

DATE: 6/14	SUSPENSE	ENGINEER: WJS	LOGGED: 6/14	TIME: IPI	APP. NO. 121884391
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505



ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

- [NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
- [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
- [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
- [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
- [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
- [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

- [1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]
- [A] Location - Spacing Unit - Simultaneous Dedication
 NSL NSP SD
- Check One Only for [B] or [C]
- [B] Commingling - Storage - Measurement
 DHC CTB PLC PC OLS OLM
- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
 WFX PMX SWD IPI EOR PPR
- [D] Other: Specify _____

- [2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply
- [A] Working, Royalty or Overriding Royalty Interest Owners
- [B] Offset Operators, Leaseholders or Surface Owner
- [C] Application is One Which Requires Published Legal Notice
- [D] Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E] For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F] Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Print or Type Name _____ Signature AAG Title _____ Date _____

_____ e-mail Address _____

Jones, William V., EMNRD

From: Alberto A. Gutierrez, RG [aag@geolex.com]
Sent: Thursday, June 14, 2012 4:56 PM
To: Gonzales, Elidio L, EMNRD; Jones, William V., EMNRD
Cc: ELIZABETH B. HAWKINS; CWhite@targaresources.com; jlingnau@targaresources.com; WILLIAM C. SCOTT ESQ.; 'Bentley, Russell E.'
Subject: RE: C-103 SUBSEQUENT for reservoir testing at Targa's Monument AGI #1 API # 30-025-40002
Attachments: C-103 Testing API 3002540002#2 highratesubsequent.pdf
Importance: High

0/36/195/36E

E. L. and Will,

Please find attached the C-103 subsequent for the successful SRT at the Monument well which we finished last Friday. As you will see from the attached, we had 3 steps below and 3 steps above the break point which was very clear in the data. Based on these results Targa is requesting an increase in the MAOP which will still be protective of the injection zone and all zones above and below of 3000 psig. Please let us know if you have any questions or require additional information. Please let us know what is required further to get the new MAOP approved so we can hopefully put away the TAG and water that we need without any stimulation of the reservoir. Thanks in advance for your prompt attention to our request.

Regards,
Alberto

Alberto A. Gutiérrez, RG
Geolex, Incorporated®
500 Marquette Avenue, NW Suite 1350
Albuquerque, NM 87102
505-842-8000 Ext. 105
505-842-7380 Fax

8350' - 9200' OPEN HOLE
R-13052 11/16/08
Case 14161

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06/13/2012
 Submit 1 Copy To Appropriate District Office
 District I - (575) 393-6161
 1625 N. French Dr., Hobbs, NM 88240
 District II - (575) 748-1283
 811 S. First St., Artesia, NM 88210
 District III - (505) 334-6178
 1000 Rio Brazos Rd., Aztec, NM 87410
 District IV - (505) 476-3460
 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
 Energy, Minerals and Natural Resources

Monument AGI #1 C-103 Subsequent for SRT
 Form C-103
 Revised August 1, 2011

OIL CONSERVATION DIVISION
 1220 South St. Francis Dr.
 Santa Fe, NM 87505

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.) 1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other Acid Gas Injection		WELL API NO. 30-025-40002
2. Name of Operator Targa Midstream Services, LP		5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/> BLM
3. Address of Operator 1000 Louisiana, Ste. 4300, Houston, TX 77002		6. State Oil & Gas Lease No. N/A
4. Well Location Unit Letter <u>O</u> : <u>662</u> feet from the <u>S</u> line and <u>2513</u> feet from the <u>E</u> line Section <u>36</u> Township <u>19S</u> Range <u>36E</u> NMPM County <u>Lea</u>		7. Lease Name or Unit Agreement Name Monument AGI
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3571 GR		8. Well Number #1
		9. OGRID Number 24650
		10. Pool name or Wildcat Wildcat AGI in Devonian/Fusselman

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO: PERFORM REMEDIAL WORK <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> TEMPORARILY ABANDON <input type="checkbox"/> CHANGE PLANS <input type="checkbox"/> PULL OR ALTER CASING <input type="checkbox"/> MULTIPLE COMPL <input type="checkbox"/> DOWNHOLE COMMINGLE <input type="checkbox"/> OTHER: <input type="checkbox"/>	SUBSEQUENT REPORT OF: REMEDIAL WORK <input type="checkbox"/> ALTERING CASING <input type="checkbox"/> COMMENCE DRILLING OPNS. <input type="checkbox"/> P AND A <input type="checkbox"/> CASING/CEMENT JOB <input type="checkbox"/> OTHER: conduct high rate step rate test for MAOP increase <input checked="" type="checkbox"/>
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13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Operator conducted a high rate step rate test pursuant to an approved C-103 NOI on June 8, 2012 to evaluate the reservoir and to support a request for an administrative approval of an increased MAOP for this well. District 1 OCD - Hobbs was notified of the test 48, 24 and 12 hours prior to the test and while District personnel were not on-site during the test, the operator's contractor (Geolex, Inc.) was in contact by telephone with the District Director E.L. Gonzales several times during the field effort providing interim results and discussing test modifications based on field and reservoir conditions encountered. The originally approved C-103 included a simultaneous temperature survey which had to be discontinued due to a malfunction of, and undue stress on, the downhole sensors. This change to use surface pressure vs. bottom hole pressure as a conservative indication was approved by Mr. Gonzales prior to restarting the test.

This subsequent report includes all of the data obtained during the test and all supporting analyses.

Spud Date: Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE  TITLE Consultant to Targa Midstream Services DATE 6/13/2012

Type or print name Alberto A. Gutierrez, RG E-mail address: aag@geolex.com PHONE: 505-259-4283
For State Use Only

APPROVED BY: _____ TITLE _____ DATE _____
 Conditions of Approval (if any): _____

Monument AGI#1 Step Rate Test June 8, 2012

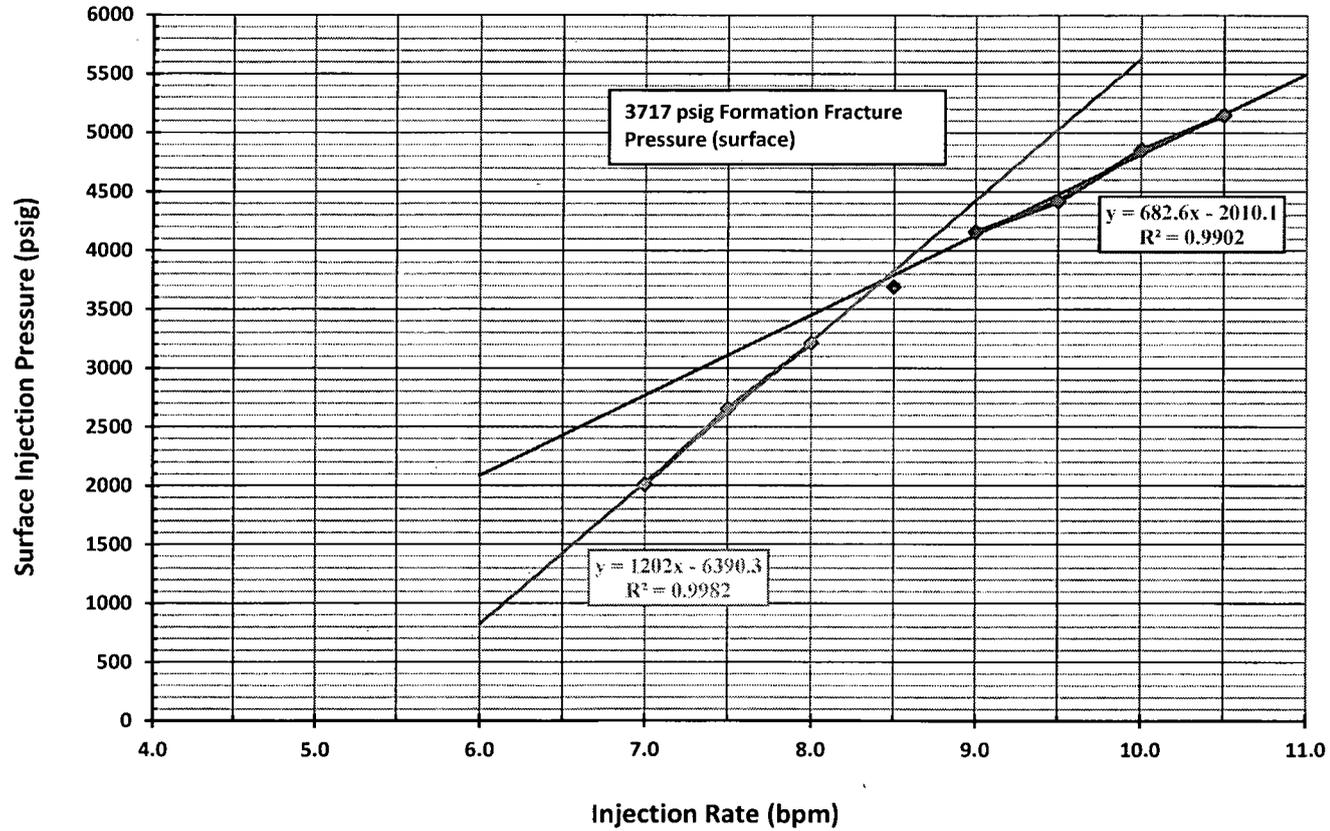
The Monument AGI #1 test was conducted on June 8, 2012 after approved C-103 and notice to the District and Santa Fe. A subsequent C-103 has been prepared and submitted to the District (copy attached). Division representatives reviewed and approved the SRT procedure and were notified of the test to allow for OCD to witness the test. While OCD staff were not physically present during the test, I conferred several times over the telephone during the test with Mr. E.L. Gonzales to discuss the approach and preliminary results. Injection rates during the SRT began at 2.0 bpm to establish a rate for 20 minutes and then ranged from 7 to 10.5 bpm, with 0.5 bpm steps, each lasting 20 minutes. The surface injection pressure. The raw data are included in Appendix A.

A minimum surface pressure of 2009 psig was recorded at the initial test injection rate of 7 bpm and a maximum surface pressure of 5150 psig was recorded during the SRT at an injection rate of 10.5 bpm. The formation fracture pressure at the surface was calculated by graphical interpretation of the rate vs. pressure graph shown in Figure 1. This figure clearly shows that the test achieved the OCD requirement of having at least 3 steps below and 3 steps above the fracture pressure at the surface calculated to be approximately 3717 psig. The SRT was conducted using brine estimated at 10 lbs/gallon.

Based on the anticipated mix of TAG and brine of 70:30, a calculation using OCD's rule of thumb formula included in Table 1 would yield an MAOP of 2893 psig. Clearly this pressure is far below the calculated formation fracture pressure of 3717 psig based on the step rate test conducted on June 8, 2012 since the test was conducted with only brine rather than the TAG/brine mix which will be injected into the well. For this reason, our requested pressure of 3000 psig is a pressure that with the injected fluid will be well below the calculated formation fracture pressure at the surface of 3717 psig (24%) even if the fluid was only brine. Based on the step rate test results and the analysis summarized herein, it is clear that approval of the requested pressure increase will in no way endanger the injection zone, caprock or any overlying formations.

The injection rates and corresponding maximum surface pressures for each step demonstrate that the Devonian/Fusselman injection interval in Targa's Monument AGI #1 is capable of accepting the anticipated TAG/brine mix volumes safely at a pressure of 3000 psig without danger of fracturing the injection zone or any other zones above or below.

TARGA MIDSTREAM SERVICES LP MONUMENT AGI#1 STEP RATE TEST 6/8/12



06/13/2012

Monument AGI #1 C-103 Subsequent for SRT

TAG-Water Equivalent MAOP Calculations				
	TAG Amount MMCFD	Water bbls/day	Ratio	MAOP (psig)
TAG Only	5	0	100:0	3028
	5	100	88:12	2980
	5	200	78:22	2935
	5	300	70:30	2893
	5	400	64:36	2854
	5	720	50:50	2746
Water Only	0	400	0:100	1778
TAG Only	2.5	0	100:0	3028
	2.5	100	78:22	2935
	2.5	200	64:36	2854
	2.5	300	54:46	2784
	2.5	360	50:50	2746
	2.5	400	47:53	2722

CALCULATION OF MAXIMUM INJECTION PRESSURE LIMITATION

$$SG_{blf} = (SG_{WW} * Vol_{WW} + SG_{TAG} * Vol_{TAG}) / (Vol_{WW} + Vol_{TAG})$$

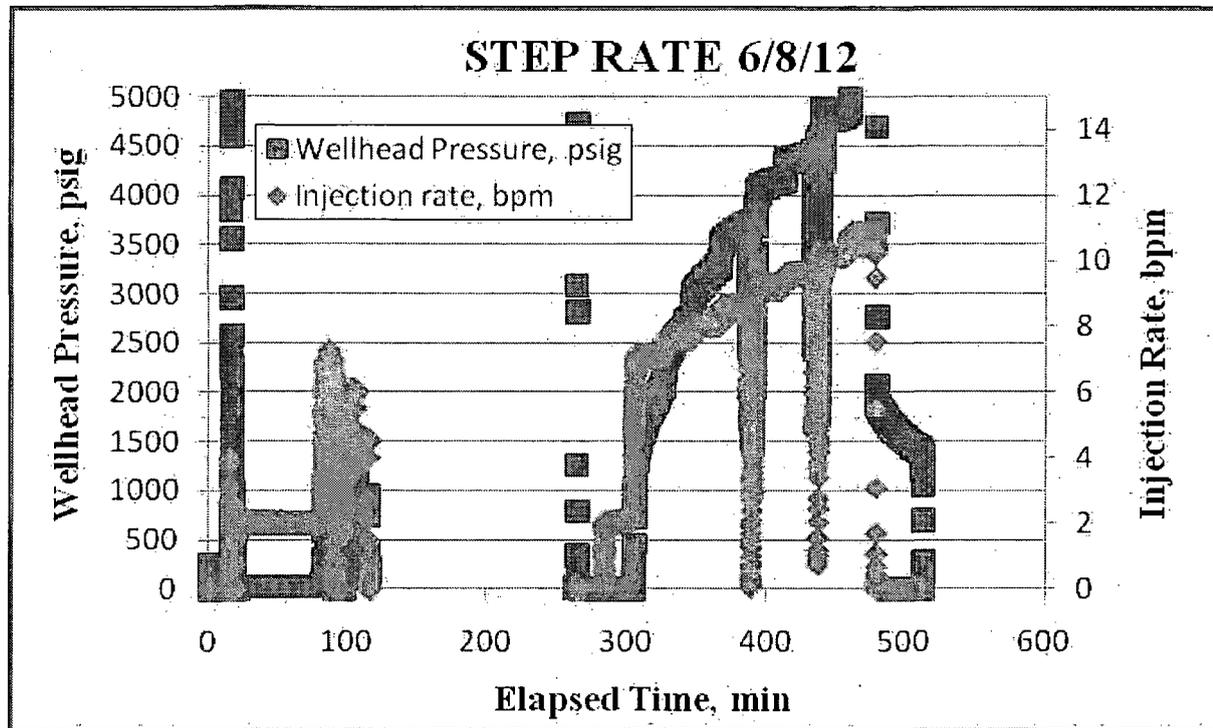
where TAG SG = .66 and Water = 10.2ppg

$$PG = 0.2 + 0.433 (1.04 - SG_{blf}) \quad \text{psi/ft}$$

$$IP_{max} = PG * \text{Depth} \quad \text{psi}$$

Where: SG_{blf} , SG_{WW} , and SG_{TAG} are specific gravities of blended injection fluid, waste water, and TAG, respectively; Vol_{WW} and Vol_{TAG} are injected volumes of water and TAG in bbl/day, respectively; PG is calculated pressure gradient; and IP_{max} is calculated maximum injection pressure.

APPENDIX A PLOT OF SRT RAW DATA



The plot shows the sequence of the step rate test (SRT) performed on June 08, 2012. The test was started with a distributed temperature sensor (DTS) run on a slick line. The test at the injection rate of 2 bpm was going well, however, as the rate was increased to 7 bpm, the tension in the sensor line caused the bottom hole test measurements to be aborted. The test was performed successfully as planned by measuring surface data only.

APPENDIX A RAW DATA FROM CUDD FOR MONUMENT AGI#1

Time	Pressure_1	Pressure_2	Rate_1	Rate_1_Stage	Rate_1_Total	Rate_2	Rate_2_Stage	Rate_2_Total	Sum_Rate_1_&_2	Total_Rate_1_&_2
1	46.080000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
3	46.080000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
6	46.080000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
9	3012.671250	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
13	8315.093750	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16	7793.780000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
20	2448.982500	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
23	788.262500	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
26	284.551250	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
29	87.481250	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
32	34.993750	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
36	20.413750	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
38	1676.712500	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
41	4257.388750	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
44	5019.663750	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
47	2389.865000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
50	797.313750	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
53	242.406250	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
56	61.330000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
59	14.601250	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
62	2.920000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
66	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
823	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
826	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
829	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
832	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
835	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
838	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
841	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
844	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
847	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
850	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
853	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
856	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
860	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
862	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
866	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
869	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
872	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
875	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
879	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
882	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
886	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
888	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

THIS APPENDIX IS
143 PAGES LONG

