



**NORTH COUNTY REGIONAL
WATER TREATMENT PLANT
INJECTION WELL SYSTEM
COMPLETION REPORT**

VOLUME II - APPENDICES

Prepared For

Collier County Utilities Division
Water and Wastewater Services
3050 North Horseshoe Drive
Naples, Florida 33942

Prepared By The



Missimer Division

APPENDICES

- A FDEP Class I-Test/Injection Well Construction and Testing Permit and Related TAC Correspondence
- B Correspondence
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Monitoring Well Geologist's Log
Rock Core Analyses
- D 16-Inch Casing Injection Test Data
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(see Volume III, separate cover)

APPENDIX F

Injection Well Casing Tally
Monitor Well Casing Tally
Casing Mill Certificates

MISSIMER & ASSOCIATES, INC.

CASING TALLY SHEET

PROJECT NAME: COLLIER COUNTY NCRWTP PERMIT NUMBER: UCII-198432

WELL NUMBER: CO-2317 (IW) PROJECT NUMBER HS9-342E

CASING DIAMETER: 20" DATE: 9/28-29/92 CASING DEPTH: 2492' bpl.

CASING JOINT NUMBER	CASING JOINT LENGTH	CUMULATIVE LENGTH	TIME	
			Welding	Lowering
1	27.1	27.1	2010	2145
2	37.55	64.65	2200	2305
3	36.54	101.19	0010	0105
4	39.84	141.03	0155	0255
5	38.9	179.93	0405	0510
6	39.25	219.18	0600	0700
7	39.04	258.22	0800	1005
8	41.28	299.5	1015	1228
9	40.54	340.04	1248	1345
10	41.61	381.65	1355	1510
11	40.44	422.09	1516	1626
12	38.82	460.91	1636	1820
13	40.9	501.81	1824	1958
14	41.04	542.85	2035	2055
15	41.33	584.18	2115	2145
16	40.34	624.52	2200	2240
17	41.96	666.48	2320	2350
18	41.13	707.61	0010	0048
19	40.82	748.43	0106	0135
20	41.68	790.11	0209	0248
21	43.46	833.57	0305	0335
22	41.88	875.45	0410	0450

MISSIMER & ASSOCIATES, INC.

CASING TALLY SHEET

PROJECT NAME: COLLIER COUNTY NCRWTP PERMIT NUMBER: UCII-198432

WELL NUMBER: CG-2317 (IW) PROJECT NUMBER H89-342E

CASING DIAMETER: 20" DATE: 9/29-30/92 CASING DEPTH: 2492' bpl

CASING JOINT NUMBER	CASING JOINT LENGTH	CUMULATIVE LENGTH	TIME	
			Welding	Lowering
23	41.22	916.67	0505	0532
24	41.29	957.96	0600	0638
25	37.96	995.92	0713	0749
26	42.62	1038.54	0821	0925
27	39.92	1078.46	0933	1038
28	41.23	1119.69	1045	1205
29	43.25	1162.94	1215	1336
30	38.61	1201.55	1342	1448
31	39.43	1240.98	1454	1610
32	40.85	1281.83	1622	1727
33	40.21	1322.04	1738	1850
34	42.24	1364.28	1856	1958
35	43.11	1407.39	2010	2039
36	41.05	1448.44	2100	2127
37	43	1491.44	2157	2232
38	43.36	1534.8	2258	2341
39	41.76	1576.56	0003	0049
40	43.43	1619.99	0112	0132
41	42.09	1662.08	0155	0226
42	43.32	1705.4	0304	0334
43	43.3	1748.7	0410	0442
44	41.11	1789.81	0505	0603

MISSIMER & ASSOCIATES, INC.

CASING TALLY SHEET

PROJECT NAME: COLLIER COUNTY NCRWTP PERMIT NUMBER: UCII-198432

WELL NUMBER: CO-2347 (JW) PROJECT NUMBER HS9-342E

CASING DIAMETER: 20" DATE: 9/30/01 92 CASING DEPTH: 2492' bpl

CASING JOINT NUMBER	CASING JOINT LENGTH	CUMULATIVE LENGTH	TIME	
			Welding	Lowering
45	43.15	1832.96	0620	0652
46	41.45	1874.41	0753	0906
47	41.77	1916.18	0944	1028
48	41.41	1957.59	1034	1130
49	41.38	1998.97	1137	1235
50	40.84	2039.81	1302	1408
51	41.84	2081.65	1413	1518
52	40.56	2122.21	1523	1628
53	41.12	2163.33	1634	1742
54	42.93	2206.26	1749	1857
55	41.62	2247.88	1906	2010
56	41.28	2289.16	2110	2143
57	41.62	2330.78	2217	2249
58	41.68	2372.46	2314	2254
59	42.08	2414.54	0036	0103
60	40.18	2454.72	0132	0341
61	42.25	2496.97	0433	0504
62 (LANDING JOINT)	N/A	N/A	0537	0638

MISSIMER & ASSOCIATES, INC.

**CASING MILL CERTIFICATION
SUMMARY**

PROJECT NAME: COLLIER COUNTY NCRWTP PERMIT NUMBER: UCII-198432

WELL NUMBER: CO-2317 (IW) PROJECT NUMBER H89-342E

SEATING DATE	CASING DIAMETER	DEPTH BPL	CERTIFICATE NUMBER(S)	INSPECTOR	DATE INSPECTED
7/25/92	38"	425'	639	HENDRIX	6/24/92
8/8/92	30"	1310'	639	HENDRIX	6/24/92
10/2/92	20"	2497'	P80870IL 95/EA/91; 76/EA/91; 75/EA/91	DABKOWSKI	11/28/91; 5/12/91; 8/20/92
10/31/92	16"	2443'	NW19035; NW99657	DABKOWSKI	9/16/92

**CASING MILL CERTIFICATION
SUMMARY**

PROJECT NAME: COLLIER COUNTY NCRWTP PERMIT NUMBER: UCII-198432

WELL NUMBER: CO-2318 (MW) PROJECT NUMBER H89-342E

SEATING DATE	CASING DIAMETER	DEPTH BPL	CERTIFICATE NUMBER	INSPECTOR	DATE INSPECTED
7/10/92	24"	425'	639; 174	HENDRIX; SIMEON	6/24/92; 12/16/91
8/2/92	16"	910'	PGY673; PGY723	MISAWA	7/26/88; 8/11/88
10/6/92	6 5/8"	1815'	CSXT482448	STEIN	8/14/92

MISSIMER & ASSOCIATES, INC.

CASING TALLY SHEET

PROJECT NAME: COLLIER COUNTY NCRWTP
 WELL NUMBER: CO-2318 (MW)
 PROJECT NUMBER H89-342E

CASING DIAMETER: 16"

CASING DEPTH: 900'

DATE MONTH/DAY	INITIALS	CASING JOINT NUMBER	CASING JOINT LENGTH	CUMULATIVE LENGTH
		1	11.61	11.61
		2	43.02	54.63
		3	43.01	97.64
		4	42.22	139.86
		5	42.95	182.81
		6	43.00	225.81
		7	42.96	268.77
		8	42.95	311.72
		9	43.04	354.76
		10	42.54	397.30
		11	42.92	440.22
		12	43.05	483.27
		13	42.96	526.23
		14	42.98	569.21
		15	42.92	612.13
		16	43.02	655.15
		17	42.95	698.10
		18	43.00	741.10
		19	43.02	784.12
		20	42.98	827.10

MISSIMER & ASSOCIATES, INC.

CASING TALLY SHEET

PROJECT NAME: COLLIER COUNTY NCRWTP PERMIT NUMBER: UCII-198432

WELL NUMBER: CO-2318 (MW) PROJECT NUMBER: H89-342E

CASING DIAMETER: 6 5/8" DATE: 10-5,6-92 CASING DEPTH: 1815 FEET

CASING JOINT NUMBER	CASING JOINT LENGTH	CUMULATIVE LENGTH	TIME	
			Welding	Lowering
1	43.38	43.38	0945	1000
2	44.09	87.47	1005	1100
3	44.04	131.51	1130	1205
4	42.24	173.75	1235	1320
5	43.21	216.96	1350	1420
6	44.08	261.04	1428	1450
7	43.88	304.92	1455	1520
8	41.54	346.46	1530	1555
9	42.67	389.13	1600	1620
10	43.49	432.62	1625	1645
11	42.72	475.34	1655	1720
12	43.10	518.44	1730	1755
13	43.48	561.92	1800	1825
14	44.04	605.96	1830	1845
15	44.28	650.24	1900	1920
16	42.84	693.08	1945	2030
17	44.12	737.20	2100	2125
18	43.14	780.34	2230	
19	43.63	823.97	2240	2346
20	43.64	867.61	0010	0040

MISSIMER & ASSOCIATES, INC.

CASING TALLY SHEET

PROJECT NAME: COLLIER COUNTY NCRWTP PERMIT NUMBER: UCII-198432

WELL NUMBER: CO-2318 (MW)

PROJECT NUMBER: H89-342E

CASING DIAMETER: 6 5/8" DATE: 10/5,6/92 CASING DEPTH: 1815 FEET

CASING JOINT NUMBER	CASING JOINT LENGTH	CUMULATIVE LENGTH	TIME	
			Welding	Lowering
21	44.03	911.64	0045	0116
22	43.97	955.61	0130	0215
23	44.57	1000.18	0300	0330
24	43.96	1044.14	0340	0410
25	44.04	1088.18	0415	0455
26	43.80	1131.98	0510	0545
27	39.92	1171.90	0600	0650
28	44.00	1215.90	0700	0730
29	43.81	1259.71	0745	0750
30	44.05	1303.76	0800	0815
31	43.83	1347.59	0820	0835
32	42.50	1390.09	0840	0855
33	42.33	1432.42	0900	0915
34	42.40	1474.82	0920	0940
35	44.45	1519.27	0945	1000
36	44.03	1563.30	1010	1030
37	42.10	1605.40	1035	1055
38	44.82	1650.22	1105	1130
39	44.05	1694.27	1135	1155
40	44.98	1739.25	1200	1225

STANDARD CERTIFIED TEST REPORT
 GEORGIA TUBULAR PRODUCTS, INC.



Customer Name: YOUNGQUIST BROTHERS INC

Address: P O BOX 7609

City/State/Zip: MONT BELVIEU TX 77580

Date: 8-24-92

Customer Order No. 1000

G.T.P. 100

Specification: SPIRALWELD STEEL PIPE ASTM A-139 GR B "MADE IN USA"

Coil or Lot No.	Size O.D.	Wt./Ft. or Wall Thick.	Min. Hydro. Test Pres. P.S.I.	MECHANICAL PROPERTIES			CHEMICAL ANALYSIS (%)				
				Yield Strength P.S.I. Point	Tensile Strength P.S.I.	Elong In 2" %	C	Mn	P	S	SI
B56389	38"	.375W	420	50100	70400	36.1	.18	.74	.019	.017	
5B59383	"	"	"	50600	71000	32.7	.18	.70	.021	.017	
B56389	30"	.375W	525	50100	70400	36.1	.18	.74	.019	.017	
B59375	"	"	"	46900	65800	32.1	.17	.69	.022	.013	
5B59378	"	"	"	51700	72300	33.5	.18	.77	.020	.009	
5B59385	"	"	"	48000	68900	35.1	.18	.65	.019	.013	
B59381	24"	.375W	656	46200	68900	34.2	.18	.69	.021	.009	

The undersigned hereby certifies that the above materials have been inspected and tested in accordance with the methods prescribed in the applicable specifications and the results of such inspection and tests shown above. In determining properties or characteristics for which no methods of inspecting or testing are prescribed by said specifications, the standard mill inspection and testing practices of Georgia Tubular Products, Inc. have been applied. Unless it appears otherwise in the results of such inspection and tests shown above, the undersigned believes that said materials conform to said specifications.

Subscribed and sworn to before me

24th day of July 1992

Marvin M. Hendrix

MARVIN M. HENDRIX

MFG MGR

Name & Title

Notary Public
 Notary Public, Bartow County, Georgia
 Commission Expires Oct. 1, 1994



Georgia Tubular Products, Inc.

109 Dent Drive, Cartersville, GA 30120

(404) 386-2553



METALLURGICAL TEST REPORT

902 12.41.24

THIS IS TO CERTIFY THAT THE PRODUCT DESCRIBED HEREIN WAS MFG., SAMPLED, TESTED, AND/OR INSPD. IN ACCORDANCE WITH THE SPECIFICATION AND FULFILLS REQUIREMENTS IN SUCH RESPECTS. APPROVED BY OFFICE OF: D.S. DABKOWSKI MGR. MET. & Q.A. USS TUBULAR PRODUCTS

MAIL TO

DATE 08/20/92

USS TUBULAR PRODUCTS

BARTOW STEEL INC
P O BOX 1789
BARTOW FL 33830-1789

P.O. DATE PURCHASE ORDER NO. 5324
SHIPPER'S NO. 114398 MILL ORDER NO. DS82320 01 INVOICE NO.
VEHICLE IDENTIFICATION NUMBER

BARTON STEEL INC
P O BOX 1789
BARTOW FL 33830-1789

20 inch Casings Mill CERTIFICATE
Injection Well-2317

Table with columns: M NO., SIZE, WALL, MATERIAL DESCRIPTION, MATL., HEAT/LOT NO., MIN. HYDRO PSI, YIELD STR. PSI, TENSILE STR. PSI, ELONG. % IN 2", GAGE WIDTH IN., FLAT, BEN.

Table with columns: M NO., HEAT NO., TYPE, C, MN, P, S, SI, CU, NI, CR, MO, SN, AL, N, V, B, TI, CB, CO

* END OF DATA THIS SHEET *** ALL MELTING AND MANUFACTURING TOOK PLACE IN THE USA.

DECIMAL POSITIONS FOR ELEMENTS ARE INDICATED BY THE LEFT MARGIN. VERTICAL DOTTED LINE OR DECIMAL POINT.



METALLURGICAL TEST REPORT

902 12.41.24

CONTRACT NO.

P.O. DATE

PURCHASE ORDER NO.

5324

USS TUBULAR PRODUCTS

SHIPPERS NO.

MILL ORDER NO.

INVOICE NO.

T14398

D982320 01

VEHICLE IDENTITY

P808701L

BARTOW STEEL INC
P O BOX 1789
BARTOW FL 33830-1789

BARTOW STEEL INC
P O BOX 1789
BARTOW FL 33830-1789

M
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O

THIS IS TO CERTIFY THAT THE PRODUCT DESCRIBED HEREIN WAS MFG., SAMPLED, TESTED, AND/OR INSPD. IN ACCORDANCE WITH THE SPECIFICATION AND FULFILLS REQUIREMENTS IN SUCH RESPECTS.
APPROVED BY OFFICE OF:
D.S. DABKOWSKI MGR. MET. & Q.A. USS TUBULAR PRODUCTS

DATE 08/20/92

M NO.	MATERIAL DESCRIPTION			MATL.	HEAT/ LOT NO.	MIN. HYDRO PSI	YIELD STR. PSI	TENSILE STR. PSI	ELONG. % IN 2"	GAGE WIDTH IN.	FLAT	BEN
	SIZE	WALL	SPECIFICATION & GRADE									
1	20	.500	ASTM A53-90B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91	SML	N27516	1310	44200	72500	42.0	1 1/2	OK	
1	20	.500	ASTM A53-90B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91	SML	N27517	1310	42500	71900	43.0	1 1/2	OK	

M NO.	HEAT NO.	TYPE	C	MN	P	S	SI	CU	NI	CR	MO	SN	AL	N	V	B	TI	CB	CO
1	N27516	HEAT	22	83	012	007	23	02	01	03	01				001				
1	N27516	PROD	22	84	010	007	25												
1	N27517	HEAT	23	82	010	008	23	02	02	04	01				001				
1	N27517	PROD	23	83	006	008	24												

* END OF DATA THIS SHEET *** ALL MELTING AND MANUFACTURING TOOK PLACE IN THE USA.

SEAMLESS Steel Inj Casings 1 of 6

HUTA BATORY
GIBRZON

20" ATEST HUTNICZY No 95/BA/91
CERTIFICAT DE LUNNE - WORKS-CERTIFICATE - WERKS-ATTEST
0,5 wall

Zamawiający
Le client - Ordered by - Besteller - Заказчик

STALRIPORT - KATOWICE

Adres wysyłkowy
Adresse - Address - Versandadresse - Адрес получателя

TRADE ARBED - USA

Nr i data zamówienia klienta No et date de la commande Order No and date No und Datum der Bestellung № и число заказа	Nr zlecenia Ordre No Manuf. Order No Auftrag No № заказа	Nr awizu Avis No Advice No Versandanzeige No № извещения	Nr wagonu Wagen No Car No Wagon No № вагона
41-511/1/1131	424B027/91	85390	

Wyszczególnienie zamówienia:
Specification de la commande - Order Specification - Spezifikation der Bestellung - Спецификация заказа

Poz. Pos. № A/A	Przedmiot i wykonanie (stan obr. termiczn., mech. itp.) L'objet et l'exécution (traitement thermique et l'usinage) Item and specification (heat and mechanical treatment etc.) Gegenstand und Ausführung (therm und mechan. Bearbeitung usw.) Предмет и исполнение (состояние терм. и механич.об., и пр.)	Wymiar lub rysunek Dimension ou dessin Dimensions or drawing Abmessung oder Zeichnung Размер или чертёж	Marka Marque Steel type Marke Марка	Wytop Coulée Heat Abstich Плава	Sztuk Pièces Pieces Stück Штук	mb weight c. mtr. l. M. кор. M.	theoret kg кг.
	Seamless pipes acc. to ASTM-A106 revision B9, outside diameter range acc. to ASTM-A53 revision B2.0 beveled ends acc. to DIN 2539/22. Outside surface staining acquired. R.O. 91 ST 9113/001 NEW ORLEANS	20" x 0,500" x 9-12m /508x12,7mm/	B	77172	1	11,63	18,2

Kontrolę techniczną powyższego zamówienia przeprowadził Oddział Technicznej Kontroli. Wyniki badań podano niżej

Le contrôle technique de la commande a été exécuté par le Service de Contrôle. Les résultats des essais sont indiqués ci-après.
The technical investigation of this order has been executed by the Works Control. Results of tests are as follows.
Die technische Prüfung obiger Bestellung wurde von der Fabrikationskontrolle durchgeführt. Die Ergebnisse der Proben sind nachstehend angeführt.

Технический контроль вышеупомянутого заказа произвела Отдел Технического Контроля. Результат испытаний представляем ниже.

1. SKŁAD CHEMICZNY - ANALYSE CHIMIQUE - CHEMICAL COMPOSITION - CHEMISCHE ZUSAMMENSETZUNG - ХИМИЧЕСКИЙ СОСТАВ

Marka Marque Steel type Marke Марка	Wytop Coulée Heat Abstich Плава	C	Mn	Si	P	S	Cr	Ni	Mo	Cu
B	77172	0,15	0,63	0,24	0,015	0,011	0,10	0,05	0,02	0,08

2. BADANIA MECHANICZNE — ESSAIS MECANIQUEs — MECHANICAL TESTS — MECHANISCHE UNTERSUCHUNGEN — МЕХАНИЧЕСКИЕ ИСПЫТАНИЯ

Nr wytopu lub próby No de la coulée ou de l'essai Heat No or tests No Abtich oder Probe No № плавки или пробы	Stan obróbki termicznej Traitement thermique Heat treatment Therm. Bearbeitung Термич. обработка	Re kg/mm ² MPa Bc кг/мм ²	Rm kg/mm ² MPa B _{0.2} кг/мм ²	A % 24 δ %	C % W %	U kg/mm ² A кг/мм ²	Twardość Dureté Hardness Härte Твердость	Złam Rupture Fracture Bruch Масок
187/1		330	470	33				

3. BADANIA TECHNOLOGICZNE

Flattening test - positive results

4. BADANIA METALOGRAFICZNE — ESSAIS METALLOGRAPHIQUES — METALLOGRAPHIC TESTS — METALLOGRAPHISCHE UNTERSUCHUNGEN — МЕТАЛЛОГРАФИЧЕСКИЕ ИСПЫТАНИЯ

Nr wytopu lub próby No de la coulée ou d'essais Heat No or tests No Abtich oder Probe No № плавки или пробы	Zanieczyszczenie niemetaliczne Impureté nonmétalliques Nonmetallic impurities Nichtmetallische Verunreinigungen Неметаллические включения	Struktura Structure Structure Struktur Структура

Each pipe hydrostatically tested by pressure 8.0 MPa - positive results
Spark test - positive results.

5. INNE BADANIA — AUTRES ESSAIS — OTHER TESTS — ANDERE UNTERSUCHUNGEN — ДРУГИЕ ИСПЫТАНИЯ

Powierzchnię i wymiary zbadano Surface et dimensions ont été contrôlés Surface and dempensions tested Oberfläche und Abmessungen geprüft Наружный осмотр и проверка измерений произведена	przez dz. prod. w par Dept. et 100% oy Dept. at von Prod.-Abt. zu отд. произв. в	Material oznaczono Le material est marqué Material marked Das Material wurde bezeichnet Материал обозначен
	przez T.K. par Se. 100% by W. K. von F. K. r. H. K.	III 10 symbol. Szablona A-106-A51-A. Size 14 inches Heat number PCLAND

Na podstawie wyżej przeprowadzonych prób materiał zwolniono
Sur base des essais ci-dessus le material est délivré — According to the carried out tests the material released — Auf Grund der oben durchgeführten Untersuchungen wurde das Material freigegeben — На основании вышеупомянутых испытаний материал освобожден.

Kontrola Techniczna Contrôle de fabrication Control of Manufacture Fabrikationskontrolle Технический контроль	Dyrekcja Huty Direction de l'Usine Works Management Hütten-Direktion Дирекция Завода	dn. 03.12. 1981 r.
Dz. Kont. Jakości K-21	Wzrost. Kont. Jakości KOK Huty	HUTA BATOWA BZ. KONTR. JAKOŚCI

Huta Batory

Chorzów

ATEST HUTNICZY № 76/EA/91

CERTIFICAT DE L'USINE — WORKS-CERTIFICATE — WERKS-ATTEST
СЕРТИФИКАТZamawiający
Le client — Ordered by — Besteller — Заказчик

Stalexport — Katowice

Adres wysyłkowy
Adresse — Address — Versandadresse — Адрес получателя. TRADE ARBED — USANr i data zamówienia klienta
No et date de la commande
Order No and date
No und Datum der Bestellung
№ и число заказаNr zlecenia
Ordre No
Manuf. Order No
Auftrag No
№ заказаNr awizu
Avis No
Advice No
Versandanzeige No
№ извещенияNr wagonu
Wagen No
Car No
Wagon No
№ вагона

41-611/1/ 1131

4248027/91

85345

Wyszczególnienie zamówienia:
Spécification de la commande — Order Specification — Spezifikation der Bestellung — Спецификация заказаTheoret.
weight.
kg
kr.

Poz. ros. Pos. № п/а	Przedmiot i wykonanie (stan obr. termicz., mech. itp.) L'objet et l'exécution (traitement thermique et l'usinage) Item and specification (Heat and mechanical treatment etc.) Gegenstand und Ausführung (therm und mechan. Bearbeitung usw.) Предмет и исполнение (состояние терм. и механобработ. и пр.)	Wymiar lub rysunek Dimension ou dessin Dimensions or drawing Abmessung oder Zeichnung Размер или чертёж	Marka Marque Steel type Marke Марка	Wytop Coulée Heat Abstich Плавка	Sztuk Pièces Pieces Stück. Штук	mb c. mtr. c. mtr. l. m. por. m.	Theoret. weight. kg kr.
	Seamless pipes acc. to ASTM-A106 revision 89, outside diameter 20.0 inches acc. to ASTM-A/53 revision 82, Grade B bevelled ends acc. to DIN 2559/22. outside surface stearin lacquered. P.O. 91 ST 9113/001 NEW ORLEANS.	20"x0,500"x 9-12in 20"x0,500"x 9-12in /508x12,7mm/	B B	77175 77172	3 7	35,62 80,30	5525 12458

Kontrolę techniczną powyższego zamówienia przeprowadził Oddział Technicznej Kontroli. Wyniki badań podano
niżejLe controle technique de la commande a été exécuté par le Service de Controle. Les resultats des essais sont indiqués ci-aprés.
The technical investigation of this order has been executed by the Works Control. Results of tests are as follows.
Die technische Prüfung obiger Bestellung wurde von der Fabrikationskontrolle durchgeführt. Die Ergebnisse der Proben sind
nachstehend angeführt.Технический контроль вышеупомянутого заказа произвел Отдел Технического Контроля. Результат испытаний предста-
влен ниже.1. SKŁAD CHEMICZNY — ANALYSE CHIMIQUE — CHEMICAL COMPOSITION — CHEMISCHE ZUSAM-
MENSETZUNG — ХИМИЧЕСКИЙ СОСТАВ

Marka Marque Steel type Marke Марка	Wytop Coulée Heat Abstich Плавка	C	Mn	Si	P	S	Cr	Ni	V	Mo	Cu
B	77175	0,17	0,65	0,280	0,028	0,008	0,14	0,10	trace	0,02	0,10
B	77172	0,15	0,65	0,24	0,015	0,011	0,10	0,05	trace	0,02	0,06

K
21/036

4 4 6

BADANIA MECHANICZNE — ESSAIS MECANIKUES — MECHANICAL TESTS. — MECHANISCHE UNTERSUCHUNGEN. — МЕХАНИЧЕСКИЕ ИСПЫТАНИЯ

Nr wytopu lub próby No de la coulée ou d'essais Heat No or tests No Absicht oder Probe No № плавки или пробы	Stan obróbki termicznej Traitement thermique Heat treatment Therm. Bearbeitung Термич. обработка	Re	Rm	A	C	U	Twardość Dureté Hardness Härte Твердость		Złom Ribbon Fracture Bruch Излом
		kG/mm ² MPa Bc кг/мм ²	kG/mm ² MPa Bc кг/мм ²	% 2 ^o δ %	% ψ %	kg/cm ² K кг/см ²			
186		390	525	32					
187		330	470	33					

3. BADANIA TECHNOLOGICZNE

Flattening test — positive results

4. BADANIA METALOGRAFICZNE — ESSAIS METALLOGRAPHIQUES — METALLOGRAPHIC TESTS — METALLOGRAPHISCHE UNTERSUCHUNGEN — МЕТАЛЛОГРАФИЧЕСКИЕ ИСПЫТАНИЯ

Nr wytopu lub próby No de la coulée ou d'essais Heat No or tests No Absicht oder Probe No № плавки или пробы	Zanieczyszczenie niemetaliczne Impureté nonmetalliques Nonmetallic impurities Nichtmetallische Verunreinigungen Неметаллические включения	Struktura Structure Structure Struktur Структура
	Each pipe hydrostatically tested by pressure 8,0 MPa — positive results Spark test — positive results	

5. INNE BADANIA — AUTRES ESSAIS — OTHER TESTS — ANDERE UNTERSUCHUNGEN — ДРУГИЕ ИСПЫТАНИЯ

Powierzchnię i wymiary zbadano Surface et dimensions ont été contrôlés. Surfaces and dimensions tested Oberfläche und Abmessungen geprüft Наружный осмотр и проверка измерений произведены	przez dz. prod. w par Dept. at by Dept. at 100% von Prod.-Abt. zu отд. произв. в przez T. K. par Sc. by W. K. 100% von F. K. r. H. K.	Material oznaczono Le material est marqué Material marked Das Material wurde bezeichnet Материал обозначен Mill's symbol, Seamless A-106-A53-B, Size in inches Heat number POLAND
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Na podstawie wyżej przeprowadzonych prób materiał zwolniono
 Sur base des essais ci-dessus le matériel est délivré — According to the carried out tests the material released — Auf Grund der oben durchgeführten Untersuchungen wurde das Material freigegeben — На основании вышеисполненных испытаний, признан годным.

Kontrola Techniczna Contrôle de Fabrication Control of Manufacture Fabrikationskontrolle Технический контроль	Dyrekcja Huty Direction de l'Usine Works Management Hütten-Direktion Дирекция Завода	HUTA BATOŃ DZ. KONTR. JAKOBS	dn. 28.11. 1991 r.
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Dr. Kościelny
 Jakobel
 H-21

Kontr. Jakobel
 H-21

Huta Batory
Chorzów

ATEST HUTNICZY No 75/EA/91
CERTIFICAT DE L'USINE - WORKS-CERTIFICATE - WERKS-ATTEST
СЕРТИФИКАТ

Zamawiający
Le client - Ordered by - besteller - Заказчик
Stalexport - Katowice

Adres wysyłkowy
Adresse - Address - Versandadresse - Адрес посылки
TRADE ARBED - USA

Nr i data zamówienia klienta No et date de la commande Order No and date No und Datum der Bestellung № и дата заказа	Nr zlecenia Order No Manuf. Order No Auftrag No № заказа	Nr awizu Avis No Advice No Versandanzeige No № извещения	Nr wagonu Wagon No Car No Wagon No № вагона
41-611/1/ 1131	4248027/91	85344	

Wyszczególnienie zamówienia:
Spécification de la commande - Order Specification - Spezifikation der Bestellung - Спецификация заказа

Poz. Pos. № п/п	Przedmiot i wykonanie (stan obr. termiczn., mech. itp.) L'objet et l'exécution (traitement thermique et l'usinage) Item and specification (Heat and mechanical treatment etc.) Gegenstand und Ausführung (therm und mechan. Bearbeitung usw.) Предмет и исполнение (состояние терм. и механич.обаб. и пр.)	Wymiar lub rysunek Dimension or dessin Dimensions or drawing Abmessung oder Zeichnung Размер или чертёж	Marka Marque Steel type Marque Марка	Wytop Coulée Heat Abstieg Плавка	Sztuk Pièces Pieces Stück Штук	mb. c. mtr. l. M. por. m.	theoret. weight. kg gr.
	Seamless pipes acc. to ASTM-A106 revision 89, outside diameter tolerance ±0.005 acc. to ASIM-A/53 revision 82, Grade B, bevelled ends acc. to DIN 2559/22 Outside surface stearin lacquered. P.O. 91 ST 9113/001 NEW ORLEANS	Ø 20"x0,500"x 9-12m Ø 20"x0,500"x over 6m /508x12,7mm/	B B	77175 12860	6 6	69,09 71,01	10717 11015

Kontrolę techniczną powyższego zamówienia przeprowadził Oddział Technicznej Kontroli. Wyniki badań podano niżej

Le contrôle technique de la commande a été exécuté par le Service de Contrôle. Les résultats des essais sont indiqués ci-après.
The technical investigation of this order has been executed by the Works Control. Results of tests are as follows.
Die technische Prüfung obiger Bestellung wurde von der Fabrikationskontrolle durchgeführt. Die Ergebnisse der Proben sind nachstehend angeführt.
Технический контроль вышеупомянутого заказа провёл Отдел Технического Контроля. Результат испытаний представлен ниже.

1. SKŁAD CHEMICZNY - ANALYSE CHIMIQUE - CHEMICAL COMPOSITION - CHEMISCHE ZUSAMMENSETZUNG - ХИМИЧЕСКИЙ СОСТАВ

Marka Marque Steel type Marque Марка	Wytop Coulée Heat Abstieg Плавка	C	Mn	Si	P	S	Cr	Ni	V	Mo	Cu
B	77175	0,17	0,65	0,28	0,020	0,008	0,14	0,10	trace	0,02	0,10
B	12860	0,16	0,59	0,22	0,017	0,024	0,16	0,07	trace	0,02	0,09

6 of 6.

MECHANICZNE — ESSAIS MECANIQUEs — MECHANICAL TESTS — MECHANISCHE UNTERSUCHUNGEN — МЕХАНИЧЕСКИЕ ИСПЫТАНИЯ

Stan obróbki termicznej / Traitement thermique / Heat treatment / Therm. Bearbeitung / Термич. обработка	Re	Rm	A	C	U	Twardość / Dureté / Hardness / Härte / Твердость	Złom / Rupture / Fracture / Bruch / Разом
	kG/mm ² MPa кг/мм ²	kG/mm ² MPa кг/мм ²	% %	% %	kG/mm ² кг/мм ²		
	390	525	32				
	330	470	35				

3. BADANIA TECHNOLOGICZNE
Flattening test - positive results

4. BADANIA METALOGRAFICZNE — ESSAIS METALLOGRAPHIQUES — METALLOGRAPHIC TESTS — METALLOGRAPHISCHE UNTERSUCHUNGEN — МЕТАЛЛОГРАФИЧЕСКИЕ ИСПЫТАНИЯ

Nr wytopu lub próby / No de la coulée ou d'essais / Heat No. or tests No. / Abtisch oder Probe No. / № плавки или пробы	Zanieczyszczenie niemetaliczne / Impureté nonmetalliques / Nonmetallic impurities / Nichtmetallische Verunreinigungen / Неметаллические включения	Struktura / Structure / Structure / Struktur / Структура
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Each pipe hydrostatically tested by pressure 8,0 MPa-positive results
Spark test - positive results

5. INNE BADANIA — AUTRES ESSAIS — OTHER TESTS — ANDERE UNTERSUCHUNGEN — ДРУГИЕ ИСПЫТАНИЯ

Powierzchnię i wymiary zbadano / Surface et dimensions ont été contrôlées / Surface and dimensions tested / Oberfläche und Abmessungen geprüft / Наружный осмот и проверка измерений произведены.	przez dz. prod. w / par Dept. of / of Dept. of / von Prod.-Abt. zu / ОТД. ПРОИЗВ. в 100% przez T.K. / par Sc. / by W. K. / von F. K. / г. П. К. 100%	Materiał oznaczono / Le matériel est marqué / Material marked / Das Material wurde bezeichnet / Материал обозначен Mill's symbol: Seamless A-106-A53-B. Size in inches Heat number POLAND
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Na podstawie wyżej przeprowadzonych prób materiał zwolniono / Sur base des essais ci-dessus le matériel est délivré — According to the carried out tests the material released — Auf Grund der oben durchgeführten Untersuchungen wurde das Material freigegeben. — На основании проведенных испытаний материал выдан.

Kontrola Techniczna / Contrôle de Fabrication / Control of Manufacture / Fabrikationskontrolle / Технический контроль	Dyrekcja Huty / Direction de l'Usine / Works Management / Hütten-Direktion / Дирекция Завода
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Dz. Kont. / No. 21
Wyd. / KONT. JAKOBI
H-21

HUTA BATORIA
EZ. KONT. JAKOBI

dn. 28.11. 19 91 r.



METALLURGICAL TEST REPORT

12-06-82

JOB, CONTRACT NO.

P.O. DATE

PURCHASE ORDER NO.

113497-BH

INVOICE NO.

BILL ORDER NO.

INVOICE NO.

R10406

DS80135.01

VERIFICATION

NW 12035

USX TUBULAR PRODUCTS

MAIL TO

THIS IS TO CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS MFG., SAMPLED, TESTED, AND/OR INSPD. IN ACCORDANCE WITH THE SPECIFICATION AND FULFILLS REQUIREMENTS IN SUCH RESPECTS. APPROVED BY OFFICE OF: D.S. DABKOWSKI MGR. MET. & Q.A. USX TUBULAR PRODUCTS

DATE 09/16/82

TOTAL P.01

M. NO.	SIZE		WALL	MATERIAL DESCRIPTION	MATERIAL	HEAT LOT NO.	MIN. HYDRO PRESS	YIELD STRENGTH	TENSILE STRENGTH	ELONG. % IN 1"	ODD WIDTH IN.	FLAT	BEND
	OD	WT											
1	16		.500	ASTM A53-90B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91	SML	L41686	1640	44100	71400	44.0	1 1/2	OK	
1	16		.500	ASTM A53-90B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91	SML	L41688	1640	46500	71200	42.5	1 1/2	OK	

NO.	HEAT NO.	TYPE	C	MN	P	S	SI	CU	NI	CA	MO	SH	AL	N	V	S	TI	CR	CO
1	L41686	HEAT	17	106	012	006	24	01	02	04	00				002				
1	L41686	PROD	16	106	008	004	23	01	01	04	01				001				
1	L41688	HEAT	17	107	011	009	26	01	01	03	01				002				
1	L41688	PROD	18	106	003	003	26	01	01	04	01				001				

END OF DATA THIS SHEET *** ALL METALLOGICAL AND MANUFACTURING TOOLS MADE IN THE USA.

NOTE: DECIMAL POSITIONS FOR ELEMENTS ARE INDICATED BY THE LEFT MARGIN. VERTICAL DOTTED LINE OR DECIMAL POINT



PO 72469

METALLURGICAL TEST REPORT

REQ. JOB. CONTRACT NO.

P.O. DATE	PURCHASE ORDER NO.	
	113497-RH	
SHIPPER'S NO.	MILL ORDER NO.	INVOICE NO.
R10405	DS80185 01	
VEHICLE IDENTITY	MIN 98457	

THIS IS TO CERTIFY THAT PRODUCT DESCRIBED HEREIN MFG., SAMPLED, TESTED, OR INSPD. IN ACCORDANCE THE SPECIFICATION AND FULFILLS REQUIREMENTS IN SUCH RESPECTS.
APPROVED BY OFFICE OF: D.S. DABKOWSKI MGR. MET Q.A. USS TUBULAR PRODUCT
DATE 09/16/92

VENDOR
SOLD TO

USS TUBULAR PRODUCTS

M
A
I
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T
O

SPEC. & INSP.

ITEM NO.	MATERIAL DESCRIPTION			MATERIAL	HEAT/ LOT NO.	MIN. HYDRO PSI	YIELD STR. PSI	TENSILE STR. PSI	ELONG. % IN 2"	GAGE WIDTH IN.	FLAT
	SIZE	WALL	SPECIFICATION & GRADE								
01	16	.500	ASTM A53-90B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91	SML	N46494	1640	49900	78600	40.0	1 1/2	OK
01	16	.500	ASTM A53-90B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91	SML	N46495	1640	47600	78100	40.5	1 1/2	OK

ITEM NO	HEAT NO.	TYPE	C	MN	P	S	SI	CU	NI	CR	MO	SN	AL	N	V	B	TI	CB	CO
01	N46494	HEAT	24	93	011	008	25	01	01	03	01				001				
01	N46494	PROD	22	92	009	008	25	02	02	04	01				002				
01	N46495	HEAT	25	92	010	008	25	02	02	04	01				001				
01	N46495	PROD	26	92	009	008	26	02	02	04	01				002				
** END OF DATA THIS SHEET **																			
ALL MELTING AND REFINING TOOK PLACE IN THE USA.																			

CE=.41
HRB=80.0
CE=.42
HRB=78.0

1072469

METALLURGICAL TEST REPORT

JOB. CONTRACT NO.

REVIEW FOR SOLD TO

USS TUBULAR PRODUCTS

P.O. DATE	PURCHASE ORDER NO.	
SHIPPER'S NO.	MILL ORDER NO.	INVOICE NO.
R10405	DS80135 01	
VEHICLE IDENTITY	NW 99257	

THIS IS TO CERTIFY THAT THE PRODUCT DESCRIBED HEREIN WAS MFG., SAMPLED, TESTED, AND OR INSPD. IN ACCORDANCE WITH THE SPECIFICATION AND FULFILLS REQUIREMENTS IN SUCH RESPECTS.
 APPROVED BY OFFICE OF:
 D.S. DABKOWSKI MGR. MET. & Q.A. USS TUBULAR PRODUCTS
 DATE 07/16/92

M
A
I
L
T
O

EM NO.	SIZE		WALL		MATERIAL DESCRIPTION		MATL.	HEAT / LOT NO.	MIN HYDRO PSI	YIELD STR.		TENSILE STR.		ELONG. % IN 2"	GAGE WIDTH IN.	FLAT	BI
	SIZE		WALL		SPECIFICATION & GRADE					YIELD STR. PSI	TENSILE STR. PSI						
01	16		.500		ASTM A53-90B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91		SML	N46497	1640	47500	78500	39.0	1 1/2	OK			

M NO.	HEAT NO.	TYPE	C	MN	P	S	SI	CU	NI	CR	MO	SN	AL	N	V	B	TI	CB	CO
01	N46497	HEAT	25	93	011	007	25	01	01	00	01								
01	N46497	PROD	22	95	009	004	25	01	01	00	01				001				
* END OF DATA THIS SHEET *** ALL MELTING AND MANUFACTURING TOOK PLACE IN THE USA.																			
CE=.41 HRB=75.0																			

ORIGINAL

WELDED STEEL PIPE AND SECTION WORKS "11 OKTOMVRI"
KUMANOVO - YUGOSLAVIA

Technical controll department

Kumanovo

16.12.1991

CERTIFICATE No: 174

Customer: Associated metals and minerals corporation 3 north corporate park drive
white plains New York - 10604 - U.S.A.

Contract N°: 87663/901505

Article: New prime electric resistance welded steel pipe plain end line pipe
/API 5L GRADE X-42 /API 5L GRADE 5LB /ASTM A53 GRADE B/
24" x .375" x 40 ft (610 x 9,5 x 12200 mm)

Pieces: 319 (pipe N°: 1 - 319)

Total Length: 12.800,20 ft (3.901,5 m')

Total Weight: 548,853 kg.

LOT N°: 23

B/L N°: 01

PORT: CAMDEN

N/N MARIUPOL

CHEMICAL AND MECHANICAL PROPERTIES

Heat	Chemical Composition %						Tensile Test				
	C	Mn	Si	P	S	Y.S.	T.S.	T.Sw	EL		
	x 100	x 100	x 100	x 1000	x 1000					MPa	%
16884 / 23-135	8	39	2	12	9	-	-	340	415	469	39,2
26727 / 23-149	11	62	2	14	15	-	-	348	443	494	39,2
26734 / 23-202	7	50	3	14	11	-	-	347	437	501	37,2
16812 / 23-52	7	51	4	11	13	-	-	357	444	435	37,2

With this certificate, the works confirms that all pipes produced and tested for waterproof at 81 bars
in accordance with API 5L specification and contract and 100% US tested

We hereby certify that the material described herein has
been satisfactory tested in accordance with the specification
and contract



- Director
Technical controll department
Atanasovski Sineon, Dipl. ing.

93/10
24" conductor esg on well CO-2318

X-44712-06

INSPECTION CERTIFICATE

JIS G 3102 (K1) PAGE 17/18

KAWASAKI STEEL CORPORATION
CHITA WORKS

1, KAWASAKICHO 1, CHOME HAKMA 475 JAPAN

CERTIFICATE NO. 5163
PURCHASE ORDER NO. 6299-71570-01 (1093 120411)
CONTRACT NO. 6299-71570-01 (1093 120411)
SHIPPER NITISH & CO., LTD.
BUYER OR CUSTOMER

COMMODITY **SEAMLESS STEEL PIPE BLACK PLAIN REVEALED KHR**
SPECIFICATION **KR550 (BPE-SYL)**

DATE **JULY 26, 1988**

DIAMETER **Ø 0.636" X 0.274" (16.15 X 7.01)** TOTAL LENGTH **3.483.0 FT**
NO. OF PDS **1** WEIGHT (NET) **142.910 kg**

TEST NO.	CHEMICAL COMPOSITION (%)															TENSILE TEST					IMPACT TEST		
	C	Mn	P	S	Si	Co	Cr	Ni	Mo	Al	Ti	V	As	Se	Coq	YIELD STRENGTH (MPa)	TENSILE STRENGTH (MPa)	ELONGATION (%)	REDUCTION OF AREA (%)	IMPACT VALUE (J)	FRAGILE FRACTURE (%)	TEMP. (°C)	
																TS	TS	EL	RA	AV	AV	AV	
1	0.25	0.35	0.015	0.010	0.030	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	235	430	28	43	2621	2554	-30	
2	0.25	0.35	0.015	0.010	0.030	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	235	430	28	43	2758	2554	-30	
3	0.25	0.35	0.015	0.010	0.030	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	235	430	28	43	2283	2554	-30	
4	0.25	0.35	0.015	0.010	0.030	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	235	430	28	43	2738	2728	-30	
5	0.25	0.35	0.015	0.010	0.030	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	235	430	28	43	2643	2728	-30	
6	0.25	0.35	0.015	0.010	0.030	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	235	430	28	43	2802	2728	-30	

REMARKS	FLARING TEST (ENDS CLEANING)	FLANGE TEST	CRUSH TEST	REVERSE FLATTENING TEST	CANVASED TEST	WELD DUCTILITY TEST	DROPT TEST	REMARKS
	GOOD							

Notes:
 H - Heat analysis
 P - Product analysis
 L - Longitudinal
 T - Transverse
 Coq - Carbon equivalent
 A - Arr. G.L. = 0.0017

WE HEREBY CERTIFY THAT MATERIAL HEREIN DESCRIBED HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS SPECIFIED BY YOU AND THAT IT SATISFIES THE REQUIREMENTS.

[Signature]
CHIEF INSPECTOR

INSPECTION CERTIFICATE

QUAL. C-01 CK-04 PAGE 1/16 (5)

CONTRACT NO. 437-21170-01 (015-F20411)
SUPPLIER MITSUBISHI CO., LTD.
BUYER'S CUSTOMER

KAWASAKI STEEL CORPORATION
CHUO WORKS
 1, KAWASAKICHOI, CHOME HANDA, ITO, JAPAN

COMMODITY SEAMLESS STEEL PIPE (BLACK PLAIN BEVELLED ENDS)
SPECIFICATION (K0040) K1020 (PIPE-VL)

DATE: AUGUST 11, 1988

SIZE (OD) 10.436" X 42# 44# **TOTAL LENGTH** 783.3 F

NO. OF LOTS 20 **NO. OF BDL** **WEIGHT (NET)** 24,223 kg

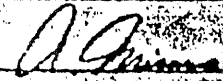
HEAT NO.	CHEMICAL COMPOSITION (%)															TEST NO.	TENSILE TEST					IMPACT TEST			
	K1020 (PIPE-VL)																JIS 12C WELD					JIS 12C WELD			
	C	Mn	P	S	CU	NI	CO	Mo	Al	Ti	V	Nb	N	Ca	As		YIELD STRENGTH	TENSILE STRENGTH	ELONGATION	REDUCTION OF AREA	YIELD RATIO	IMPACT VALUE	SHEAR FRACTURE AREA		
174	0.15	0.15	0.015	0.015	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	50	75	20	42	1.0	2680	-56°C			
175	0.15	0.15	0.015	0.015	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	65	70	20	42	1.0	2800	2980			
176	0.15	0.15	0.015	0.015	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	65	68	20	42	1.0	2980	2980			
177	0.15	0.15	0.015	0.015	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	66	71	20	42	1.0	2647	2655			

STANDARD HYDROGEN TEST	FLANGE TEST	BAND TEST	FLARING TEST	FLANGE TEST	WELD TEST	REVERSE FLATTENING TEST	GALVANIZED TEST	WELD METAL TEST	DRIFT TEST	CK, D, E, F	THREADS & COUPLING
GOOD	GOOD										

REMARKS _____

NOTES
 H-Heat analysis Ceq - Carbon equivalent
 P-Product analysis A-ROLL-EM-VA
 L-Longitudinal
 T-Transverse

WE HEREBY CERTIFY THAT MATERIAL HEREIN DESCRIBED HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS SPECIFIED BY YOU AND THAT IT SATISFIES THE REQUIREMENTS.


CHIEF INSPECTOR

15:48 17193361677

METALLURGICAL TEST REPORT

JOB, CONTRACT NO.

P.O. DATE

PURCHASE ORDER NO.

1633-5068

FAIRFIELD WORKS
P.O. BOX 599
FAIRFIELD, ALABAMA 35064

SHIPPERS NO.

P15553

MILL ORDER NO.

DR31590

INVOICE NO.

488-040671

VEHICLE IDENTIFY CSXT482448

08/07/92

THIS IS TO CERTIFY THAT PRODUCT DESCRIBED HEREIN MFGD., SAMPLED, TESTED AND/OR INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND FULFILLS REQUIREMENTS IN SUCH RESPECTS.

BARTOW STEEL INC
P O BOX 1789

BARTOW STEEL INC
BARTOW STEEL SIDING
ALERT FL

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BARTOW FL 33830-1789

PREPARED BY THE OFFICE OF
M.R. STEIN MGR. Q.A.

DATE AUGUST 14, 1992

PIPE CARBON SMLS STD PIPE API 5L-39TH EDITION DTD 6/1/91 ASTM A53-90B ASTM A106-1991 GRADE B TRIPLE STENCIL BLK BARE PE SC

.NSP:01 MILL

M NO.	MATERIAL DESCRIPTION																		
	SIZE	WALL	SPECIFICATION & GRADE																
01	6.6250	0.5620	ROCKWELL B = 82.0																
	YIELD STRENGTH @ .005 EXT. LONGITUDINAL STRIP TENSILE SPECIMENS USED UNLESS NOTED OTHERWISE. ALSO MEETS THE REQUIREMENTS OF ASME SA53 1989 EDITION, 1991 ADDENDA, 1991 ADDENDA.																		
	END OF DATA																		
ALL MELTING AND MANUFACTURING TOOK PLACE IN THE USA.																			
M NO.	HEAT NO.	TYPE	C	MN	P	S	SI	CU	NI	CR	MO	SN	AL	N	V	B	TI	CB	CO
	U41733	HEAT	.18	108	015	009	22	02	01	04	01	00							
		PROD	.18	113	015	007	26	01	01	04	01	00							
		END OF DATA																	

1072469

METALLURGICAL TEST REPORT

OB. CONTRACT NO.

P.O. DATE	PURCHASE ORDER NO.	
SHIPPERS NO.	MILL ORDER NO.	INVOICE NO.
810405	DS20185 01	
VEHICLE IDENTITY	NW 92257	

USS TUBULAR PRODUCTS
Injection Tubing

THIS IS TO CERTIFY THAT THE PRODUCT DESCRIBED HEREIN WAS MFG., SAMPLED, TESTED, AND OR INSPD. IN ACCORDANCE WITH THE SPECIFICATION AND FULFILLS REQUIREMENTS IN SUCH RESPECTS.
APPROVED BY OFFICE OF:
D.S. DABKOWSKI MGR. MET. & Q.A. USS TUBULAR PRODUCTS

DATE 09/16/92

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NO.	MATERIAL DESCRIPTION			MATL.	HEAT/ LOT NO.	MIN. HYDRO PSI	YIELD STR. PSI	TENSILE STR. PSI	ELONG. % IN 2"	GAGE WIDTH IN.	FLAT	BI
	SIZE	WALL	SPECIFICATION & GRADE									
	16	.500	ASTM A53-90B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B-ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91	SML	N46497	1640	47500	78500	39.0	1 1/2	OK	

NO.	HEAT NO.	TYPE	C	MN	P	S	SI	CU	NI	CR	MO	SN	AL	N	V	B	TI	CB	CO
	N46497	HEAT	25	93	011	007	28	01	01	00	01				001				
	N46497	PROD	22	95	009	004	28	01	01	00	01				002				
END OF DATA THIS SHEET *** ALL MELTING AND MANUFACTURING TOOK PLACE IN THE USA.																			
CE=.41 HRB=75.0																			



USS
A division of USX Corporation

TUBULAR PRODUCTS

PO 72469

METALLURGICAL TEST REPORT

ED. JOB. CONTRACT NO.

THIS IS TO CERTIFY THAT
PRODUCT DESCRIBED HEREIN
MFG., SAMPLED, TESTED, AND
OR INSPD. IN ACCORDANCE WITH
THE SPECIFICATION AND
FULFILLS REQUIREMENTS IN
SUCH RESPECTS.
APPROVED BY OFFICE OF:
D.S. DABKOWSKI MGR. MET.
Q.A. USS TUBULAR PRODUCTS

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USS TUBULAR PRODUCTS

P.O. DATE	PURCHASE ORDER NO.	
SHIPPERS NO.	110497-RH	MILL ORDER NO.
R10405	D580185 01	INVOICE NO.
VEHICLE IDENTITY	MIL 99457	

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INSP.

DATE 09/16/92

ITEM NO.	MATERIAL DESCRIPTION			MAIL	HEAT/ LOT NO.	MIN. HYDRO PSI	YIELD STR. PSI	TENSILE STR. PSI	ELONG. % IN 2"	GAGE WIDTH IN.	FLAT
	SIZE	WALL	SPECIFICATION & GRADE								
01	16	.500	ASTM A53-90B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91	SML	N46494	1640	49900	78600	40.0	1 1/2	OK
01	16	.500	ASTM A53-90B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91	SML	N46495	1640	47600	78100	40.5	1 1/2	OK

ITEM NO	HEAT NO	TYPE	C	MN	P	S	SI	CU	NI	CR	MO	SV	AL	N	V	B	TI	CB	CO
01	N46494	HEAT	24	93	011	008	25	01	01	03	01				001				
01	N46494	PROD	22	92	009	008	25	02	02	04	01				002				
01	N46495	HEAT	25	92	010	008	25	02	02	04	01				001				
01	N46495	PROD	23	92	009	008	24	02	02	04	01				002				

CE=.41
HRB=80.0
CE=.42
HRB=78.0

** END OF DATA THIS SHEET ***
ALL MELTING AND MANUFACTURING TO BE PLACE IN THE USA.



METALLURGICAL TEST REPORT

12-05-82

JOB, CONTRACT NO.

P.O. DATE	PURCHASE ORDER NO.	
	113197-5H1	
INVOICE NO.	ORDER NO.	INVOICE NO.
R10406	D880135-01	
NEW YORK NY 10035		

USS TUBULAR PRODUCTS

THIS IS TO CERTIFY THAT THE PRODUCT DESCRIBED HEREIN WAS MFG., SAMPLED, TESTED, AND/OR INSPD. IN ACCORDANCE WITH THE SPECIFICATION AND FULFILLS REQUIREMENTS IN SUCH RESPECTS.

APPROVED BY OFFICE OF:
D.S. DABKOWSKI MGR. MET. & Q.A. USS TUBULAR PRODUCTS

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DATE 09/16/82

TOTAL P.01

M. NO.	MATERIAL DESCRIPTION		MATERIAL	HEAT LOT NO.	MIN. HYDRO P.S.	YIELD STR. PSI	TENSILE STR. PSI	ELONG. % IN 2'	GAGE WIDTH IN.	FLAT	BEND
	SIZE	WALL									
16	.500	ASTM A53-70B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91	SMK	L41686	1640	44100	71400	44.0	1 1/2	OK	
16	.500	ASTM A53-70B GR. B ASME SA53 GR. B 89 ED. 90 ADD. ASTM A106-91 GR. B ASME SA106 GR. B 89 ED. 90 ADD. API 5L GR. B 39TH ED. 6/91	SMK	L41688	1640	46500	71200	42.5	1 1/2	OK	

NO.	HEAT NO.	TYPE	C	MN	P	S	B	CU	NI	CA	NO	SH	AL	N	V	S	TI	CR	CO
	L41686	HEAT	17	106	012	006	24	01	02	04	00								
	L41686	PROD	16	106	008	004	23	01	01	04	01				002				
	L41688	HEAT	17	107	011	009	26	01	01	03	01				001				
	L41688	PROD	18	106	003	008	24	01	01	04	01				002				

END OF DATA THIS SHEET *** ALL MELTING AND MANUFACTURING TOOK PLACE IN THE USA.

DECIMAL POSITIONS FOR ELEMENTS ARE INDICATED BY THE LEFT MARGIN. VERTICAL DOTTED LINE OR DECIMAL POINT

APPENDIX G

Injection and Monitor Well Inclinerometer Surveys
Weekly Construction Summaries

INCLINATION SURVEY RECORD

Collier County NCRWTP
Injection Well (CO-2317)

DATE	BORE HOLE DIAMETER (IN.)	DEPTH BELOW PAD (FT.)	INCLINATION (DEGREES)
7/16/92	46	60	0.25
7/18/92	46	120	0.25
7/19/92	46	180	0.25
7/22/92	46	240	0.25
7/23/92	46	300	0.375
7/24/92	46	360	0.375
7/28/92	12.25	480	0.375
7/28/92	12.25	540	0.25
7/28/92	12.25	590	0.25
7/29/92	12.25	660	0.25
7/29/92	12.25	720	0.125
7/29/92	12.25	780	0.125
7/30/92	12.25	840	0.125
7/30/92	12.25	900	0.25
7/30/92	12.25	960	0.25
7/30/92	12.25	1030	0.375
7/30/92	12.25	1080	0.375
7/30/92	12.25	1140	0.125
7/30/92	12.25	1200	0.125
7/30/92	12.25	1260	0.25
8/1/92	38	480	0.375
8/2/92	38	575	0.25
8/2/92	38	600	0.375
8/3/92	38	660	0.375

8/3/92	38	720	0.375
8/3/92	38	750	0.375
8/4/92	38	810	0.375
8/5/92	38	900	0.4
8/5/92	38	960	0.125
8/5/92	38	1020	0.375
8/6/92	38	1080	0.25
8/6/92	38	1140	0.25
8/6/92	38	1200	0.25
8/7/92	38	1260	0.50
8/14/92	12.25	1380	0.375
8/14/92	12.25	1440	0.375
8/14/92	12.25	1500	0.25
8/14/92	12.25	1560	0.25
8/14/92	12.25	1620	0.375
8/14/92	12.25	1680	0.50
8/14/92	12.25	1740	0.25
8/14/92	12.25	1800	0.375
8/15/92	12.25	1860	0.375
8/15/92	12.25	1920	0.375
8/15/92	12.25	1980	0.25
8/15/92	12.25	2040	MISSING DATA
8/15/92	12.25	2100	MISSING DATA
8/20/92	12.25	2160	0.375
8/20/92	12.25	2220	0.25
8/21/92	12.25	2280	0.375
8/21/92	12.25	2340	0.375
8/23/92	12.25	2400	0.375
8/25/92	12.25	2460	0.375
8/27/92	12.25	2520	0.375
8/28/92	12.25	2580	0.25

8/29/92	12.25	2640	0.375
8/30/92	12.25	2700	0.375
8/30/92	12.25	2760	0.25
8/31/92	12.25	2820	0.25
8/31/92	12.25	2880	0.325
9/01/92	12.25	2940	0.325
9/02/92	12.25	3000	0.325
9/05/92	12.25	3060	0.375
9/06/92	12.25	3120	0.375
9/06/92	12.25	3240	0.375
9/07/92	12.25	3300	0.375
9/18/92	30	1380	0.25
9/19/92	30	1440	0.25
9/19/92	30	1500	0.25
9/19/92	30	1560	0.25
9/19/92	30	1620	0.25
9/20/92	30	1680	0.375
9/20/92	30	1740	0.375
9/20/92	30	1800	0.25
9/20/92	30	1864	0.25
9/22/92	30	1920	0.375
9/22/92	30	1980	0.375
9/22/92	30	2040	0.25
9/22/92	30	2100	0.375
9/23/92	30	2160	0.375
9/23/92	30	2220	0.375
9/24/92	30	2280	0.25
9/25/92	30	2340	0.375
9/26/92	30	2400	0.375
9/27/92	30	2460	0.375
10/09/92	19	2520	0.375

10/10/92	19	2580	0.375
10/10/92	19	2640	0.375
10/13/92	19	2700	0.375
10/17/92	19	2880	0.375
10/18/92	19	2940	0.375
10/19/92	19	3000	0.375
10/20/92	19	3060	0.375
10/21/92	19	3120	0.375
10/22/92	19	3240	0.375

INCLINATION SURVEY RECORD

Collier County NCRWTP
 Deep Monitor Well (CO-2318)

DATE	BORE HOLE DIAMETER (IN.)	DEPTH BELOW PAD (FT.)	INCLINATION (DEGREES)
7/03/92	29.5	60	0.25
7/04/92	29.5	128	0.25
7/05/92	29.5	180	0.25
7/05/92	29.5	237	0.25
7/09/92	29.5	391	0.25
7/14/92	9.0	486	1.75
7/15/92	9.0	500	0.38
7/15/92	9.0	560	0.25
7/16/92	9.0	620	0.25
7/16/92	9.0	660	0.25
7/16/92	9.0	720	0.38
7/16/92	9.0	800	0.38
7/17/92	9.0	860	0.38
7/17/92	9.0	920	0.38
7/17/92	9.0	980	0.38
7/19/92	9.0	1100	0.13
7/19/92	9.0	1160	0.00
7/23/92	24.0	460	0.25
7/23/92	24.0	520	0.25
7/24/92	24.0	580	MISSING DATA
7/25/92	24.0	640	MISSING DATA
7/27/92	24.0	705	0.375
7/29/92	24.0	780	0.375
09/10/92	16	960	0.25

09/10/92	16	1082	0.25
09/11/92	16	1119	0.25
09/12/92	16	1182	0.25
09/12/92	16	1246	0.25
09/13/92	16	1335	0.375
09/14/92	16	1459	0.375
09/14/92	16	1525	0.25
9/25/92	16	1580	0.25
9/25/92	16	1640	0.25
9/26/92	16	1700	0.25
9/27/92	16	1760	0.25
10/13/92	16	1872	0.25

MISSIMER & ASSOCIATES INC.

CONSTRUCTION SUMMARY

Permit # UCII-198432
 Collier County NCRWTP
 Deep Monitor well (CO-2318)

Week ending Thursday, July 09, 1992

DATE	SHIFT	ACTIVITY SUMMARY
7/03/92	DAY	Drilled from the depth of 33 ft. bpl. to the depth of 74 ft. bpl.
	NIGHT	Drilled from the depth of 74 ft. bpl. to the depth of 127 ft. bpl.
7/04/92	DAY	Drilled from the depth of 127 ft. bpl. to the depth of 174 ft. bpl.
	NIGHT	Drilled from the depth of 174 ft. bpl. to the depth of 206 ft. bpl.
7/05/92	DAY	Drilled from the depth of 206 ft. bpl. to the depth of 253 ft. bpl.
	NIGHT	Drilled from the depth of 253 ft. bpl. to the depth of 279 ft. bpl.
7/06/92	DAY	Drilled from the depth of 279 ft. bpl. to the depth of 292 ft. bpl.
	NIGHT	Tripped out of the nominal 30 inch diameter borehole to replace bit.
7/07/92	DAY	Tripped inside 29.5 inch diameter borehole with new bit assembly and drill string.
	NIGHT	Drilled from the depth of 282 ft. bpl. to the depth of 304 ft. bpl.
7/08/92	DAY	Drilled from the depth of 304 ft. bpl. to the depth of 335 ft. bpl.
	NIGHT	Drilled from the depth of 335 to 372 ft. bpl.
7/09/92	DAY	Drilled from the depth of 372 to 430 ft. bpl. Encountered hard limestone of the Upper Arcadia Formation at the depth of 415 ft. bpl. Pulled out of hole and preparing for wiper trip.
	NIGHT	Ran wiper trip and circulated cuttings. Prepared to set casing.

MISSIMER & ASSOCIATES INC.

CONSTRUCTION SUMMARY

Permit # UC11-198432
 Collier County NCRWTP
 Deep Monitor well (CO-2318)

Week ending Thursday, July 16, 1992

DATE	SHIFT	ACTIVITY SUMMARY
7/10/92	DAY	Installed 425 feet of 24" diameter steel casing.
	NIGHT	Cemented 24" casing with 121 bbls cement, 53 bbls of neat and 68 bbls of 12% gel.
7/11/92	DAY	Tripped cement pipe out of hole, ran temperature log, and worked on 24 in. casing wellhead.
	NIGHT	Rigged up to begin reverse air drilling.
7/12/92	DAY	Rigging up to drill with reverse air.
	NIGHT	Tripped in hole with 9" diam. bit to circulate heavy fluids out, air compressor broke down, could not maintain circulation.
7/13/92	DAY	Pumped drilling mud out of hole and pumped mud out of pit into tanker truck. Worked on making pad wall watertight where wall meets mud pit.
	NIGHT	Drilled nominal 9" diameter pilot hole from 423' to 528' bpl.
7/14/92	DAY	Drilled from 528 ft. to 537 ft. Worked on repairing broken clutch on circulation pump.
	NIGHT	No drilling activity, replaced leaking rotary wellhead.
7/15/92	DAY	Worked on wellhead and pumped weighted water out of hole. Drilled from 537 ft. to 611 ft.
	NIGHT	Drilled nominal 9" pilot hole from 611' to 725' bpl.
7/16/92	DAY	Drilled nominal 9 in. pilot hole from 725 ft. to 810 ft. BPL.
	NIGHT	Drilled nominal 9" pilot hole from 810' to 1050' bpl. Preparing to run single packer test.

MISSIMER & ASSOCIATES INC.

CONSTRUCTION SUMMARY

Permit # UCII-198432
 Collier County NCRWTP
 Deep Monitor well (CO-2318)

Week ending Thursday, July 23, 1992

DATE	SHIFT	ACTIVITY SUMMARY
7/17/92	DAY	Tripped out to run caliper log. Set up and ran log.
	NIGHT	Tripped in with packer to 1010 ft. bpl; set submersible pump in drill pipe.
7/18/92	DAY	Ran packer test at 1012 ft. bpl. Chloride levels (2140 mg/l) indicate that we have not reached the base of the USDW.
	NIGHT	Tripped out packer. Tripped back in with 9 inch bit and prepared to continue hole.
7/19/92	DAY	Drilled from the depth of 1053 ft. bpl to 1237 ft. bpl. Chloride level from circulating fluid is 1680 mg/l.
	NIGHT	Drilled from the depth of 1237 ft. to 1268 ft. bpl. Drill pipe plugged; tripping out to unplug it.
7/20/92	DAY	Logged hole with caliper logger and found that excessive cuttings were in the bottom of the hole. Tripped back in to clean cuttings and extend hole to 1330 ft. bpl.
	NIGHT	Drilled from a depth of 1268 to 1331 ft. bpl. Tripped out to log hole. Logging in process.
7/21/92	DAY	Ran caliper log and set packer at 1306 ft. bpl. Chlorides = 4500 mg/l. Preparing to run pump test.
	NIGHT	Ran three-stage step-drawdown test on formation below packer at 1306 ft. bpl. Chloride concentration = 5360 mg/l.
7/22/92	DAY	Tripped out packer. Tripping in to ream nominal 48 inch hole.
	NIGHT	Tripped in and began reaming 24 inch hole from 425 ft. to 432 ft. bpl.
7/23/92	DAY	Reamed 24 inch hole from the depth of 432 to 540 ft. bpl.
	NIGHT	

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MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week ending Thursday, July 30, 1992

DATE	SHIFT	ACTIVITY SUMMARY
7/24/92	DAY	Reamed nominal 24" diameter borehole from 635 ft. to 639 ft. bpl (total of 4 ft.). Problems with circulation system plugging.
	NIGHT	Reamed nominal 24" diameter borehole from 639 ft. to 646 ft. bpl (total of 7 ft.).
7/25/92	DAY	No activity, crew helping to run 38" casing on injection well.
	NIGHT	Reamed nominal 24" diameter borehole from 646 ft. to 676 ft. bpl (total of 30 ft.).
7/26/92	DAY	Reamed nominal 24" diameter borehole from 676 ft. to 715 ft. bpl (total of 39 ft.).
	NIGHT	Reamed nominal 24" diameter borehole from 715 ft. to 736 ft. bpl (total of 21 ft.).
7/27/92	DAY	Reamed nominal 24" diameter borehole from 736 ft. to 759 ft. bpl (total of 23 ft.).
	NIGHT	Reamed nominal 24" diameter borehole from 759 ft. to 768 ft. bpl (total of 9 ft.).
7/28/92	DAY	Reamed nominal 24" diameter borehole from 760 ft. to 784 ft. bpl (total of 24 ft.).
	NIGHT	Reamed nominal 24" diameter borehole from 784 ft. to 792 ft. bpl (total of 8 ft.).
7/29/92	DAY	Reamed nominal 24" diameter borehole from 792 ft. to 815 ft. bpl. (total of 24 ft.).
	NIGHT	Reamed nominal 24" diameter borehole from 815 ft. to 856 ft. bpl (total of 41 ft.).
7/30/92	DAY	Reamed nominal 24" diameter borehole from 856 ft. to 910 ft. bpl (total of 54 ft.).
	NIGHT	Rig shut down for night.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week ending Thursday, August 06, 1992,

DATE	SHIFT	ACTIVITY SUMMARY
7/31/92	DAY	Complaints of the noise level by neighbors, caused County Inspectors to drop by and red tag all night drilling temporarily. Setting of the 16 inch diameter casing has been put on hold until this matter is worked out.
	NIGHT	No Rig Activity.
8/01/92	DAY	No Rig Activity.
	NIGHT	Circulated and tripped out of borehole. Preparing to set 16 inch diameter casing.
8/02/92	DAY	Ran Caliper log of 24 inch diameter borehole. Set 16 inch diameter casing from drill floor to 784 ft. bpl.
	NIGHT	Finished setting 16 inch diameter casing from the depth of 784 ft. bpl. to 900 ft. bpl. Tripped in inflatable packer with 2 inch diameter cement pipe for pressure test before setting casing.
8/03/92	DAY	Conducted pressure test, tagged bottom of pilot hole at 1146 ft. bpl. In the process of discussing what to do with the open pilot hole interval between 910 and 1146 ft. bpl.
	NIGHT	No rig activity.
8/04/92	DAY	No rig activity.
	NIGHT	No rig activity.
8/05/92	DAY	No rig activity.
	NIGHT	No rig activity.
8/06/92	DAY	Attempted to bridge pilot hole with 20 buckets (13.36 cubic feet) #86 aggregate (pea gravel).
	NIGHT	Created bridge plug with 60 buckets (53.44 cubic feet) total #86 aggregate. Top of bridge plug tagged at 900 ft. bpl.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week ending Thursday, August 13, 1992

DATE	SHIFT	ACTIVITY SUMMARY
8/07/92	DAY	No rig activity, waiting to cement 16 in. diameter surface casing.
	NIGHT	Pumped first stage (pressure grout) of cement for 16 in. diameter casing. Pumped 25 bbls neat above bridge plug.
8/08/92	DAY	Waiting on first stage of 16 in. diameter casing cement to set.
	NIGHT	Conducted temperature logging of 1st stage of cement. Tallied cement tubing to tremie 2nd stage, began tripping in hole with tubing.
8/09/92	DAY	No rig activity.
	NIGHT	No rig activity.
8/10/92	DAY	Pumped second stage of 16 in. diameter casing cement with 39 bbls (189 sacks, 219 cubic feet) of neat cement.
	NIGHT	Ran temperature log of second stage cement. Pumped third stage of cement of 16" diameter casing with 75 bbls (357 sacks, 421 cubic feet) of neat cement.
8/11/92	DAY	Ran temperature log of third stage cement. Pumped fourth stage of 16 in. diameter casing cement with 94 bbls (240 sacks, 528 cubic feet) of 12% gel cement.
	NIGHT	Ran temperature log of fourth stage cement. Pumped fifth stage of 16" diameter casing cement with 93 bbls (237 sacks, 522 cubic feet) of 12% gel cement.
8/12/92	DAY	Ran temperature log of fifth stage cement. Pumped sixth stage of 16 in. diameter casing cement with 108 bbls (276 sacks, 606 cubic feet) of 12% gel cement.
	NIGHT	Ran temperature log of sixth stage cement.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week ending Thursday, August 13, 1992

DATE	SHIFT	ACTIVITY SUMMARY
8/13/92	DAY	Ran cement bond log on 16" diameter casing.
	NIGHT	No activity on monitor well.
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week ending Thursday, August 20, 1992

DATE	SHIFT	ACTIVITY SUMMARY
8/14/92	DAY	No activity.
	NIGHT	No activity.
8/15/92	DAY	No activity.
	NIGHT	No activity.
8/16/92	DAY	No activity.
	NIGHT	No activity.
8/17/92	DAY	No activity.
	NIGHT	No activity.
8/18/92	DAY	No activity.
	NIGHT	No activity.
8/19/92	DAY	Ran two pressure tests on 16" casing. Test #1 lost 9%, Test #2 lost 9%. Maximum allowable loss was 5%.
	NIGHT	No activity.
8/20/92	DAY	No activity on well. Buzz Walker (M&A) and Kevin Greuel (Youngquist) discussed ways to correct the leaking casing.
	NIGHT	No activity on well.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week number 9, ending Thursday, August 27, 1992

DATE	SHIFT	ACTIVITY SUMMARY
8/21/92	DAY	No activity on well. Well on standby until pressure test repeated.
	NIGHT	No activity on well.
8/22/92	DAY	No activity on well.
	NIGHT	No activity on well.
8/23/92	DAY	Secured rig and location in preparation for hurricane Andrew.
	NIGHT	No activity due to hurricane.
8/24/92	DAY	No activity due to hurricane.
	NIGHT	No activity due to hurricane.
8/25/92	DAY	Raised mast on rig and picked up drill pipe.
	NIGHT	No activity on well.
8/26/92	DAY	No activity on well.
	NIGHT	No activity on well.
8/27/92	DAY	Conducted preliminary pressure test of 16" casing, lost 2 lbs. in 60 mins. (1 1/4% loss).
	NIGHT	No activity on well.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week number 11, ending Thursday, September 10, 1992

DATE	SHIFT	ACTIVITY SUMMARY
9/4/92	DAY	Conducted pressure test on 16 inch diameter casing. Total pressure change from initial test pressure was 4.0 psi (2.6% change) after 60 minutes.
	NIGHT	No activity on well.
9/5/92	DAY	No activity on well.
	NIGHT	No activity on well.
9/6/92	DAY	Tripped in hole with 16" bit to a depth of 855' bpl.
	NIGHT	No activity on well.
9/7/92	DAY	Waiting on TAC decision regarding depth of lower monitor zone before resumption of drilling.
	NIGHT	No activity on well.
9/8/92	DAY	DER tentatively approved drilling to a depth of 1600' bpl pending next TAC meeting.
	NIGHT	No activity on well.
9/9/92	DAY	Drilled 16" diameter borehole from 885' to 961' bpl.
	NIGHT	No activity on well.
9/10/92	DAY	Drilled 16" diameter borehole from 961' to 1084' bpl.
	NIGHT	No activity on well.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-150432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week number 12, ending Thursday, September 17, 1992

DATE	SHIFT	ACTIVITY SUMMARY
09/11/92	DAY	Drilled nominal 16 inch diameter hole from 1082 feet to 1183 feet bpl.
	NIGHT	No Rig Activity tonight.
09/12/92	DAY	Drilled nominal 16 inch diameter hole from 1185 feet to 1326 feet bpl.
	NIGHT	Drilled nominal 16 inch diameter hole from 1326 feet to 1397 feet bpl.
09/13/92	DAY	Drilled nominal 16" hole from the depth of 1397' to 1469' bpl.
	NIGHT	Drilled nominal 16 inch diameter hole from 1469 feet to 1522 feet bpl.
09/14/92	DAY	Drilled from the depth of 1528' to 1584' bpl. Currently no activity on rig.
	NIGHT	No Activity on the monitor well tonight. Depth of the 16 inch diameter monitor well is located at the depth of 1582 ft. bpl.
09/15/92	DAY	No Activity on the monitor well today.
	NIGHT	No Activity on the monitor well tonight.
09/16/92	DAY	No Activity on the monitor well today.
	NIGHT	No Activity on the monitor well tonight.
09/17/92	DAY	No Activity on the monitor well today.
	NIGHT	No Activity on the monitor well tonight.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CG-2318(MW)

PROJECT # H89-342E

Week number 13, ending Thursday, September 24, 1992

DATE	SHIFT	ACTIVITY SUMMARY
9/18/92	DAY	No activity on rig until lower monitor zone is approved by TAC on 9/23/92.
	NIGHT	No activity on rig.
9/19/92	DAY	No activity on rig.
	NIGHT	No activity on rig.
9/20/92	DAY	No activity on rig.
	NIGHT	No activity on rig.
9/21/92	DAY	No activity on rig.
	NIGHT	No activity on rig.
9/22/92	DAY	No activity on rig.
	NIGHT	No activity on rig.
9/23/92	DAY	No activity on rig. TAC meeting is today.
	NIGHT	No activity on rig.
9/24/92	DAY	TAC approved lower monitoring zone between the depths of 1820' and 1930' bpl. Circulated down to old TD of 1584' bpl to clean fill from hole.
	NIGHT	No activity on rig.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UC11-198432

WELL NUMBER: CO-2018(MW)

PROJECT # H89-342E

Week number 14, ending Thursday, 10/01/92, 1992

DATE	SHIFT	ACTIVITY SUMMARY
09/25/92	DAY	Drilled from the depth of 1630 ft. bpl. to the depth of 1677 ft. bpl.
	NIGHT	No activity on rig this evening.
09/26/92	DAY	Drilled from the depth of 1702 ft. bpl. to the depth of 1740 ft. bpl.
	NIGHT	No activity on rig this evening.
09/27/92	DAY	Drilled from the depth of 1740 ft. bpl. to the depth of 1770 ft. bpl.
	NIGHT	Drilled from the depth of 1770 ft. bpl. to the depth of 1810.5 ft. bpl. Circulating hole prior to overdrilling hole for casing seat.
09/28/92	DAY	Drilled from the depth of 1820 ft. bpl. to the depth of 1825 ft. bpl. Total depth for the 6 5/8 inch diameter casing will be at 1815 ft. bpl. Currently shut down until the 20 inch diameter casing on the Injection well has been installed.
	NIGHT	No activity on rig this evening.
09/29/92	DAY	No activity on rig today.
	NIGHT	No activity on rig this evening.
09/30/92	DAY	No activity on rig today.
	NIGHT	No activity on rig this evening.
10/01/92	DAY	No activity on rig today.
	NIGHT	No activity on rig this evening.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week number 15, ending Thursday, 10/08/1992

DATE	SHIFT	ACTIVITY SUMMARY
10/2/92	DAY	No rig activity.
	NIGHT	Began tripping out of hole in preparation for logging.
10/3/92	DAY	Tripped 15 stands of pipe out of hole.
	NIGHT	Prepared rig for logging operations.
10/4/92	DAY	Ran four logs on nominal 16 inch diameter borehole: gamma ray, caliper, temperature, and flowmeter.
	NIGHT	Rig up to install 1820 feet of 6 5/8" diameter steel casing.
10/5/92	DAY	Running 6 5/8" diameter steel casing, joints #1 through #15 (650.24 feet).
	NIGHT	Installed 6 5/8" diameter steel casing joints #16 through #29 (total of 1259.71 feet).
10/6/92	DAY	Installed 6 5/8" diameter steel casing joints #30 through #42, casing set at a depth of 1815 feet bpl.
	NIGHT	Pressure grouted first stage cement with 62 bbls (348 cubic feet, 295 sacks) neat cement.
10/7/92	DAY	Tagged first stage cement at a depth of 1540 feet bpl. Pumped second stage with 10 bbls (17 cubic feet, 38 sacks) neat cement (tremie method).
	NIGHT	Tagged second stage cement at a depth of 1478 feet bpl. Pumped third stage with 41 bbls (230 cubic feet, 195 sacks) neat cement (tremie method). Tagged third stage at a depth of 1300 feet bpl. Pumped fourth stage with 40 bbls (225 cubic feet, 190 sacks) neat cement (tremie method).

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week number 15, ending Thursday, October 8, 1992

DATE	SHIFT	ACTIVITY SUMMARY
10/08/92	DAY	Ran temperature log on fourth stage cement and tagged it at 1098 feet. Pumped fifth stage cement with a total of 20 bbls (95 sacks, 112 cubic feet) of neat cement. Tagged fifth stage cement at 995 feet.
	NIGHT	No activity on rig.
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UC11-198432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week number 16, ending Thursday, October 15, 1992

DATE	SHIFT	ACTIVITY SUMMARY
10/09/92	DAY	Ran temperature log on final stage of cement and ran cement bond log on lower casing string. Log indicates a good bond.
	NIGHT	No activity on rig tonight.
10/10/92	DAY	'Tripped in 900' of 3" diameter drill pipe.
	NIGHT	No activity on rig tonight.
10/11/92	DAY	'Tripped in a total of 1746.80' of 3" diameter drill pipe (includes 1.40' bit and sub).
	NIGHT	No activity on rig tonight.
10/12/92	DAY	Ran pressure test on 6 1/2" casing. Test was successful (gained 3 psi, or 3%). Fabricating well head prior to drilling out cement plug.
	NIGHT	Drilled out cement and drilled to the depth of 1841 ft. bpl. Will continue to drill formation to the depth of 1930 ft. bpl.
10/13/92	DAY	Drilled nominal 6 inch diameter borehole from the depth of 1827 ft. bpl. to the depth of 1930 ft. bpl. Currently tripping out of the hole in order to run final logging sweep of the monitor well.
	NIGHT	No activity on rig tonight.
10/14/92	DAY	Developed lower monitor zone for 1.5 hours @ 10 gpm. Mobilizing rig off site.
	NIGHT	No activity on rig tonight.
10/15/92	DAY	Ran gamma, caliper, temperature, and flow logs on lower monitor zone. Air developed upper monitor zone for 1 hour, pumping approximately 1800 gallons. Conductivity of discharge = 17,510.
	NIGHT	Still developing upper and lower monitoring zones. Approximately two casing volumes have been pumped out of the lower zone.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2318(MW)

PROJECT # H89-342E

Week number 17, ending Thursday, October 22, 1992

DATE	SHIFT	ACTIVITY SUMMARY
10/16/92	DAY	Air developed upper monitor zone (30 gpm) and pumped lower monitor zone (10 gpm) in preparation for disinfection of well.
	NIGHT	Disinfected upper and lower monitor zones with chlorine.
10/17/92	DAY	Allowing well to disinfect for a period of 24 hours.
	NIGHT	Allowing well to disinfect for a period of 24 hours.
10/18/92	DAY	Upper zone air developed at a rate of 30 gpm, lower zone pumped at a rate of 10 gpm.
	NIGHT	Continued development of monitor zones. Upper zone flowing at a rate of 33 gpm, lower zone pumping at a rate of 9 gpm.
10/19/92	DAY	Continued development of monitor zones. Following initial stabilization, began development of 10 casing volumes from each zone, air developing upper zone at 300 gpm and pumping lower zone at approx. 10 gpm.
	NIGHT	Air developed upper monitor zone at 300 gpm, pumped lower zone at 10 gpm. 38 casing volumes have been developed from upper zone and 5 volumes from lower zone.
10/20/92	DAY	Air developed upper monitor zone at 300 gpm, pumped lower zone at 10 gpm.
	NIGHT	Laboratory collected water samples from both monitor zones for analysis.
10/21/92	DAY	Continued to pump lower monitor zone.
	NIGHT	Pumped lower zone at a rate of 10 gpm.
10/22/92	DAY	Pumped lower zone at a rate of 10 gpm.
	NIGHT	Pumped lower zone at a rate of 10 gpm.

MISSIMER & ASSOCIATES INC.

CONSTRUCTION SUMMARY

Permit # UCII-198432
 Collier County NCRWTP
 Injection well (CO-2317)

Week ending Thursday, July 16, 1992

DATE	SHIFT	ACTIVITY SUMMARY
7/10/92	DAY	Drilled nominal 54" diameter borehole from a depth of 8' to a depth of 10' below pad level.
	NIGHT	Drilled nominal 54" diameter borehole from a depth of 10' to a depth of 13' bpl.
7/11/92	DAY	Drilled nominal 54 in. diameter hole from 13 ft. to 16 ft. below pad level. Set 48 in. diameter (OD) pit pipe and began grouting in place.
	NIGHT	No activity, waiting on cement to cure.
7/12/92	DAY	Waiting on bit, working on bit assembly, and preparing to begin drilling nominal 48 inch diameter hole.
	NIGHT	Drilled 46.5" diameter borehole from a depth of 16' to a depth of 28' bpl.
7/13/92	DAY	Drilled nominal 46 in. hole to 33 ft. below pad level. Pulled out of hole to add stabilizer.
	NIGHT	Drilled nominal 46" diameter borehole from 33' to 36' bpl, mud mixing motor broke down. Crew to Ft. Myers for parts, began repair.
7/14/92	DAY	Drilled nominal 46" diameter borehole from 36' to 39' bpl, worked on mud pump.
	NIGHT	No drilling activity, no night drilling crew on-site.
7/15/92	DAY	Drilled from 39 ft. to 81 ft. BPL, added drill collar #1 to drill string.
	NIGHT	No drilling activity, no night drilling crew on-site.
7/16/92	DAY	Drilled nominal 46 in. hole from 81 ft. to 106 ft. BPL.
	NIGHT	No drilling activity, no night drilling crew on-site.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week ending Thursday, July 23, 1992

DATE	SHIFT	ACTIVITY SUMMARY
7/17/92	DAY	Drilled nominal 46" diameter borehole from a depth of 106' to a depth of 125' below pad level.
	NIGHT	No Activity.
7/18/92	DAY	Drilled nominal 46 in. diameter hole from 125 ft. to 158 ft. below pad level.
	NIGHT	Drilled nominal 46 in. hole from the depth of 158 ft. bpl. to 187 ft. below pad level.
7/19/92	DAY	Drilled nominal 46 in. hole from the depth of 187 ft. bpl. to 217 ft. below pad level.
	NIGHT	Drilled nominal 46 in. hole from the depth of 217 ft. bpl. to 248 ft. below pad level.
7/20/92	DAY	Drilled nominal 46 in. hole from the depth of 248 ft. bpl. to 263 ft. below pad level.
	NIGHT	Drilled nominal 46 in. hole from the depth of 263 ft. bpl. to 268 ft. below pad level. Welded stand pipe on well head.
7/21/92	DAY	Drilled nominal 46 in. hole from the depth of 269 ft. bpl. to 300 ft. below pad level. Encountered limy marl at 283 ft. bpl.
	NIGHT	Drilled nominal 46 in. hole from the depth of 300 ft. bpl. to 310 ft. below pad level. Inclination survey indicates a deviation from the vertical of 0.125°.
7/22/92	DAY	Drilled nominal 46 in. hole from the depth of 311 ft. bpl. to 315 ft. below pad level. Serviced swivel head on kelly.
	NIGHT	Drilled nominal 46 in. hole from the depth of 315 ft. bpl. to 333 ft. below pad level.
7/23/92	DAY	Drilled nominal 46 inch hole from the depth of 333 ft. to 364 ft. below pad level.
	NIGHT	

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWFP

PERMIT # UCL1-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week ending Thursday, July 30, 1992

DATE	SHIFT	ACTIVITY SUMMARY
7/24/92	DAY	Drilled nominal 46" diameter borehole from a depth of 397' to 435' bpl (total of 38 ft). Circulated prior to wiper run through clay interval.
	NIGHT	Ran wiper trip and caliper log. Started running 38 in. diameter conductor casing.
7/25/92	DAY	Installed 425 feet of 38" diameter steel casing, cemented in one stage to surface.
	NIGHT	Waiting on cement, rigging up for reverse air. Running temperature log.
7/26/92	DAY	Rigging up for reverse air.
	NIGHT	Rigging up for reverse air, going in hole with 36 in. stabilizer to drill 4 feet of centered hole.
7/27/92	DAY	Preparing to drill 12 1/4" diameter pilot hole.
	NIGHT	Drilled 12 1/4" pilot hole from 425 ft. to 484 ft bpl (total of 59 ft.).
7/28/92	DAY	Drilled 12 1/4" pilot hole from 484 ft. to 634 ft. bpl (total of 150 ft.).
	NIGHT	Drilled 12 1/4" pilot hole from 634 ft. to 762 ft. bpl (total of 128 ft.).
7/29/92	DAY	Drilled 12 1/4" pilot hole from 762 ft. to ft. 800 ft. bpl (total of 38 ft.).
	NIGHT	Drilled nominal 12 1/4" pilot hole from 800 ft. bpl to 995 ft. bpl (total of 195 ft.).
7/30/92	DAY	Drilled nominal 12 1/4" pilot hole from 995 ft. to 1235 ft. bpl (total of 240 ft.).
	NIGHT	Drilled nominal 12 1/4" pilot hole from 1235 ft. to 1325 ft. bpl. (total of 90 ft.)

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week ending Thursday, August 6, 1992

DATE	SHIFT	ACTIVITY SUMMARY
8/31/92	DAY	Ran six Geophysical logs in the 12 1/4 inch diameter pilot hole: Gamma ray, Caliper, temperature, flow meter, dual-induction, and sonic logs.
	NIGHT	Tripped in seven inch diameter drill pipe and 38 inch diameter bit assembly. Reamed from the depth of 417 ft. to 437 ft. bpl.
8/01/92	DAY	Reamed nominal 38" diameter borehole from 437 ft. to 544 ft. bpl (total of 107 ft).
	NIGHT	Reamed nominal 38" diameter borehole from 544 ft. to 633 ft. bpl (total of 99 ft).
8/02/92	DAY	Reamed nominal 38" diameter borehole from 633 ft. to 696 ft. bpl (total of 63 ft).
	NIGHT	Reamed nominal 38" diameter borehole from 696 ft. to 760 ft. bpl (total of 64 ft).
8/03/92	DAY	Reamed nominal 38" diameter borehole from 759 ft. to 780 ft. bpl (total of 23 ft).
	NIGHT	Reamed nominal 38" diameter borehole from 780 ft. to 800 ft. bpl (total of 20 ft).
8/04/92	DAY	Replaced kelly spinner, reworked swivel and changed air pipe line. Reamed nominal 38" diameter borehole from 800 ft. to 802 ft. bpl (total of 2 ft.).
	NIGHT	Reamed nominal 38" diameter borehole from 802 ft. to 883 ft. bpl (total of 81 ft).
8/05/92	DAY	Reamed nominal 38" diameter borehole from 883 ft. to 1028 ft. bpl. (total of 145 ft.).
	NIGHT	Reamed nominal 38" diameter borehole from 1028 ft. to 1141 ft. bpl (total of 113 ft.).
8/06/92	DAY	Reamed nominal 38" diameter borehole from 1141 ft. to 1229 ft. bpl (total of 88 ft.).
	NIGHT	Reamed nominal 38" diameter borehole from 1229 ft. to target depth of 1319 ft. bpl.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week ending Thursday, August 13, 1992

DATE	SHIFT	ACTIVITY SUMMARY
8/07/92	DAY	Tripped drill string out of hole, ran caliper log and started running 30 in. diameter surface casing.
	NIGHT	Installed 24 joints of 30" diameter steel casing.
8/08/92	DAY	Installed remaining 3 joints of 30" diameter casing. Pumped 1st stage of cement.
	NIGHT	Waited on cement to cure, gussets welded onto casing, conducted temperature logging on 1st stage of cement.
8/09/92	DAY	Preparing to grout second stage cement of 30 in. diameter casing.
	NIGHT	Pumped second stage cement of 30" diameter casing with 115 bbls (294 sacks, 646 cubic feet) of 12% gel cement.
8/10/92	DAY	Ran temperature log of second stage of cement. Pumped third stage cement of 30 in. diameter casing with 90 bbls (230 sacks, 505 cubic feet) of 12% gel cement.
	NIGHT	Ran temperature log of third stage of cement. Pumped fourth stage cement of 30" diameter casing with 112 bbls (285 sacks, 629 cubic feet) of 12% gel cement.
8/11/92	DAY	Ran temperature log of fourth stage of cement. Pumped fifth stage cement of 30 in. diameter casing with 120 bbls (306 sacks, 674 cubic feet) of 12% gel cement.
	NIGHT	Ran temperature log of fifth stage of cement. Pumped sixth stage cement of 30" diameter casing with 110 bbls (281 sacks, 618 cubic feet) of 12% gel cement.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCLI-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week ending Thursday, August 13, 1992

DATE	SHIFT	ACTIVITY SUMMARY
8/12/92	DAY	Ran temperature log of cement stage #6. Pumped seventh stage cement of 30 in. diameter casing with 167 bbls (426 sacks, 938 cubic feet) of 12% gel cement.
	NIGHT	Ran temperature log of seventh and final stage of cement. Preparing to drill 12 1/4" diameter pilot hole below 30" diameter casing.
8/13/92	DAY	Working on wellhead and tripping in hole to drill 12 1/4" diameter pilot hole.
	NIGHT	Drilled 12 1/4" diameter pilot hole from 1320' to 1500' bpl.
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week ending Thursday, August 20, 1992

DATE	SHIFT	ACTIVITY SUMMARY
8/14/92	DAY	Drilled 12.25" plot hole from the depth of 1500 ft. bpl to 1745 ft. bpl.
	NIGHT	Drilled 12.25" plot hole from the depth of 1775 ft. bpl to 1982 ft. bpl.
8/15/92	DAY	Drilled 12.25" plot hole from the depth of 1982 ft. bpl to 2012 ft. bpl. Picked coring point at 2012 ft. bpl.
	NIGHT	Cored interval between 2012 and 2022 ft. bpl.
8/16/92	DAY	Tripped out and recovered 90% of core. Ran caliper and gamma log and tripped in packer.
	NIGHT	Ran packer test on interval between 2012 and 2022 ft. bpl.
8/17/92	DAY	Drilled 12.25" pilot hole from the depth of 2012 ft. bpl to 2102 ft. bpl.
	NIGHT	Drilled 12.25" pilot hole from the depth of 2102 ft. bpl to 2132 ft. bpl. Ran caliper and gamma log and tripped in with packer.
8/18/92	DAY	Packer leaked and caused water to surge in well. Tripped out packer to replace it.
	NIGHT	Tripped in new packer and ran packer test. Tripped out packer.
8/19/92	DAY	Purged well till formation water was reached. Tripping in 12.25" bit.
	NIGHT	Drilled 12.25" pilot hole from the depth of 2132 ft. bpl to 2231 ft. bpl.
8/20/92	DAY	Drilled 12.25" pilot hole from the depth of 2231 ft. bpl to 2252 ft. bpl. Tripped out 12.25" bit and tripped in core bit. Ready to core at the depth of 2252 ft. bpl.
	NIGHT	Second cored interval between 2252-2263 ft. bpl. 98% recovery.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week number 9, ending Thursday, August 27, 1992

DATE	SHIFT	ACTIVITY SUMMARY
8/21/92	DAY	Drilled 12 1/4" diameter pilot hole from 2252' to 2340' bpl.
	NIGHT	Drilled 12 1/4" diameter pilot hole from 2340' to 2432' bpl.
8/22/92	DAY	Cored third interval from 2432' to 2443' bpl.
	NIGHT	Recovered 95% of cored interval. Tripped in hole and drilled 12 1/4" diameter pilot hole from 2432' to 2445' bpl.
8/23/92	DAY	Drilled 12 1/4" diameter pilot hole from 2445' to 2461' bpl. Secured rig and location in preparation for Hurricane Andrew.
	NIGHT	No activity due to hurricane.
8/24/92	DAY	No activity due to hurricane.
	NIGHT	No activity due to hurricane.
8/25/92	DAY	Drilled 12 1/4" diameter pilot hole from 2461' to 2512' bpl.
	NIGHT	Pulled out of hole to run packer test. Ran caliper log from 2512 ft. to 1300 ft. bpl.
8/26/92	DAY	Conducted step drawdown packer test of interval between 2470' and 2512' bpl.
	NIGHT	Tripped out of hole with packer; tripped in with 12 1/4 in. bit. Drilled pilot hole from 2512 ft. to 2530 ft. bpl.
8/27/92	DAY	Drilled 12 1/4" pilot hole from 2530 ft. to 2582 ft. Tripped out of hole, began tripping in with core barrel to core 2582 ft. to 2596 ft. interval.
	NIGHT	Cored interval from 2582 ft. to 2588.5 ft. bpl. Tripped out of hole because of plugged bit.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week number 9, ending Thursday, August 27, 1992

DATE	SHIFT	ACTIVITY SUMMARY
8/28/92	DAY	Drilled 12 1/4" diameter pilot hole from 2588' to 2612' bpl.
	NIGHT	Drilled 12 1/4" diameter pilot hole from 2612' to 2672' bpl.
8/29/92	DAY	Drilled 12 1/4" diameter pilot hole from 2672' to 2693' bpl.
	NIGHT	Drilled 12 1/4" diameter pilot hole from 2693' to 2725' bpl.
8/30/92	DAY	Drilled 12 1/4" diameter pilot hole from 2725' to 2788' bpl.
	NIGHT	Drilled 12 1/4" diameter pilot hole from 2788' to 2825' bpl.
8/31/92	DAY	Drilled 12 1/4" diameter pilot hole from 2825' to 2882' bpl.
	NIGHT	Drilled 12 1/4" diameter pilot hole from 2882' to 2942' bpl.
9/01/92	DAY	Tripped out to of 2670' to clear cuttings from hole. Dredged to 2762' before hole washed in again. Dredging again at 2670'.
	NIGHT	Dredged from 2672' to 2942'.
9/02/92	DAY	Dredged from 2942' to 2972'.
	NIGHT	Drilled pilot hole from 2972 ft. to 3021 ft. bpl.
9/03/92	DAY	Drilled 12 1/4" pilot hole from 3021 ft. to 3090 ft.
	Night	Tripped out to change bit. Encountered cuttings at 2710 ft. bpl. Dredged from 2710' to 2740'.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UC11-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week number 11, ending Thursday, 09-10-92, 1992

DATE	SHIFT	ACTIVITY SUMMARY
9/4/92	DAY	Dredged 12 1/4" borehole from 2772' to 2980' bpl.
	NIGHT	Dredged 12 1/4" borehole from 2980' to 3092' bpl; drilled 12 1/4" pilot hole from 3092' to 3107' bpl.
9/5/92	DAY	Drilled 12 1/4" pilot hole from 3107' to 3134' bpl.
	NIGHT	Drilled 12 1/4" pilot hole from 3134' to 3156' bpl.
9/6/92	DAY	Drilled 12 1/4" pilot hole from 3156' to 3200' bpl.
	NIGHT	Drilled 12 1/4" pilot hole from 3200' to 3242' bpl.
9/7/92	DAY	Drilled 12 1/4" pilot hole from 3242' to 3277' bpl.
	NIGHT	Drilled 12 1/4" pilot hole from 3277' to 3362' bpl.
9/8/92	DAY	Drilled 12 1/4" pilot hole from 3362' to total depth of 3380' bpl. Began dredging hole from 2500' to TD to clean hole in preparation for video survey and geophysical logging.
	NIGHT	Dredged 12 1/4" pilot hole between the depths of 2732' and 2762' bpl.
9/9/92	DAY	Dredged 12 1/4" pilot hole between the depths of 2672' and 2792' bpl.
	NIGHT	Dredged 12 1/4" pilot hole between the depths of 2672' and 2792' bpl.
9/10/92	DAY	Dredged 12 1/4" pilot hole between the depths of 2672' and 3002' bpl.
	NIGHT	Hole caved on bit, tripped out to an approximate depth of 2700 feet bpl. Operations suspended pending discussion with Buzz in the morning.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(1W)

PROJECT # H89-242E

Week number 12, ending Thursday, SEPTEMBER 17, 1992

DATE	SHIFT	ACTIVITY SUMMARY
09/11/92	DAY	Dredged hole from the depth of 2732' to 2781' bpl. Tripping out to change bit.
	NIGHT	Tripped inside 12 1/4 inch diameter pilot hole to the depth of 1672 ft. bpl. and dredged to the depth of 2736 ft. bpl.
09/12/92	DAY	Dredged hole from the depth of 2762' to 2972.14' bpl.
	NIGHT	Dredged hole from the depth of 2972.14 ft. bpl. before wash in of formation occurred, tripped out to 2642 ft. bpl. and dredged back down to the depth of 3032 ft. bpl.
09/13/92	DAY	Dredged from the depth of 3032' to 3302' bpl. Pusher (Kevin) felt that they were hanging up, so they tripped out 20 joints and began dredging back down from 2672' to 2852' bpl.
	NIGHT	Dredged hole from the depth of 2852 ft. bpl. to the depth of 3062 ft. bpl. before wash in of formation occurred, tripped out to 2852 ft. bpl. and dredged back down to the depth of 3062 ft. bpl.
09/14/92	DAY	Spent the day reaming up and down between 2500' and 2872' bpl. Tight spots encountered at 2835' and 2872', but on subsequent trips no obstruction was encountered. Tripping out to run suite of geophysical logs.
	NIGHT	Tripped out of the hole with drill string. Ran six geophysical logs; Caliper, gamma ray, DIL, VDL, temperature, and flow meter. Preparing to pour fresh water into the hole for the TV survey.

SECTION SUMMARY

WTP

PERMIT # UCII-198432

PROJECT # H89-342E

Thursday, September 17, 1992

ACTIVITY SUMMARY

Video camera from the depth of 2450' Formation fluid cleared up at the depth of 2500' bpl. Bottommed out at a cave at the depth of 2668' bpl. Pumped 20,795 gallons of fresh water down hole.

73,000 gallons of fresh water down the borehole. The water is still murky and cannot be videoed at this

86,000 gallons of fresh water down. Theoretical well volume as calculated the caliper log = 25,200 gallons.

approximately 100,000 gallons of water down hole. Logger surveyed hole except for the area between 2100-2317.

ed in drill pipe to the depth of 2088' and cleared hole. Ran video log from depth of 2088' to 2316' bpl. Preparing team 30" hole from 1320' to approximately

pped in 30 inch diameter drill bit, caliper, three stands of drill collars, 8 stands of drill pipe. Preparing to start reaming borehole at the depth of 1310 bpl.

, INC.

PERMIT # UCII-198432

PROJECT # H89-342E

10/01/92, 1992

ACTIVITY SUMMARY

iameter borehole from a depth of 2353

iameter borehole from a depth of 2400

iameter borehole from a depth of 2402

iameter borehole from a depth of 2444

iameter borehole from a depth of 2468

of 2468 ft. bpl. to 2468 ft. bpl., conditioning hole to trip out of the hole at the bottom at the

iameter borehole to the surface, tripped out of the hole, ran a caliper log on the hole. The drilling crew are getting the hole in 20 inch diameter

of 20" casing.

(282.63') of 20" casing in the shift. Total casing at 501.81 ft. bmp.

(494.11') of 20" casing in the shift. Total casing at 995.92 ft. bmp.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week number 15, ending Thursday, October 8, 1992

DATE	SHIFT	ACTIVITY SUMMARY
10/02/92	DAY	Welded gussets to 20" casing, tripped in hole with packer to pressure test casing prior to first stage cement job.
	NIGHT	Pressure tested 20" casing prior to cementing.
10/03/92	DAY	Pressure grouted first stage cement of 20" casing with a total of 131 bbls (624 sacks, 736 cubic feet) of neat cement.
	NIGHT	Tagged first stage cement at 2308' bpl. Ran temperature log of first stage. Pumped second stage cement (tremie) with a total of 190 bbls (556 sacks, 1067 cubic feet) of 8% gel cement.
10/04/92	DAY	Ran temperature log of second stage cement. Tagged second stage at 2005' bpl with cement pipe. Pumped third stage cement with a total of 373 bbls (952 sacks, 2094 cubic feet) of 12% gel cement.
	NIGHT	Ran temperature log of third cement stage.
10/05/92	DAY	Tagged third stage cement of 20 inch diameter casing at 1420 feet. Pumped fourth stage cement with a total of 600 bbls (1531 sacks, 3369 cubic feet) of 12% gel cement.
	NIGHT	Maintained well head pressure at 245 psi after pumping fourth stage cement.
10/06/92	DAY	Ran temperature log on fourth stage cement and cement bond log on entire cemented interval.
	NIGHT	Tagged fourth stage cement of 20 inch diameter casing at 210 feet bpl. Pumped fifth and final stage to surface, total of 82 bbls (209 sacks, 460 cubic feet) of 12% gel cement.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week number 15, ending Thursday, October 8, 1992

DATE	SHIFT	ACTIVITY SUMMARY
10/07/92	DAY	Tripped in hole with nominal 19" bit to a depth of 2464 feet bpl to circulate and cool casing prior to pressure test.
	NIGHT	Circulated to cool casing prior to pressure test.
10/08/92	DAY	Conducted pressure test of 20" diameter casing.
	NIGHT	Drilled cement at base of 20" diameter casing, began reaming below casing with nominal 19" diameter bit. Tagged cement at a depth of 2475 feet bpl, reamed to a depth of 2522 feet bpl.
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	
	DAY	
	NIGHT	

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UC11-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week number 16, ending Thursday, October 15, 1992

DATE	SHIFT	ACTIVITY SUMMARY
10/09/92	DAY	Reamed nominal 19" borehole from the depth of 2527' to 2585' bpl.
	NIGHT	Connected DP#81 (29.97'). SL=2615.43', kelly down will be 2642' bpl.
10/10/92	DAY	Reamed nominal 19" borehole from the depth of 2615' to 2678' bpl. Currently dredging cuttings from hole.
	NIGHT	Washed and reamed hole to the depth of 2702' bpl.
10/11/92	DAY	Continuing to dredge the zone between 2672' and 2702' bpl.
	NIGHT	No progress during the night shift. Night driller (Skip Young) reports that the tight spots seem to have been worked out.
10/12/92	DAY	Dredged the zone between 2672' and 2702' bpl. Connected DP#84. Reaming nominal 19" hole at the depth of 2704' bpl.
	NIGHT	Reamed nominal 19" hole at the depth of 2704' to 2732' bpl. Pick up kelly and started dredging back down the hole at the depth of 2704 ft. bpl.
10/13/92	DAY	Dredged the zone between 2672' and 2702' bpl. Connected DP#84 and #85. Currently reaming nominal 19" diameter borehole at the depth of 2748' bpl.
	NIGHT	Reamed from the depth of 2734' to 2762' bpl.
10/14/92	DAY	Reamed nominal 19" borehole from the depth of 2732' to 2775' bpl. Connected DP#86.
	NIGHT	Reamed the hole from the depth of 2762' to 2792' bpl.
10/15/92	DAY	Reamed nominal 19" borehole between the depths of 2762' and 2792' bpl.
	NIGHT	Reamed nominal 19" borehole to the depth of 2792' bpl. Tripped out of hole to check bit wear. Tripping back into the hole.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week number 17, ending Thursday, October 22, 1992

DATE	SHIFT	ACTIVITY SUMMARY
10/16/92	DAY	Dredged nominal 19" diameter borehole from 2582' to 2792' bpl, reamed nominal 19" diameter borehole from 2792' to 2813' bpl.
	NIGHT	Reamed nominal 19" diameter borehole from 2813' to 2852' bpl.
10/17/92	DAY	Reamed nominal 19" diameter borehole from 2852' to 2892' bpl.
	NIGHT	Reamed nominal 19" diameter borehole from 2892' to 2938' bpl.
10/18/92	DAY	Reamed nominal 19" diameter borehole from 2938' to 3007' bpl.
	NIGHT	Reamed nominal 19" diameter borehole from 3007' to 3037' bpl.
10/19/92	DAY	Reamed nominal 19" diameter borehole from 3037' to 3068' bpl.
	NIGHT	Reamed nominal 19" diameter borehole from 3068' to 3094' bpl.
10/20/92	DAY	Reamed nominal 19" diameter borehole from 3094' to 3139' bpl.
	NIGHT	Reamed nominal 19" diameter borehole from 3139' to 3151' bpl.
10/21/92	DAY	Reamed nominal 19" diameter borehole from 3151' to 3201' bpl.
	NIGHT	Reamed nominal 19" diameter borehole from 3201' to 3233' bpl.
10/22/92	DAY	Reamed nominal 19" diameter borehole from 3233' to 3283' bpl.
	NIGHT	Reamed nominal 19" diameter borehole from 3283' to 3330' bpl.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week number 18, ending Thursday, October 29, 1992

DATE	SHIFT	ACTIVITY SUMMARY
10/23/92	DAY	TD 19" diameter borehole and collected formation water samples by GEOS. Preparing to start tripping out of the hole.
	NIGHT	Ran gamma ray, X/Y caliper, SP, dual induction, sonic, temperature, and flowmeter logs.
10/24/92	DAY	Pumping fresh water into well in preparation for TV survey.
	NIGHT	Pumping fresh water into well in preparation for TV survey.
10/25/92	DAY	Ran a TV survey of the nominal 19" diameter borehole from land surface to the depth of 2850 ft. bpl. The next procedure is to trip into the hole and pump fresh water into the well from the bottom up.
	NIGHT	No activity on well tonight.
10/26/92	DAY	The day was spent rigging down and doing general maintenance.
	NIGHT	Replaced water pump on rig, laid down 10 stands of drill pipe.
10/27/92	DAY	Tripped in scraper; tripped out 22 stands (1460') of drill pipe on scraping run.
	NIGHT	Finished scraping run at 2400. General maintenance and re-rigging.
10/28/92	DAY	Set packer at the depth of 2445' bpl. Set at 40K load. Out of hole with drill pipe and preparing to run casing tomorrow.
	NIGHT	Laid down drill pipe and cleaned rig floor.
10/29/92	DAY	Welded seal nipple to casing and began tripping in 16" casing. 13 casing joints (545.98') in hole.
	NIGHT	Tripped in 16 inch diameter casing. 13 casing joints was welded to the casing string bringing the total to (1,177.57).

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week number 19, ending Thursday, November 5, 1992

DATE	SHIFT	ACTIVITY SUMMARY
10/30/92	DAY	Added 12 joints of 16" x 0.50" wall steel casing, bringing the total to 40 joints (1684.57').
	NIGHT	Tripped in 16 inch diameter casing. 14 casing joints were welded to the casing string bringing the total to (2,315.36').
10/31/92	DAY	Seated seal nipple in packer. Fabricating well head. Backed off seal enough to bring the seal nipple gaskets out of the packer.
	NIGHT	Pumped Baricor into annulus and pressurized annulus to 160 psi.
11/01/92	DAY	No activity on well today.
	NIGHT	No activity on well tonight.
11/02/92	DAY	Performed pressure test on annulus. Test was successful (0% loss). Well head assembly (valve, fittings and flanges) has been installed per contract drawings.
	NIGHT	No activity on rig tonight.
11/03/92	DAY	Spent the day splitting samples, and obtaining the necessary documents for the abandonment permits for the shallow monitor wells. Began pumping fresh water down hole in preparation for TV survey.
	NIGHT	No activity on rig tonight.
11/04/92	DAY	Ran TV survey of 16" casing and 140' of open hole.
	NIGHT	No activity on rig tonight.
11/05/92	DAY	Pulled P&A permits for shallow monitor wells. Worked on getting sample splits in order and in envelopes.
	NIGHT	No activity on rig tonight.

MISSIMER & ASSOCIATES, INC.

CONSTRUCTION SUMMARY

PROJECT NAME: Collier County NCRWTP

PERMIT # UCII-198432

WELL NUMBER: CO-2317(IW)

PROJECT # H89-342E

Week number 20, ending Thursday, November 11, 1992

DATE	SHIFT	ACTIVITY SUMMARY
11/06/92	DAY	No activity on well pending water supply for injection test. Worked on getting sample splits in order and in envelopes.
	NIGHT	No activity on site.
11/07/92	DAY	No activity on site.
	NIGHT	No activity on site.
11/08/92	DAY	No activity on site.
	NIGHT	No activity on site.
11/09/92	DAY	No activity on well. Worked on getting sample splits in order and in envelopes.
	NIGHT	No activity on site.
11/10/92	DAY	No activity on well. Kevin Greuel (toolpusher) said that he received Buzz Walker's FAX regarding the pipeline and is awaiting an answer from Youngquist Brothers' office. Worked on getting sample splits in order and in envelopes. Kevin Greuel off site for good (no Youngquist personell on site).
	NIGHT	No activity on site.
11/11/92	DAY	No activity on well. Worked on getting sample splits in order and in envelopes.
	NIGHT	No activity on site.
11/12/92	DAY	No activity on well. Finished getting sample splits in order and in envelopes. Loaded samples and office supplies into truck and delivered to Cape Coral.
	NIGHT	No activity on site.

MISSIMER & ASSOCIATES INC.

CONSTRUCTION SUMMARY

Permit # UCII-198432
 Collier County NCRWTP
 Injection Well (CO-2317)
 Week ending Thursday, February 25, 1993

DATE	SHIFT	ACTIVITY SUMMARY
2/22/93	DAY	Installed fittings for pressure transducers. Sealed leaks in fittings and pressure tested annulus. Annulus satisfactorily holding pressure.
	NIGHT	No activity on site.
2/23/93	DAY	Began injection test at 1507. Rate = 4000 - 4715 gpm. Wellhead pressure remained constant at approximately 36 psi. Annular pressure dropped to 10 psi and was re-pressurized 3 times.
	NIGHT	Running 24 hour injection test. Rate = 4175 - 4426 gpm. Wellhead pressure remained constant at approximately 36 psi. Annular pressure dropped to approximately 10 psi and was re-pressurized 10 times.
2/24/93	DAY	Finished 24 hour injection test. Rate = 4380 - 4530 gpm. Wellhead pressure remained constant at approximately 36 psi. Annular pressure dropped to approximately 10 psi and was re-pressurized 6 times. A total of 6,248,370 gallons was injected.
	NIGHT	No activity on site.
2/25/93	DAY	Conducted Radioactive Tracer Survey. Ran background temperature log, 2 static RTS tests (ejection point = 2489' bls, 1' below casing seat), and 2 dynamic RTS tests (ejection point = 2485' bls, 5' above casing seat, injection rate = 75 gpm).
	NIGHT	No activity on site.

APPENDIX H

TV Survey Summary and Pressure Test Data

TABLE 1.



MISSIMER & ASSOCIATES, INC.

Environmental and Groundwater Services

COLLIER COUNTY
NCRWTP INJECTION WELL
TELEVISION SURVEY OF PILOT HOLE FROM
1310 TO 2668 FEET BELOW LAND SURFACE

The following comments relate to observations of the TV scans conducted in the borehole September 15-17, 1992. These comments are very general and are not quantitative in any sense. However, they may be useful as an aid in interpretation of the lithologic and geophysical logs of this interval.

DEPTH (ft)	COMMENTS
1310 - 1385	Water very murky - no observations.
1385 - 1400	Porous
1400 - 1405	Dense
1405 - 1410	Porous
1410 - 1440	Dense, high angle fracture 1021 to 1025 feet.
1440 - 1443	Porous
1443 - 1659	Dense, small cavernous zones at 1500, 1520, 1561, 1630 and 1655.
1659 - 1661	Porous
1661 - 1674	Dense
1674 - 1678	Porous - small cavities present.
1678 - 1718	Dense
1718 - 1719	Small cavities present.
1719 - 1729	Dense
1729 - 1731	Porous
1731 - 1736	Small cavities present.
1736 - 1744	Dense
1744 - 1754	Porous
1754 - 1755	Dense
1755 - 1776	Porous - cavities observed at 1762, 1765 and 1774.
1776 - 1782	Dense



COLLIER COUNTY
NCRWTP INJECTION WELL
TELEVISION SURVEY OF PILOT HOLE FROM
1310 TO 2668 FEET BELOW LAND SURFACE
Continued:

DEPTH (ft)	COMMENTS
1782 - 1792	Dense with small cavities.
1792 - 1805	Porous with small cavities.
1805 - 1830	Dense with small cavities.
1830 - 1848	Porous, cavity at 1835.
1848 - 1868	Dense, small cavities between 1856 and 1860.
1868 - 1906	Porous, cavities between 1885-1892 and 1896-1906.
1906 - 1908	Dense
1908 - 1920	Porous
1920 - 1922	Dense
1922 - 1933	Porous, small cavity at 1927.
1933 - 1956	Dense, small cavities at 1942, 1951-1952 and 1955.
1956 - 1966	Porous, small cavities at 1961 to 1965.
1966 - 1973	Porous
1973 - 1981	Dense
1981 - 1983	Porous
1983 - 2004	Dense, small cavities at 1996 and 2003.
2004 - 2007	Porous
2007 - 2013	Dense
2013 - 2016	Porous to dense, small fractures.
2016 - 2022	Dense
2022 - 2028	Porous
2028 - 2029	Dense



COLLIER COUNTY
NCRWTP INJECTION WELL
TELEVISION SURVEY OF PILOT HOLE FROM
1310 TO 2668 FEET BELOW LAND SURFACE
Continued:

DEPTH (ft)	COMMENTS
2029 - 2068	Porous, few small fractures.
2068 - 2088	Dense, few small cavities.
2088 - 2121	Dense, cavity at 2105.
2121 - 2141	Porous, small cavities between 2130 and 2140.
2141 - 2151	Dense
2151 - 2158	Porous, small cavity at 2152.
2158 - 2164	Dense
2164 - 2168	Small cavernous zone.
2168 - 2220	Dense, cavity at 2174.
2220 - 2225	Dense, hard nodules (dolomite ?) present.
2225 - 2233	Dense, vertical fractures between 2234 and 2235.
2233 - 2244	Dense, small cavities present.
2244 - 2266	Dense, small cavity at 2258.
2266 - 2283	Small cavernous zone.
2283 - 2295	Dense
2295 - 2301	Cavernous, medium size.
2301 - 2307	Dense
2307 - 2325	Cavernous with large blocks.
2325 - 2330	Porous and cavernous.
2330 - 2342	Dense, small cavity at 2338.
2342 - 2346	Porous with small cavities.
2346 - 2350	Dense
2350 - 2357	Porous and cavernous.



COLLIER COUNTY
NCRWTP INJECTION WELL
TELEVISION SURVEY OF PILOT HOLE FROM
1310 TO 2668 FEET BELOW LAND SURFACE
Continued:

DEPTH (ft)	COMMENTS
2357 - 2366	Dense
2366 - 2371	Porous, small cavities present.
2371 - 2380	Dense, cavities at 2376 and 2378.
2380 - 2391	Porous, fairly large cavity 2385 to 2388.
2391 - 2398	Dense, cavities at 2395 and 2397.
2398 - 2400	Porous
2400 - 2406	Dense, few cavities present.
2406 - 2414	Porous and cavernous.
2414 - 2431	Dense, small cavities 2419, 2412 and 2430.
2431 - 2439	Porous and cavernous.
2439 - 2440	Dense
2440 - 2461	Porous and cavernous, fractures at 2445 and 2452.
2461 - 2474	Dense, cavities and fractures present.
2474 - 2478	Dense
2478 - 2499	Dense, cavities at 2488 and 2491, fractures between 2487 and 2490.
2499 - 2516	Porous, cavities at 2504, 2507, 2511, 2515 and 2516.
2516 - 2668	Dense, cavities at 2544 to 2545, fracture at 2547, cavities at 2552 and 2555, fractures and blocky at 2558 to 2562 and 2564 to 2612, fractured at 2612 to 2625 cavernous and fractures between 2626 and 2635, fractures and blocky between 2635 and 2643, fractured at 2643 to 2645, large blocks and fractures between 2645 and 2668.

COLLIER COUNTY
NCRWTP INJECTION WELL
TELEVISION SURVEY OF OPEN HOLE BELOW THE
30" DIAMETER STEEL CASING FROM
2495 TO 2850 FEET BELOW LAND SURFACE

The following comments relate to observations of the TV scans conducted in the borehole October 25, 1992. These comments are very general and are not quantitative in any sense. However, they may be useful as an aid in interpretation of the lithologic and geophysical logs of this interval.

2495 - 2500	Cemented rat hole.
2500 - 2530	Dense, fractures occurring at 2506, 2508, 2516, 2527.
2530 - 2534	Porus, small cavities present.
2534 - 2560	Dense, fractures occurring at 2545, 2548, 2550, and 2555.
2560 - 2570	Porus, cavities and fractures present.
2570 - 2582	Porous, fairly large cavity.
2582 - 2585	Dense, fractures and blocky.
2585 - 2595	Dense, large cavity.
2595 - 2598	Dense, fractured.
2598 - 2610	Dense, very large cavity, blocky and fractured.
2610 - 2635	Porous fractures, blocky at 2624-2630.
2635 - 2650	Dense, small cavity at 2636 to 2639, blocky at fractures at 2640-2648.
2650 - 2660	Dense, small cavity.
2660 - 2703	Cavernous, dark picture, large blocks noticed at 2675 to 2684.
2703 - 2723	Dense, blocky, small cavernous.
2723 - 2730	Cavernous, dark picture.
2730 - 2740	Dense, blocky, small cavities.
2740 - 2748	Cavernous, dark picture.

COLLIER COUNTY
NCRWTP INJECTION WELL
TELEVISION SURVEY OF OPEN HOLE BELOW THE
30" DIAMETER STEEL CASING FROM
2495 TO 2850 FEET BELOW LAND SURFACE
Continued:

2748 - 2762	Dense, blocky, small cavities.
2762 - 2778	Dense, cavernous.
2778 - 2780	Dense, blocky.
2780 - 2794	Cloudy picture no observation.
2794 - 2807	Dense, blocky, fractures at 2802 through 2806.
2807 - 2815	Dense, blocky, cavernous.
2815 - 2820	Touch side of hole, murky water, no observation.
2820 - 2850	Dark picture, cavernous.

COLLIER COUNTY
NCRWTP INJECTION WELL
TELEVISION SURVEY OF OPEN HOLE BELOW THE
20" DIAMETER STEEL TUBING FROM
1310 TO 2668 FEET BELOW LAND SURFACE

The following comments relate to observations of the TV scans conducted in the borehole November 4, 1992. These comments are very general and are not quantitative in any sense. However, they may be useful as an aid in interpretation of the lithologic and geophysical logs of this interval.

2438 -	Top of packer boot.
2450 - 2492	Inside 30" diameter casing.
2492 - 2500	Cemented rat hole.
2500 - 2504	Dense.
2504 - 2555	Dense, small cavities at 2506, 2514, 2526, 2542, and 2553.
2555 - 2558	Dense, with small cavities and vertical fractures.
2558 - 2568	Dense, fractures, few small cavities.
2568 - 2576	Dense, blocky, small cavernous zone.
2576 -	Stopped here because it was too dark to see.

MISSIMER & ASSOCIATES, INC.

PRESSURE TEST

PROJECT NAME: COLLIER (NCRWTP)

PROJECT NUMBER: H89-242E

WELL NUMBER: CO-2317 (IW)

CASING SIZE: 20 INCHES

CASING DEPTH: 2492 FT. BPL.

RECORDED BY: G. KENNEDY

TEST DATE: 10/8/9

WITNESSED BY: RICK ORTH

TIME (HOURS)	CASING PRESSURE (PSI)
1549	158.0
1554	157.5
1559	156.5
1604	156.0
1609	155.0
1614	154.5
1619	153.5
1624	152.5
1629	152.0
1634	151.5
1639	151.0
1644	150.5
1649	150.0

MISSIMER & ASSOCIATES, INC.

PRESSURE TEST

PROJECT NAME: COLLIER (NCRWTP)

PROJECT NUMBER: H89-242E

WELL NUMBER: CO-2317 (W)

ANNULUS BTWN 16" & 20"

CASING DEPTH: FT. BPL.

PRESSURE (CASING): PSI

PACKER DEPTH: FT. BPL.

PRESSURE (TUBING): PSI

START TIME	PRESSURE (CASING)	PRESSURE (TUBING)	INITIALS (M&A)	INITIALS (DER)
1405	158 psi		CA	JBL
1410	158			
1415	158			
1420	158			
1425	158			
1430	158			
1435	158			
1440	158			
1445	158			
1450	158			
1455	158			
1500	158			✓
1505	158		CH	JBL

MISSIMER & ASSOCIATES, INC.

PRESSURE TEST

PROJECT NAME: COLLIER (NCRWTP)

PROJECT NUMBER: H89-242E

WELL NUMBER: CO-2318 (MW)

CASING SIZE: 16 INCHES

CASING DEPTH: 900 FT. BPL.

RECORDED BY: GORDON KENNEDY

TEST DATE: 9/4/92

WITNESSED BY: RICK ORTH (FDER)

START TIME	PRESSURE (CASING)	PRESSURE (TUBING)	INITIALS (M&A)	INITIALS (DER)
1234	154.0		AK	
1239	154.0			
1244	154.0			
1249	154.0			
1254	153.5			
1259	153.0			
1304	152.5			
1309	152.0			
1314	152.0			
1319	151.5			
1324	151.0			
1329	150.1			
1334	150.0		GPK	

MISSIMER & ASSOCIATES, INC.

PRESSURE TEST

PROJECT NAME: COLLIER (NCRWTP)

PROJECT NUMBER: H89-242E

WELL NUMBER: CO-2317 (MW)

CASING SIZE: 16 INCHES

CASING DEPTH: 900 FT. BPL.

PRESSURE (CASING): 154 PSI

PACKER DEPTH: 870 FT. BPL.

PRESSURE (TUBING): 780 PSI

START TIME	PRESSURE (CASING)	PRESSURE (TUBING)	INITIALS (M&A)	INITIALS (DER)
1530	154	780	JB	-
1535	154	780	JB	-
1540	154	780	JB	-
1545	154	780	JB	-
1550	154	780	JB	-
1555	154	780	JB	-
1600	153	780	JB	-
1605	153	780	JB	-
1610	153	780	JB	-
1615	153	780	JB	-
1620	152	780	JB	-
1625	152	780	JB	-
1630	152	780	J.B.	-

MISSIMER & ASSOCIATES, INC.

PRESSURE TEST

PROJECT NAME: COLLIER (NCRWTP)

PROJECT NUMBER: H89-242E

WELL NUMBER: CO-2318 (MW)

CASING SIZE: 6.5 INCHES

CASING DEPTH: 1746 FT. BPL.

PRESSURE (CASING): PSI

PACKER DEPTH: FT. BPL.

PRESSURE (TUBING): PSI

START TIME	PRESSURE (CASING)	PRESSURE (TUBING)	INITIALS (M&A)	DER OBSERVER
1345	150.0 psi		HCH	VINCE MELE
1350	150.0		HCH	
1355	150.0		HCH	
1400	150.5		HCH	
1405	150.5		HCH	
1410	152.0		HCH	
1415	151.0		HCH	
1420	152.0		HCH	
1425	152.0		HCH	
1430	152.0		HCH	
1435	153.0		HCH	
1440	153.0		HCH	
1445	153.0		HCH	