

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, DC 20549

SCHEDULE 13D  
(Rule 13d-101)

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT TO RULE 13d-1(a)  
AND AMENDMENTS THERETO FILED PURSUANT TO RULE 13d-2(a)

Under the Securities Exchange Act of 1934  
(Amendment No. 4)

Lyondell Chemical Company

-----  
(Name of Issuer)

Common Stock

-----  
(Title of Class of Securities)

552078

-----  
(CUSIP Number)

Donald P. de Brier, Esq.  
Occidental Petroleum Corporation  
10889 Wilshire Boulevard  
Los Angeles, California 90024  
(310) 208-8800

-----  
(Name, Address and Telephone Number of Person  
Authorized to Receive Notices and Communications)

May 9, 2005

-----  
(Date of Event Which Requires Filing of This Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of Rule 13d-1(e), 13d-1(f) or 13d-1(g), check the following box: [ ]

CUSIP No. 552078

1. NAME OF REPORTING PERSONS: Occidental Petroleum Corporation  
S.S. OR I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (entities only):  
95-4035997
2. CHECK THE APPROPRIATE BOX IF A MEMBER OF GROUP  
(a) [ ]  
(b) [ ]
3. SEC USE ONLY
4. SOURCE OF FUNDS  
00
5. (CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO  
ITEMS 2(d) OR 2(e)) [ ]
6. CITIZENSHIP OR PLACE OF ORGANIZATION  
Delaware

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH

7. SOLE VOTING POWER  
0
8. SHARED VOTING POWER  
35,307,860
9. SOLE DISPOSITIVE POWER  
0

10. SHARED DISPOSITIVE POWER  
35,307,860

11. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  
35,307,860

12. CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES  
[ ]

13. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)  
14.3%

14. TYPE OF REPORTING PERSON  
CO

CUSIP No. 552078

1. NAME OF REPORTING PERSONS: Occidental Petroleum Investment Co.  
S.S. OR I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (entities only):  
95-2584267
2. CHECK THE APPROPRIATE BOX IF A MEMBER OF GROUP  
(a)   
(b)
3. SEC USE ONLY
4. SOURCE OF FUNDS  
00
5. (CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO  
ITEMS 2(d) OR 2(e))
6. CITIZENSHIP OR PLACE OF ORGANIZATION  
California

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH

7. SOLE VOTING POWER  
0
8. SHARED VOTING POWER  
35,307,860
9. SOLE DISPOSITIVE POWER  
0
10. SHARED DISPOSITIVE POWER  
35,307,860
11. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  
35,307,860
12. CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES
13. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)  
14.3%
14. TYPE OF REPORTING PERSON  
CO

CUSIP No. 552078

1. NAME OF REPORTING PERSONS: Occidental Chemical Holding Corporation  
S.S. OR I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (entities only):  
95-2865897
2. CHECK THE APPROPRIATE BOX IF A MEMBER OF GROUP  
(a)   
(b)
3. SEC USE ONLY
4. SOURCE OF FUNDS  
00
5. (CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO  
ITEMS 2(d) OR 2(e))
6. CITIZENSHIP OR PLACE OF ORGANIZATION  
California

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH

7. SOLE VOTING POWER  
0
8. SHARED VOTING POWER  
35,307,860
9. SOLE DISPOSITIVE POWER  
0
10. SHARED DISPOSITIVE POWER  
35,307,860
11. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  
35,307,860
12. CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES
13. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)  
14.3%
14. TYPE OF REPORTING PERSON  
CO

AMENDMENT NO. 4 TO SCHEDULE 13D

This Amendment No. 4 (this "Amendment") amends the Schedule 13D previously filed by Occidental Petroleum Corporation, a Delaware corporation ("Occidental"), Occidental Petroleum Investment Co., a California corporation ("OPIC"), and Occidental Chemical Holding Corporation, a California corporation ("OCHC" and, together with Occidental and OPIC, the "Reporting Persons"), with respect to the Reporting Persons' beneficial ownership in Lyondell Chemical Company ("Lyondell"). This Amendment is being filed to disclose a change in Items 4 and 5 to the previously filed Schedule 13D.

ITEM 4. PURPOSE OF TRANSACTION

Item 4 is amended as follows:

Other than as set forth in this Schedule 13D, Occidental currently has no plans that relate to, or would result in, any of the actions listed in clauses (a) through (j) of Item 4 of Schedule 13D. However, Occidental regularly reviews and analyzes its investments and other operations, including its investments in Lyondell, in order to determine whether value for Occidental's stockholders is best served by holding those investments, increasing, disposing of, or monetizing those investments, or recapitalizing or otherwise restructuring those investments. With respect to the Lyondell investment, these reviews and analyses depend on a variety of factors, including, without limitation, the price of, and other market conditions relating to, the Lyondell securities, the investment return on the Lyondell securities, Lyondell's business and prospects, other investment and business opportunities available to Occidental, general stock market and economic conditions, tax considerations, and other factors deemed relevant.

ITEM 5. INTEREST IN SECURITIES OF THE ISSUER

Item 5 is amended as follows:

(a)-(b) OCHC directly owns 30,307,860 shares of common stock ("Common Stock") of Lyondell, representing approximately 12.3% of the issued and outstanding shares of Common Stock, and a warrant to purchase 5,000,000 shares of Common Stock, as described in Item 6 below.

As the sole stockholder of OCHC, OPIC may be deemed to be the beneficial owner of, and for purposes of Rule 13d-3 under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), to have the shared power to vote or direct the vote of and shared power to dispose or direct the disposition of, the 35,307,860 shares of Common Stock (including 5,000,000 shares of Common Stock issuable upon exercise of a warrant) held by OCHC.

As the sole stockholder of OPIC, Occidental may be deemed to be the beneficial owner of, and for purposes of Rule 13d-3 under the Exchange Act to have the shared power to vote or direct the vote of and shared power to dispose or direct the disposition of, the 35,307,860 shares of Common Stock (including 5,000,000 shares of Common Stock issuable upon exercise of a warrant) held by OCHC.

(c) On May 9, 2005, OCHC sold 11,000,000 shares of Common Stock of Lyondell in an open market transaction at a price per share of \$27.17.

ITEM 7. MATERIAL TO BE FILED AS EXHIBITS

Exhibit 1 Agreement Pursuant to Rule 13d-1(k)

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Dated: May 12, 2005

OCCIDENTAL PETROLEUM CORPORATION

By: /s/ J.R. Havert  
-----  
Name: J.R. Havert  
Title: Vice President and Treasurer

OCCIDENTAL PETROLEUM INVESTMENT CO.

By: /s/ J.R. Havert  
-----  
Name: J.R. Havert  
Title: Vice President and Treasurer

OCCIDENTAL CHEMICAL HOLDING CORPORATION

By: /s/ J.R. Havert  
-----  
Name: J.R. Havert  
Title: Vice President and Treasurer

AGREEMENT

Pursuant to Rule 13d-1(k) promulgated under the Securities Exchange Act of 1934, as amended, the undersigned agree that the Schedule 13D to which this Agreement is attached as Exhibit 1 is filed on behalf of each of us. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same agreement.

Dated: May 12, 2005

OCCIDENTAL PETROLEUM CORPORATION

By: /s/ J.R. Havert  
-----  
Name: J.R. Havert  
Title: Vice President and Treasurer

OCCIDENTAL PETROLEUM INVESTMENT CO.

By: /s/ J.R. Havert  
-----  
Name: J.R. Havert  
Title: Vice President and Treasurer

OCCIDENTAL CHEMICAL HOLDING CORPORATION

By: /s/ J.R. Havert  
-----  
Name: J.R. Havert  
Title: Vice President and Treasurer