Fracture Before 6/5/27 X
New Location X
Drill Location
Abandonment

Company  LCP CHEMICALS
Address  PO BOX 762  MOUNDSVILLE, WVA
Farm  ALLIED CHEMICAL CORPORATION
Tract  Acres 121.91  Lease No. OWNED
Well (Farm No. 13  Serial No.
Elevation (Feet Level):  704.51
Quadrangle  CLARINGTON
County  MARSHALL  District  CLAY
Engineer  J.R. SCHEFFER
Engineer's Registration No.  52.14
File No.  Drawing No.
Date 11/18/76  Scale Inch = 600 Feet

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION
CHARLESTON

WELL LOCATION MAP
FILE NO. MARS-567 RE-DRILL

Denotes location of well on United States Topographic Maps, scale 1 to 62,500, latitude and longitude lines being represented by border lines as shown.

Denotes one inch spaces on border line of original tracing.

47-051
**State of West Virginia**

**DEPARTMENT OF ENERGY**

**Oil and Gas Division**

**WELL OPERATOR'S REPORT**

**OF**

**DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE**

---

**Brine Well X**

**WELL TYPE:** Oil / Gas / Liquid Injection / Waste Disposal / (If "Gas," Production / Underground Storage / Deep / Shallow)

**LOCATION:**
- Elevation: 704.51
- Watershed: Ohio River
- District: Clay
- County: Marshall
- Quadrangle: Businessburg, OH

**COMPANY:** LCP Chemicals - WV Inc.

**ADDRESS:** P.O. Drawer J, Moundsville, WV 26041

**DESIGNATED AGENT:** A. R. Morris, Plant Manager

**ADDRESS:** P.O. Drawer J, Moundsville, WV 26041

**SURFACE OWNER:** Same

**ADDRESS:**

**MINERAL RIGHTS OWNER:** Same

**ADDRESS:**

**OIL AND GAS INSPECTOR FOR THIS WORK:** Robert Lowther

**ADDRESS:** Middlebourne, WV 26149

**PERMIT ISSUED:** Emergency: July 19, 1985

**DRILLING COMMENCED:** July 19, 1985

**DRILLING COMPLETED:** August 6, 1985

**IF APPLICABLE:** PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON N/A

---

**Casing & Tubing**

<table>
<thead>
<tr>
<th>Size</th>
<th>Used in Drilling</th>
<th>Used in Well</th>
<th>Cement fill up Cu. ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-10&quot;</td>
<td>71'</td>
<td>71'</td>
<td>118 - Suf.</td>
</tr>
<tr>
<td>9 5/8</td>
<td>1583</td>
<td>1583</td>
<td>625 - Suf.</td>
</tr>
<tr>
<td>8 5/8</td>
<td>6620</td>
<td>6620</td>
<td>250 cu.ft.</td>
</tr>
<tr>
<td>7</td>
<td>6620</td>
<td>6620</td>
<td></td>
</tr>
<tr>
<td>5 1/2</td>
<td>273'</td>
<td>273'</td>
<td>Tubing</td>
</tr>
<tr>
<td>3</td>
<td>6420'</td>
<td>6420'</td>
<td>Tubing</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Liners used**

**Depth**

- 6597 feet

---

**GEOLOGICAL TARGET FORMATION**

Salina

- Depth of completed well: 6717 feet
- Rotary X / Cable Tools
- Water strata depth: Fresh: 105 & 920 feet; Salt: 6597 feet
- Coal seam depths: 82'-84' and 100'-105'

**OPEN FLOW DATA**

- Pay zone depth: 6597 feet

**Producing formation:**

- Salina

**Salt:**

- Initial open flow: None Mcf/d
- Final open flow: None Mcf/d

- Time of open flow between initial and final tests: hours

- Static rock pressure: psig (surface measurement) after: hours shut in

(If applicable due to multiple completion--)

---

**Second producing formation:**

N/A

**Gas:**

- Pay zone depth: feet

**Initial open flow:** Mcf/d
- Oil: Initial open flow Bbl/d
- Final open flow Bbl/d
- Time of open flow between initial and final tests: hours

- Static rock pressure: psig (surface measurement) after: hours shut in

(Continue on reverse side)
DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Well completed with 7" casing installed and cemented from bottom of upper salt section 6685' up to bottom of Marcellus shale at 5712' (measured depth). Installed 4-1/2" and 3-1/2" OD center tube suspended from well head to 6681' for water recirculation to produce and/or develop the well as a brine production well.

<table>
<thead>
<tr>
<th>FORMATION</th>
<th>COLOR</th>
<th>HARD OR SOFT</th>
<th>TOP FEET</th>
<th>BOTTOM FEET</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravel &amp; Sand</td>
<td></td>
<td></td>
<td>0</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>Shale</td>
<td></td>
<td></td>
<td>73</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>Coal</td>
<td></td>
<td></td>
<td>82</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Shale-Lime</td>
<td></td>
<td></td>
<td>84</td>
<td>100</td>
<td>Water 105' - Est. 1&quot; stream</td>
</tr>
<tr>
<td>Coal</td>
<td></td>
<td></td>
<td>100</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>Shale-Lime-Med</td>
<td></td>
<td></td>
<td>105</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>Shale-Red Rock</td>
<td></td>
<td></td>
<td>250</td>
<td>535</td>
<td>Water 920' - Estimated additional 1&quot; stream</td>
</tr>
<tr>
<td>Soft Shale</td>
<td></td>
<td></td>
<td>535</td>
<td>1170</td>
<td></td>
</tr>
<tr>
<td>Lime - Med</td>
<td></td>
<td></td>
<td>1170</td>
<td>1285</td>
<td></td>
</tr>
<tr>
<td>Sand &amp; Shale</td>
<td></td>
<td></td>
<td>1285</td>
<td>1305</td>
<td></td>
</tr>
<tr>
<td>White Sand</td>
<td></td>
<td></td>
<td>1305</td>
<td>1390</td>
<td></td>
</tr>
<tr>
<td>Lime &amp; Slate</td>
<td></td>
<td></td>
<td>1390</td>
<td>1640</td>
<td>9-5/8&quot; casing set 1583'</td>
</tr>
<tr>
<td>Shale &amp; Slate</td>
<td></td>
<td></td>
<td>1640</td>
<td>5621</td>
<td></td>
</tr>
<tr>
<td>Marcellus Shale - Soft</td>
<td></td>
<td></td>
<td>5621</td>
<td>5712</td>
<td></td>
</tr>
<tr>
<td>Lime &amp; Chert Hard</td>
<td></td>
<td></td>
<td>5725</td>
<td>5960</td>
<td></td>
</tr>
<tr>
<td>Oriskiny Sand - Hard</td>
<td></td>
<td></td>
<td>5960</td>
<td>6050</td>
<td></td>
</tr>
<tr>
<td>Lime &amp; Shale - Med. to Hard</td>
<td></td>
<td></td>
<td>6050</td>
<td>6581</td>
<td></td>
</tr>
<tr>
<td>Salt - Soft</td>
<td></td>
<td></td>
<td>6581</td>
<td>6680</td>
<td>7' casing 6630'</td>
</tr>
<tr>
<td>Anhydrite - Med.</td>
<td></td>
<td></td>
<td>6680</td>
<td>6691</td>
<td></td>
</tr>
<tr>
<td>Salt - Soft</td>
<td></td>
<td></td>
<td>6691</td>
<td>6717</td>
<td>T.D.</td>
</tr>
</tbody>
</table>

(Append separate sheets as necessary)

LCP CHEMICALS - WEST VIRGINIA, INC.

Well Operator
By: A. R. Morris, Plant Manager
Date: September 9, 1985
Prepared By: A. Vargo, Maint. Engineer

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including gas, encountered in the drilling of a well."
STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

(BRINE) WELL RECORD

Quadrangle: NE-4 Claratong 15'
Permit No. MARS - 567

---

Company: ALLIED CHEMICAL
Address: P.O. DRAWER E, MOUNDSVILLE, W.VA.
Farm: ALLIED CHEMICAL CORP. Acres 121.91
Location (watches) OHO RIVER
Well No. 13 Elev. 704.51
District: CLAY County MARSHALL

The surface of tract is owned in fee by ALLIED CHEMICAL CORP.
Address: SAME
Mineral rights are owned by ALLIED CHEMICAL CORP. Address: SAME
Drilling Commenced 7/14/77
Drilling Completed 8/16/77
Initial open flow 6630' cu. ft. bbls.
Final production 6630' cu. ft. per day bbls.
Well open hours before test: RP.

---

Well treatment details:
Well completed with 7" casing installed and cemented from bottom of upper salt section 6630' to bottom marcellus shale 5675'. Plan to install tubing at future date and solution develop by water circulation and/or fracturing to cause this well to communicate with #12 in the lower salt section.

---

Coal was encountered at 101 - 103 Feet Inches
Fresh water Feet 118' Salt Water NONE Feet
Producing SALT SECTION 6520' - 6652'

---

Formation Color Hard or Soft Top Feet Bottom Feet Oil, Gas or Water Remarks
Gravel - Soft GL 75 75 Water
Lime - Med. 75 101
Coal 101 103 Water
Shale & Lime - Med. 103 222
Red Rock - Soft 222 252
Shale - Soft 252 1087
Lime & Sand - Med. to Hard 1087 1617 Set 9-5/8" Casing 1602'
Shale & Slate - Med. 1617 5612
Marcellus Shale - Very Soft 5612 5675 Caving Hole
Lime & Chert - Hard 5675 5912
Oriskiny Sand - Hard 5912 5992
Lime & Chert - Med. to Hard 5992 6520
Salt - Soft 6520 6622
Anhydrite - Med. 6622 6632
Salt 6632 6652 TD

---

* Indicates Electric Log tops in the remarks section.
STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY, OIL AND GAS DIVISION
APPLICATION FOR A WELL WORK PERMIT

4) WELL TYPE: A Oil / Gas / Brine Well X /
   B (if "Gas", Production Underground storage Deep X / Shallow )

5) LOCATION: Elevation: 740.51 Watershed: Ohio River
   District: Clay 499
   County: Marshall Quadrangle: Business

6) WELL OPERATOR LCP Chemicals CODE: 26800
   Address: P.O. Drawer J, Rt. 2 Moundsville, WV 26041
   DESIGNATED AGENT A. R. Morris, Plant Manager
   Address: Moundsville Plant

7) OIL & GAS INSPECTOR TO BE NOTIFIED
   Name Robert Lowther
   Address: Middlebourne, WV 26149

8) PROPOSED WELL WORK: Drill X / Drill deeper X / Redrill X / Stimulation
   Other physical change in well (specify).

10) GEOLOGICAL TARGET FORMATION: Saline Formation 6500' - 6600' 519

11) Estimated depth of completed well:
   Fresh 75 - 103 feet
   Salt 6526 feet
   (Not under plant site)

12) Approximate strata depths:
   Fresh 75 - 103 feet
   Salt 6526 feet

13) Approximate coal seam depths: 101 - 103
   Is coal being mined in the area? Yes X / No

15) CASING AND TUBING PROGRAM

<table>
<thead>
<tr>
<th>CASING OR TUBING TYPE</th>
<th>SPECIFICATIONS</th>
<th>FOOTAGE INTERVALS</th>
<th>CEMENT FILL-UP</th>
<th>PACKERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductor 13-3/8 H-40 48# 68</td>
<td>68</td>
<td>68</td>
<td>Year</td>
<td>150 # SX (Suf)</td>
</tr>
<tr>
<td>Fresh water 9-5/8 H-40 32.3# 1602</td>
<td>1602</td>
<td>1602</td>
<td>Sizes</td>
<td>5-1/2 x 6-1/8</td>
</tr>
<tr>
<td>Coal Same as above</td>
<td></td>
<td></td>
<td></td>
<td>Kinds Brown</td>
</tr>
<tr>
<td>Intermediate Same as above</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production 7&quot; J-55 26# 2630 4000</td>
<td>6625</td>
<td>200SX</td>
<td>Depths set</td>
<td>6220</td>
</tr>
<tr>
<td>Tubing Development 5.1/2&quot; 4-1/2&quot; 11.6&quot;</td>
<td>410</td>
<td></td>
<td>Perforations:</td>
<td>None</td>
</tr>
<tr>
<td>Liners 5&quot; J-55 15.2# 410</td>
<td></td>
<td></td>
<td>Top</td>
<td>Bottom</td>
</tr>
</tbody>
</table>

OFFICE USE ONLY

DRILLING PERMIT

Permit number 47-051-0567-Redrill July 29 1985

Date

Permit expires July 29, 1987 unless well work is commenced prior to that date and prosecuted with due diligence.

NOTE: Keep one copy of this permit posted at the drilling location.

See the reverse side of the APPLICANT'S COPY for instructions to the well operator.
TO THE DEPARTMENT OF MINES,
Charleston, W. Va.

Surface Owner Allied Chemical Corporation
Address P.O. Drawer D, Moundsville, W. Va.

Mineral Owner Same
Address Same

Coal Owner Same
Address Same

Coal Operator None
Address

DATE November 23, 1976

Company Allied Chemical Corporation
Address P.O. Drawer D, Moundsville, W. Va.

Farm AlliedCheM Corp
Acres 121.91

Location (waters) Ohio River

Well No 13
Elevation 704.51

District Clay
County Marshall

Quadrangle Businessburg, Ohio - W. Va.
NE/4 Clarington 15' Quadrangle
N 3952.5 - W 8045/7.5

INSPECTOR TO BE NOTIFIED

ADDRESS

PHONE 309-9105

GENTLEMEN:

The undersigned well operator is entitled to drill upon the above named farm or tract of land for oil and gas, having fee title thereto, (or as the case may be) under grant or lease dated 4th Feb., 1952 by Ohio Valley Ind. Corp. made to Allied Chemical & Dye and recorded on the 4th day of Feb.


OIL AND GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1969.

The enclosed plat was prepared by a registered engineer or licensed land surveyor and all coal owners and/or operators have been notified as of the above date.

The above named coal owners and/or operator are hereby notified that any objection they wish to make, or are required to make by Section 3 of the Code, must be received by, or filed with the Department of Mines within ten (10) days.

Copies of this notice and the enclosed plat were mailed by registered mail, or delivered to the above named coal operators or coal owners at their above shown respective address before, or on the same day with the mailing or delivery of this copy to the Department of Mines at Charleston, West Virginia.

PLEASE SUBMIT COPIES OF ALL GEOPHYSICAL LOGS DIRECTLY TO:

WEST VIRGINIA GEOLOGICAL AND ECONOMIC SURVEY
P. O. BOX 879
MORGANTOWN, WEST VIRGINIA 26503
AC-304 - 292-6331

Very truly yours,

(Sign Name) Well Operator

Street

City or Town

State

"SECTION 3 . . . If no objections are filed or found by the Department of mines, within said period of ten days from the receipt of notice and plat by the department of mines, to said proposed location, the department shall forthwith issue the well operator a permit reciting the filing of such plat, that no objections have been made by the coal operators or found thereto by the department and that said is approved and the well operator authorized to proceed.

"I have read and understand the restrictions requirements as set forth in Chapter 22, Article 9, Section 12, and will carry out the specified requirements." Signed

(Please Sign)
THIS IS AN ESTIMATE ONLY
ACTUAL INFORMATION WILL BE SUBMITTED ON OG-10 UPON COMPLETION

PROPOSED WORK ORDER TO ___________ DRILL X DEEPEN ______ FRACTURE-STIMULATE
DRILLING CONTRACTOR: (if Known) RESPONSIBLE AGENT:
NAME (tentative) S. W. Jack Drilling Co. NAME
ADDRESS P.O. Box 754, Indiana, PA 15701 ADDRESS
TELEPHONE _________________________ TELEPHONE ________________
ESTIMATED DEPTH OF COMPLETED WELL: 6600 ROTARY X CABLE TOOLS
PROPOSED GEOLOGICAL FORMATION: Salina
TYPE OF WELL: OIL GAS COMB. STORAGE DISPOSAL RECYCLING WATER FLOOD OTHER X Brine

TENTATIVE CASING PROGRAM:

<table>
<thead>
<tr>
<th>CASING AND TUBING SIZ</th>
<th>USED FOR DRILLING</th>
<th>LIFT IN WELL</th>
<th>CEMENT FILL UP OR SACKS - CUBIC FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 - 16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 - 10</td>
<td>100'</td>
<td>100'</td>
<td>To surface</td>
</tr>
<tr>
<td>9 - 5/8</td>
<td>1600'</td>
<td>1600'</td>
<td>450 SX</td>
</tr>
<tr>
<td>8 - 5/8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 1/2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 1/2</td>
<td></td>
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<td></td>
</tr>
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<td>2</td>
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<td></td>
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<td>1</td>
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<td></td>
</tr>
<tr>
<td>Liners</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perf. Top</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perf. Bottom</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perf. Top</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perf. Bottom</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

APPROXIMATE FRESH WATER DEPTHS 1200 FEET SALT WATER None FEET

APPROXIMATE COAL DEPTHS 150' (3 ft.) 450' (1 ft.) - 900' (1 ft.)

IS COAL BEING MINED IN THE AREA? Yes BY WHOM? Consolidation Coal Co.

*No coal is being mined under, or immediately adjacent to, the Allied property herein described to drill.

TO DRILL:

SUBMIT FIVE (5) COPIES OF OG - 1, $100.00 PERMIT FEE, PERFORMANCE BOND AND PERMANENT COPY OF PLAT.

TO DRILL DEEPER OR REDRILL:

SUBMIT FIVE (5) COPIES OF OG - 1, SHOWING ORIGINAL PERMIT NUMBER AND PERFORMANCE BOND. ON WELLS DRILLED PRIOR TO 1929, A PERMANENT COPY OF THE PLAT AND THE ORIGINAL WELL RECORD MUST ALSO BE SUBMITTED.

TO FRACTURE - STIMULATE:

OIL AND/OR GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1929, FIVE (5) COPIES OG - 1, PERFORMANCE BOND, PERMANENT PLAT AND ORIGINAL WELL RECORD.

OIL AND/OR GAS WELL ORIGINALLY DRILLED ON AND/OR AFTER JUNE 5, 1929, FIVE COPIES OG - 1, SHOWING ORIGINAL PERMIT NUMBER, AND PERFORMANCE BOND.

Required forms must be filed within ninety (90) days of completion for bond release. Inspector to be notified twenty-four (24) hours in advance.

The following waiver must be completed by the coal operator if the permit is to be issued within ten days of receipt thereof.

WAIVER: I the undersigned, Agent for ______________ Coal Company, Owner or Operator of the coal under this lease have examined and place on our mine maps this proposed well location.

We the ______________ Coal Company have no objections to said well being drilled at this location, providing operator has complied with all rules and regulations in Articles 4, 5, and 7, Chapter 22 of the West Virginia Code.

For Coal Company

Offical Title
STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
SECTION OF OIL AND GAS

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPlicate, one copy mailed to the Division, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: HANLIN CHEMICALS
Operator Well No.: 13

LOCATION:
Elevation: 704.00
Quadrangle: BUSINESSBURG
District: CLAY
County: MARSHALL
Latitude: 4850 Feet South of 39 Deg. 55 Min. 0 Sec.
Longitude: 1400 Feet West of 80 Deg. 47 Min. 30 Sec.

Well Type: OIL GAS OTHER: BRINE

Company: Allied Signal Inc.
PO Box J
Moundsville, WV 26041

Agent: Don P. DeNoon

Permit Issued: 06/01/98

STATE OF WEST VIRGINIA,
County of

Union Drilling and James R. Harry, Consultant being first duly sworn according to law deposes and states that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named operator, and participated in the work of plugging and filling the above well, and Michael W. Lewis Oil and Gas Inspector representing the Director, say that said work was commenced on the 27th day of January 1998, and that the well was plugged and filled in the following manner:

<table>
<thead>
<tr>
<th>Type</th>
<th>From</th>
<th>To</th>
<th>Pipe Removed</th>
<th>Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>5,734</td>
<td>5,974'</td>
<td>15/36'</td>
<td>0'</td>
</tr>
<tr>
<td>Salt Water Gel</td>
<td>4,950'</td>
<td>5,734'</td>
<td>9/58'</td>
<td>0'</td>
</tr>
<tr>
<td>Class A w/Latex</td>
<td>4,313'</td>
<td>4,950'</td>
<td>7'</td>
<td>4,871'</td>
</tr>
<tr>
<td>Salt Water Gel</td>
<td>3,000'</td>
<td>4,313'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class A w/Latex</td>
<td>1,858'</td>
<td>3,000'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh Gel (6%)</td>
<td>0'</td>
<td>1,858'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bridge Plug</td>
<td>5,934'</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Description of monument: 9/58 welded pipe w/2” vent (5’ length) and that the work of plugging and filling said well was completed on the 30th day of June 1998.

Sworn to and subscribed before me this 27-3-98.
Notary Public

Oil and Gas Inspector: Michael W. Lewis