

ALEXCO RESOURCE CORP  
Form 6-K  
August 23, 2010

---

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

**FORM 6-K**

**REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16  
UNDER THE SECURITIES EXCHANGE ACT OF 1934**

For the month of **August, 2010**

Commission File Number: **001-33621**

**ALEXCO RESOURCE CORPORATION**

(Translation of registrant's name into English)

**Suite 1150-200 Granville Street  
Vancouver, British Columbia, Canada V6C 1S4**  
(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 [ x ] 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): [        ]

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): [        ]

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 [ x ]

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

---

**SUBMITTED HEREWITH**

Exhibits

99.1 News Release Dated August 23, 2010

---

**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.

**ALEXCO RESOURCE CORP.**  
(Registrant)

Date: August 23, 2010

By: */s/ David E. Whittle*  
David E. Whittle  
Chief Financial Officer

---