked by other interests. Based on MacEachern's discussion (1991), the conglomerate beds hosting the mineralization in the Denison and Stanrock Mines continued into these claim blocks, but drilling suggested that the grades were low. However, the drilling was very limited in this area.

Denison's current holdings outside of the Denison and Stanrock Mines are primarily located to the west of these properties and extend to Dunlop Lake. MacEachern suggested that a western branch of the Denison Main Zone reefs may exist in this area and

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recommended further exploration. Two holes were drilled in the area in 1985 and the second hole established that the reef was present approximately 7,000 ft. to the west of previous holes that had been previously interpreted as the edge of the mineralization. No further drilling was conducted in this area.

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**19 ADDITIONAL REQUIREMENTS**

The Denison Mine Property is not in the development or production stage and there are no requirements under this item.

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## **20 INTERPRETATION AND CONCLUSIONS**

The uranium mineralization is contained within quartz-pebble conglomerate beds that vary in thickness from about five feet up to twelve feet. The conglomerate beds or reefs, are contained within two zones, the Main Zone and the Upper Zone, and each zone contains multiple conglomerate beds separated by barren quartzite beds. The Main Zone and the Upper Zone are separated by 120 ft. of quartzite.

The historic resources were estimated using classical polygonal methods in 500 ft. by 500 ft. blocks. The grade and thickness of the individual conglomerate beds were estimated by averaging the grade/thickness of the individual drill holes within the block. In the mined areas, packsack diamond drill holes and chip sampling were used. Adjustments were made to the grade and thickness based on underground observations of grade/thickness changes and trends. For the undeveloped resources, and especially for the outlying resources, where the drill hole spacing was wider, the estimates of grade/thickness were based on extrapolation of the information from the mined blocks.

A minimum bed thickness of six feet was used for resource estimation. Where the bed was less than six feet, it was diluted at a grade of 0.20 lb/ton U<sup>3</sup>O<sup>8</sup> to reach the six-foot thickness. The tonnage factor used was 11.6 ft.<sup>3</sup>/ton.

The areas that had been mined were digitized or planimetered to calculate the mined-out area of each reef, and the mined area was not included in the resource estimate.

The mineral resource estimates were classified as Developed and Undeveloped. Developed resources are those resources that have been developed for mining and remain after partial mining. Undeveloped resources are located in blocks beyond existing development workings where no mining has taken place.

The resources were further subdivided into primary mining and pillar mining representing 56% and 70%, respectively, of the total resource available after subtracting

20-1

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mining removal. Resources identified as being contaminated (by intrusion beside the Keyes dyke), or contained within a block that was part of a party wall, were not included.

The historic resource estimates were determined at cut-off grades of 0.1 lb/ton, 0.8 lb/ton, 1.0 lb/ton, 1.25 lbs/ton, 1.5 lbs/ton, and 2.0 lbs/ton U<sup>3</sup>O<sup>8</sup>. Table 20-1 lists the historic estimate of the resource remaining, using the historic categories, at a cut-off grade of 0.80 lb/ton U<sup>3</sup>O<sup>8</sup> (0.04% U<sup>3</sup>O<sup>8</sup>). A mining recovery of 56% was used for the primary mining stage and 70% for primary plus secondary (pillar) mining. The total resource remaining is also listed. The total resource remaining represents 100% of all the mineralization without applying any mining recovery factors. For consistency with current reporting standards for mineral resources, Scott Wilson RPA recommends that the historic resource estimates also be reported without applying mining recovery factors.

The historic resource estimates are based on the technical and economic parameters used by Denison at the time of the mine closure in 1992 and do not reflect current technical and economic parameters. Scott Wilson RPA recommends that the historic resource estimate be reported using a 0.80 lb/ton cut-off grade which represents the undiluted cut-off grade for the underground leaching over the last years of production and excludes the Interbedded Quartzite unit.

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**TABLE 20-1 HISTORIC RESOURCE DEVELOPED AND  
UNDEVELOPED DENISON MINE  
Denison Mines Corp. Elliot Lake**

|                    | %<br>Mined | Primary<br>Mining<br>Remaining |   | Pillar Mining<br>Remaining |   | Total Primary &<br>Pillar Mining<br>Remaining |   | Total<br>Mineralization<br>Remaining |   |
|--------------------|------------|--------------------------------|---|----------------------------|---|---|---|--------------------------------------|---|
|                    |            | Tons<br>M                      | Lb/ton<br>U <sup>3</sup> O <sup>8</sup> | Tons<br>M                  | Lb/ton<br>U <sup>3</sup> O <sup>8</sup> | Tons<br>M                                     | Lb/ton<br>U <sup>3</sup> O <sup>8</sup> | Tons,<br>M                           | Lb/ton<br>U <sup>3</sup> O <sup>8</sup> |
| <b>Developed</b>   | 24.0       | 33.7                           | 1.20                                    | 19.6                       | 1.55                                    | 53.3  | 1.32                                    | 89.2                                 | 1.29                                    |
| <b>Undeveloped</b> | 0          | 45.1                           | 1.13                                    | 11.3                       | 1.13                                    | 56.3  | 1.13                                    | 80.5                                 | 1.13                                    |
| <b>Total</b>       | 14.0       | 79.1                           | 1.17                                    | 31.1                       | 1.39                                    | 110.2   | 1.23                                    | 169.7                                | 1.21                                    |

Notes:

1. CIM definitions are not used.
2. Historic resource estimates are reported at cutoff grades of 0.8 lb/t U<sup>3</sup>O<sup>8</sup> (0.04% U<sup>3</sup>O<sup>8</sup>).
3. A minimum width of 6 feet was used.
4. The total primary and pillar mining represents the estimated recoverable resource based on the mining methods employed at the Denison Mine in 1992.
5. The total mineralization remaining represents the total amount of mineral remaining in the ground without applying mining recovery factors.
6. The historic resource estimates cannot be verified and the estimates are not necessarily indicative of the mineralization on the property.

The mineral resource and mineral reserve estimates were conducted prior to the effective date of National Instrument 43-101 on February 1, 2001, and do not conform to disclosure requirements under the Instrument. No records of the borehole location, borehole logs, sample assays, underground mapping, or surveys of the mine openings are available to validate the estimates. Scott Wilson RPA has been unable to verify the resource estimates, and notes that the historic estimates are not necessarily indicative of the mineralization on the property that is the subject of the technical report.

In the opinion of Scott Wilson RPA, although the historic resource estimate cannot be validated, the estimate is considered to be reasonable based on the estimation methods used at the time. The historic resource estimate is not considered to be relevant to current economic assessment parameters.

Mr. Alan MacEachern, in his memo to Scott Wilson RPA (2007), states that most developed resources are in blocks where there are workings with complete diamond drill hole samples. He indicates, however, that, in his opinion, some of the blocks lack sufficient drilling data to be classified as measured. Since the detailed data supporting

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the original resource estimates are not available, it is not possible to verify the portions of the Developed resource that could be classified as measured or the portions of the Developed resource that could be classified as indicated. MacEachern also states that Undeveloped resources beyond the workings are the equivalent of indicated and inferred resources. Again, however, it is not possible to determine the portion of the Undeveloped resource that could be classified as indicated or the portions of the Undeveloped resource that would be classified as inferred.

In addition, there are other factors that affect the classification. For example poor ground conditions, resulting in the deterioration of the pillars, could result in portions of the resource being unrecoverable and, therefore, not qualified to be categorized as a mineral resource.

In the opinion of Scott Wilson RPA, without access to the drilling information, the historic resource cannot be classified directly under the CIM classification standards incorporated under NI 43-101.

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**21 RECOMMENDATIONS**

Although the historic mineral resource estimate for the Denison Mine Property cannot be validated, these estimates do provide sufficient information to carry out order-of-magnitude economic assessments (pre-scoping level) to determine if additional exploration and evaluation is warranted. As part of this study the following work is recommended:

Conduct a detailed review of the 400 scale plans to determine the distribution of the mineral resources by reef and classification and outline mining blocks for mining evaluation and scheduling.

Determine the mine production potential and schedule assuming similar mining methods as those used at the time of closure.

Estimate mining costs, processing costs, tailings management costs, and administration costs using similar mining and processing methods that were used at the time the mine was closed.

Estimate the capital costs for the mine, processing plant, and services and tailings management facilities.

Carry out an estimate on the amount of water in the mine and determine the amount of U<sup>3</sup>O<sup>8</sup> contained in the water to evaluate the potential to extract U<sup>3</sup>O<sup>8</sup> while the mine is being dewatered.

Conduct metallurgical tests on samples of the mine water to determine the uranium content and recoveries.

Conduct the order-of-magnitude economic assessment.

***COST ESTIMATE***

A preliminary cost estimate for preparing a pre-scoping (conceptual) economic assessment using the historic resource estimate and information available is provided in Table 21-1.

21-1

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**TABLE 21-1 PRE-SCOPING LEVEL COST ESTIMATE**  
**Denison Mines Corp. Denison Mine Property**

| <b>Item</b>            | <b>Comments</b>   | <b>Estimated Cost</b> |
|------------------------|---|-----------------------|
| Resource Distribution  | Detailed assessment of 400-scale plans to determine mining blocks | \$15,000              |
| Mine plan and schedule | Schedule blocks and determine mine production rate                | \$15,000              |
| Capex & Opex           | Assume previous production methods                                | \$ 15,000             |
| Economic Evaluations   |   | \$ 10,000             |
| Metallurgical tests    | Extraction tests on mine water                                    | \$ 20,000             |
| Report                 |   | \$ 10,000             |
| <b>Total</b>           |   | <b>\$ 85,000</b>      |

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**23 SIGNATURE PAGE**

This report titled Technical Report on the Elliot Lake Property, Elliot Lake Ontario and dated June 29, 2007, was prepared and signed by the following authors:

**(Signed & Sealed)**

Dated at Toronto, Ontario  
June 29, 2007

Lawrence B. Cochrane, Ph.D., P.Eng.  
Principal Geologist

**(Signed & Sealed)**

Dated at Toronto, Ontario  
June 29, 2007

Leo R. Hwozdyk, P.Eng.  
Associate Mining Engineer  
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**24 CERTIFICATE OF QUALIFICATIONS**

**LAWRENCE B. COCHRANE**

I, Lawrence B. Cochrane, P.Eng., as an author of this report entitled Technical Report on the Elliot Lake Property, Elliot Lake District, Ontario prepared for Denison Mines Corp. and dated June 29, 2007, do hereby certify that:

1. I am Principal Geologist with Scott Wilson Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.
2. I am a graduate of Queen's University at Kingston in 1969 and 1991 with a BSc in Applied Science and a PhD in Geological Sciences respectively.
3. I am registered as a Professional Engineer in the Province of Ontario, registration number 8801011. I have worked as a mining geologist for a total of 36 since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Director of Mines Exploration and Qualified Person for Inco Limited, from 2001 to 2006
  - Superintendent of Mine Planning and Exploration for Inco Ontario Division, from 1991 to 1997.
4. I have read the definition of qualified person set out in National Instrument 43-101 (NI43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI43-101) and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI43-101.
5. I did not visit property.
6. I am responsible for overall preparation of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.4 of National Instrument 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read National Instrument 43-101, and the Technical Report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1.

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10. To the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated 29<sup>th</sup> day of June, 2007

**(Signed & Sealed)**

Lawrence B. Cochrane, Ph.D., P.Eng.

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**LEO R. HWOZDYK**

I, Leo R. Hwozdyk, P.Eng., as an author of this report entitled "Technical Report on the Elliot Lake Property, Elliot Lake District, Ontario" prepared for Denison Mines Corp. and dated June 29, 2007, do hereby certify that:

1. I am Associate Mining Engineer with Scott Wilson Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.

2. I am a graduate of Queen's University, Kingston, Ontario, in 1976 with a B.Sc in Mining.

3. I am registered as a Professional Engineer in the Province of Ontario (Reg.# 21150016). I have worked as a mining engineer for a total of 31 years since my graduation. My relevant experience for the purpose of the Technical Report is:

Review and report as a consultant on numerous mining operations and projects around the world for due diligence and regulatory requirements.

Mines Engineer at Denison's Elliot Lake Project.

Mine Project Superintendent at various mines in Yukon and Ontario.

4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI43-101.

5. I visited the Denison Mine Property on May 29, 2007.

6. I contributed to Item 6 (Historic Mining Methods) of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.4 of National Instrument 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

9. I have read National Instrument 43-101, and the Technical Report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1.

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10. To the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 29<sup>th</sup> day of June, 2007

**(Signed & Sealed)**

Leo R. Hwozdyk, P.Eng.

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**25 APPENDIX PROPERTY SITE VISIT  
PHOTOS**

25-1

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25-2

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25-4

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25-7

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## **PRESS RELEASE**

### **DENISON INITIATES ORE BUYING PROGRAM FOR WHITE MESA MILL**

**Toronto, ON July 5, 2007... Denison Mines Corp.** ( Denison or the Company ) (DML:TSX,DNN: AMEX) is pleased to announce the start of a uranium ore buying program to supplement feed for the Company's 100% owned White Mesa Mill in Utah. The White Mesa Mill is a 2,000 ton per day dual circuit mill and is currently the only conventional uranium mill operating in the U.S. Ore from the Company's mining operations in the U.S. is currently being stockpiled at the Mill with processing scheduled to start in the first quarter of 2008. The addition of purchased ore from third parties will maximize the efficiency of this large capacity mill. The Company anticipates purchasing approximately 40,000 tons of uranium ore per year. The ore buying schedule for the month of July is posted on the Company's website ([www.denisonmines.com](http://www.denisonmines.com)) and will be updated monthly.

Ron Hochstein, President and COO of Denison, commented, "This new ore buying program is the first for the White Mesa Mill since 1998. With current all time high prices, the uranium industry has been rejuvenated in the four corner states area with several mines being re-opened, including the Company's. Denison's mill is the only operating one in a 500 mile radius in the heart of the historic uranium producing district in the U.S. and we very much look forward to working with the independent miners in the region.

*Denison Mines Corp. is a premier intermediate uranium producer in North America, with mining assets in the Athabasca Basin Region of Saskatchewan, Canada and the southwest United States including Colorado, Utah, and Arizona. Further, the Company has ownership interests in two of the four uranium mills operating in North America today. The Company also has a strong exploration portfolio with large land positions in the United States, Canada and Mongolia. Correspondingly, the Company has one of the largest uranium exploration teams among intermediate uranium companies.*

#### **Cautionary Statements**

This news release contains forward-looking statements, within the meaning of the United States Private Securities Litigation Reform Act of 1995 and similar Canadian legislation, concerning the business, operations and financial performance and condition of Denison Mines Corp. ( Denison ).

Forward looking statements include, but are not limited to, statements with respect to estimated production; the development potential of Denison's properties; the future price of uranium; the estimation of mineral reserves and resources; the realization of mineral reserve estimates; the timing and amount of estimated future production; costs of production; capital expenditures; success of exploration activities; permitting time lines and permitting, mining or processing issues; currency exchange rate fluctuations; government regulation of mining operations; environmental risks; unanticipated reclamation expenses; title disputes or claims; and limitations on insurance coverage. Generally, these forward-looking statements can be identified by the use of forward-looking terminology such as plans, expects or does not expect, is expected, budget, scheduled, estimates, forecasts, intends, anticipates or does not believe, or variations of such words and phrases or state that certain actions, events or results may, could, would, might or will be taken, occur or be achieved.

Forward looking statements are based on the opinions and estimates of management as of the date such statements are made, and they are subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of Denison to be materially different from those expressed or

implied by such forward-looking statements, including but not limited to risks related to: unexpected events during construction, expansion and start-up; variations in ore grade, tonnes mined, crushed or milled; delay or failure to receive board or government approvals; timing and availability of external financing

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on acceptable terms; actual results of current exploration activities; conclusions of economic evaluations; changes in project parameters as plans continue to be refined; future prices of uranium and vanadium; possible variations in ore reserves, grade or recovery rates; failure of plant, equipment or processes to operate as anticipated; accidents, labour disputes and other risks of the mining industry; delays in the completion of development or construction activities, as well as those factors discussed in or referred to under the heading "Risk Factors" in Denison's Annual Information Form dated March 27, 2007 available at [www.sedar.com](http://www.sedar.com) and its Form 40-F available at [www.sec.gov](http://www.sec.gov). Although management of Denison has attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking statements, there may be other factors that cause results not to be as anticipated, estimated or intended.

There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking statements. Denison does not undertake to update any forward-looking statements that are incorporated by reference herein, except in accordance with applicable securities laws. Mineral resources, which are not mineral reserves, do not have demonstrated economic viability. Readers should refer to the Annual Information Form and the Form 40-F of the Company for the fifteen month period ended December 31, 2006 and other continuous disclosure documents filed since December 31, 2006 available at [www.sedar.com](http://www.sedar.com), for further information relating to their mineral resources and mineral reserves.

**Cautionary Note to United States Investors Concerning Estimates of Measured, Indicated and Inferred**

**Resources:** This news release uses the terms "Measured", "Indicated" and "Inferred" Resources. United States investors are advised that while such terms are recognized and required by Canadian regulations, the United States Securities and Exchange Commission does not recognize them. "Inferred Mineral Resources" have a great amount of uncertainty as to their existence, and as to their economic and legal feasibility. It cannot be assumed that all or any part of an "Inferred Mineral Resource" will ever be upgraded to a higher category. Under Canadian rules, estimates of "Inferred Mineral Resources" may not form the basis of feasibility or other economic studies. **United States investors are cautioned not to assume that all or any part of Measured or Indicated Mineral Resources will ever be converted into Mineral Reserves. United States investors are also cautioned not to assume that all or any part of an Inferred Mineral Resource exists, or is economically or legally mineable.**

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