

GROUNDWATER TECHNOLOGY

Consulting Groundwater Geologists

A Division of Oit Recovery Systems, Inc. 5047 CLAYTON ROAD • CONCORD, CA 94521 • (415) 671-2387

MONITORING WELL RESULTS CHEVRON - CASTRO VALLEY 5269 CROW CANYON ROAD



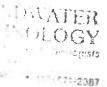
Prepared for:

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Philip Walsh Project Manager

William Smith Manager, Western Region



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LHEVRON - CASTRO VALLEY
5269 CROW CANYON ROAD

April 1, 1985

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INTRODUCTION

As part of a standing assessment contract with Groundwater Technology, Chevron U.S.A. authorized an evaluation program to be performed at its service station at 5269 Crow Canyon Road in Castro Valley, California.

This report offers the results of Groundwater Technology's initial site characterization, monitoring well placements and overall investigations on site.

The Chevron Station (#95607) is located on the south side of Crow Canyon Road approximately one mile north of route 580. The site is underlain by cut/fill which overlies Quarternary Alluvium, which rests on fractured marine shales of the Panoche Formation from the Upper Cretaceous (see Figure 1).

INVESTIGATIVE PROCEDURES

Station inventory records indicated a loss of product from underground storage tanks. On March 5, Groundwater Technology arrived on site to begin installation of three monitoring wells. These wells were constructed to determine the extent of contamination and to establish the local groundwater gradient. The location of monitoring wells is shown in Figure 2. These wells were drilled using a 10 hollow stem auger under the direction of a Groundwater Technology project geologist.

Well #1 was drilled to a depth of 55 feet (bedrock at 48 feet). Initial readings from the finished well showed .02 feet of free product with degraded water below.

The second well drilled adjacent to the failed underground tank was placed to a depth of 46 feet (bedrock at 35 feet). Initial readings showed only a trace of product.

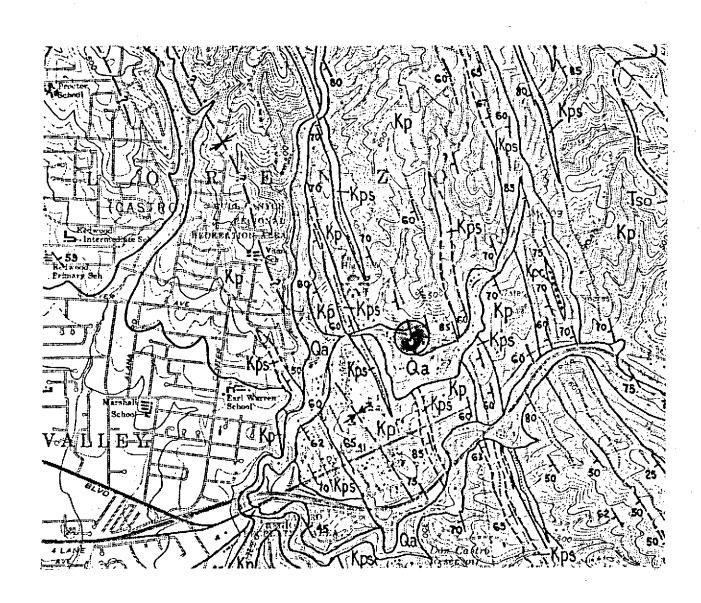
Well #3 was drilled down gradient of the tanks to a depth of 55 feet but did not encounter bedrock. Initial readings after completion of the well showed 4.30 feet of free floating product.

Chevron immediately requested additional monitoring wells to fully define the extent of contamination and a zero (no product) gradient perimeter. It was also agreed that any product should be bailed off on a regular basis. The liquid reaction to this bailing effort was noted on a long term basis.

Due to the nature of inadvertantly lost hydrocarbons below ground, Chevron and Groundwater Technology took precautions to protect the surrounding properties adjacent to the station. Down gradient wells were installed and monitored three times a week to indicate if movement of product had occurred. Results showed that any product loss has apparently been contained on Chevron's property.

A total of eight monitoring wells were installed around the site. The logs and positions of these wells are shown in Table 1. Existing product in Well #3 was bailed twice daily. The results of this monitoring are shown Table 2.

A continued vapor and groundwater monitoring program will be conducted by Groundwater Technology once a week for the next month, at this time re-evaluation of this program will be discussed with Chevron.



QA Surficial deposits

TSO Sobrante Sandstone

QOA Older alluvium

KPS Arkosic sandstone

O .5 I MILE

SCALE 1:24000

TMSL Light gray Miocene siltstone

Gray micaceous clay/shale

CONTOUR INTERVAL 20 FEET

Siliceous TMSH shale

SITE LOCATION

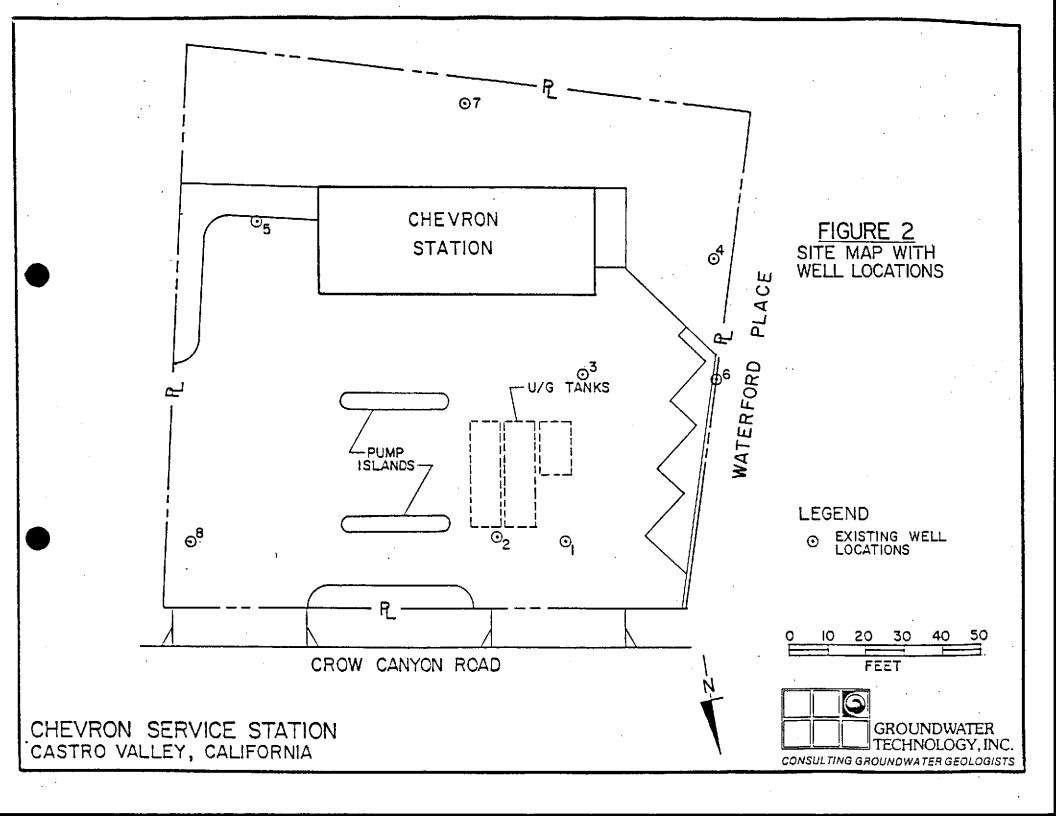
FIGURE I



GROUNDWATER TECHNOLOGY, INC.

URE | CONSULTING GROUNDWATER GEOLOGISTS

SOURCE: DIBBLEE 1980 U.S.G.S. O.F.R. 80-540 HAYWARD QUADRANGLE





Casing: Dia. 411 Length

Notes

Graphic Log

Sample Number

Well Construction

Depth (Feet

3"!

7'

-10 -

20

25

-30

4042

48 50

.55



Drilling Log Well Number___ Sketch Map Project Chevron/Castro Valley Owner _____ CROW CANYON RD. Location 5269 Crow Canyon Rd. Project Number 20-3231 Date Drilled 3-5-85 Total Depth of Hole 55! Diameter 4" Surface Elevation _____ Water Level, Initial _____ 24-hrs. ____23.261 Screen: Dia. 411 Length 301 Slot Size .020 25 _____ Type ____ PVC___ Notes Drilling Company Kleinfelder Drilling Method HSA Driller John/Doug Log by P.J. Walsh Description/Soil Classification (Color, Texture, Structures) Asphalt Gravel base (slight gas odor) Gray clay with gravel Brown clay with some gravel Alternating layers of brown clay and graveley clay to 30 feet Intermittant moist clay and gravel Initial depth to water Tighter gray brown clay, no pebbles and odors are present

| Hit bedrock. to bottom | Spoils | indicate | gray | weathered | shale |
|---------------------------|--------|----------|------|-----------|-------|
| Bottom of wel | 1 | | , | · | |



| Division of Oil | Recovery Syste | | Drilling Log |
|--------------------------------------|------------------|---|---|
| Charmon/Costro | Volloy | Well Number | Sketch Map |
| | | er | CROW CANYON RD |
| | | oct Number | |
| Date Drilled3_6_851 | otal Depth of I | le 46¹ Diameter 4!! 26.10¹ 24-hrs. | |
| Screen: Dia Att | enoth 251 | Slot Size | |
| | | TypePVC | 1 .5 |
| | | ng MethodHSA | Notes |
| Driller Paul/Doug | | | |
| Depth (Feet) Well Construction Notes | Sample Number | Description/S (Color, Text | Soil Classification ture, Structures) |
| -8 ≥ 8 | | Asphalt and concrete Gravel base with brown Gray brown soil Gray soil 60% rounded p Gray clay with pebbles Very dark gray clay with Slight odor at 10 feet Reddish brown clay with odor Intermittant layers of clayey soils with augen | ch occasional white dust n some pebbles ith rounded pebbles, slight gravel and light brown r occasionally bringing edrock reached at 35 feet |

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| Well Number Well Number Well Number Well Number Sketch Map CROW CANYON RD. Sketch Map CROW CANYON RD. Surface Elevation Water Level, Initial 24-brs 26.30' Screen: Dia 4'' Length 30' Scaling Dia 4'' Length 25' Type PVC Drilling Company Kleinfelder Drilling Method BSA Description/Soil Classification (Color, Texture, Structures) Continue dark gray clayey soil Reddish brown clayey soil Sight odor at 25 feet Light brown clayey soil Slight odor at 25 feet Pulled augers indicate moist clay from 30 feet to wet clay at 40 feet to bottom of well at 55'. | | Castro Va | | | |
|--|--------------------------------|--------------|-----------------------|--|-------------------------|
| Date Drilled 3-6-85 Total Depth of Hole 55! Diameter 4" Screen Dia 4" Length 30' Slot Size Q20 Casing Dia 4" Length 25' Type PVC Drilling Company Kleinfelder Drilling Method HSA Notes Driller Paul/Doug Log by P.Walsh Description/Soil Classification (Color, Texture, Structures) The Street Diameter 4" Length 30' Slot Size Q20 A Description/Soil Classification (Color, Texture, Structures) The Street Diameter 4" Length 30' Slot Size Q20 A Drilling Company Kleinfelder Drilling Method HSA Notes Dark gray Clay Description/Soil Classification (Color, Texture, Structures) The Structure Structures of Continue dark gray clayey soil Reddish brown clayey soil Light brown clayey soil Slight odor at 25 feet Pulled aligners indicate moist clay from 30 feet and the structure of | | | TTTEN Owner | | |
| Surface Elevation Water Level, Initial 24-bra 26.30' Screen: Dia 4'' Length 30' Slot Size 020 Gasing Dia 4'' Length 25' Type PVC Driller Paul/Doug Log by P.Walsh Notes Description/Soil Classification (Color, Texture, Structures) Asphalt Gravel Dark gray clay Continue dark gray clayey soil Light brown clayey soil Light brown clayey soil Slight odor at 25 feet Pulled augers indicate moist clay from 30 feet. | Location 5269 Crow | v Canyon R | d Project N | umber 20-3231 | CROW CANYON RD. |
| Screen Dia. 4" Length 30' Siot Size 220 Att Length 25' Type PVC Drilling Company Kleinfelder Drilling Method HSA Driller Paul/Doug Log by P.Walsh To a structure of the stru | Date Drilled 3-6-8 | 35 Total (| Depth of Hole | 551 Diameter 411 | . L |
| Casing Dia 4" Length 251 Type PVC Drilling Company Kleinfelder Drilling Method HSA Drilling Company Kleinfelder Drilling Method HSA Description/Soil Classification (Color, Texture, Structures) Asphalt Gravel Dark gray clay Continue dark gray clayey soil Reddish brown clayey soil Light brown clayey soil Slight odor at 25 feet Pulled augers indicate moist clay from 30 feet | Surface Elevation | Water | r Level, Initial | 24·hrs 26.30' | |
| Casing Dia 4" Length 25 Type PVC Drilling Company Kleinfelder Drilling Method HSA Notes Paul/Doug Log by P. Walsh Description/Soil Classification (Color, Texture, Structures) Asphalt Gravel Dark gray clay Continue dark gray clayey soil Reddish brown clayey soil Light brown clayey soil Slight odor at 25 feet Pulled augers indicate moist clay from 30 feet | Screen: Dia. 4" | Lengt | th30 ' | Slot Size020 | |
| Driller Paul/Doug Log by P.Walsh Paul/Doug Bearription/Soil Classification (Color, Texture, Structures) Asphalt Gravel Dark gray clay Continue dark gray clayey soil Reddish brown clayey soil Light brown clayey soil Light brown clayey soil Slight odor at 25 feet Pulled augers indicate moist clay from 30 feet | Casing: Dia411 | ! Lengt | _{th} 25' | TypePVC | |
| Description/Soil Classification (Color, Texture, Structures) Asphalt Gravel Dark gray clay Continue dark gray clayey soil Light brown clayey soil Light brown clayey soil Slight odor at 25 feet | Drilling Company Kle | infelder | Drilling M | ethod <u>HSA</u> | Notes |
| Asphalt Gravel Dark gray clay Continue dark gray clayey soil Reddish brown clayey soil Light brown clayey soil Slight odor at 25 feet Pulled augers indicate moist clay from 30 feet | Driller Paul/Doug | . | Log by | P.Walsh | |
| Gravel Dark gray clay Continue dark gray clayey soil Reddish brown clayey soil Light brown clayey soil Slight odor at 25 feet Pulled augers indicate moist clay from 30 feet | Depth (Feet) Well Construction | Notes | Number Graphic Log | | |
| | 4'' - 1' | | | Continue dark gray clay Reddish brown clayey so Light brown clayey soil Slight odor at 25 feet | moist clay from 30 feet |



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| Division of Oil Recovery Systems, | Well Number | Drilling Log |
|--|--|--|
| Project <u>Chevron/Castro Valley</u> Owner | | Sketch Map |
| Location 5269 Crow Canyon Rd. Project | | CROW CANYON RD. |
| Date Drilled 3–9–85 Total Depth of Hole | | FENCE- 8 |
| Surface Elevation Water Level, Initial | 17.80 [†] 24-hrs. | |
| Screen: Dia Length2 | Slot Size | + L |
| Casing: Dia. 4'' Length 10 | | Notes |
| Drilling Company Kleinfelder Drilling | | |
| Driller Log by | P. Walsh | |
| Depth (Feet) Well Construction Notes Number Graphic Log | | oil Classification ure, Structures) |
| - 1- - 2- - 5- - 7- - 8- - 10- - 18- - 20- - 35- - 35- - 35- | Dark brown soil Light brown sandy soil Light brown soil with s Dark brown clayey soil Dark gray clay Dark brown clay Very wet light brown mu Rejection in gray weath Cotton of well. | d |

Page __1__ of __1



| Project Chevron/Castro Location 5269 Crow Canyo | Valley n Rd. | . Owner . Project N | 20-3231 | CROW CANYON RD |
|---|------------------|------------------------|--|---------------------------------------|
| Date Drilled 3_9_851 | otal Depth | of Hole . | 451 Diameter 411 | |
| Surface ElevationV | Vater Level | l, Initial | | 1 |
| Screen: Dia 411. | .ength | 30' | Slot Size | |
| Casing: Dia. 4 ¹¹ L | .ength | <u> 15'</u> | Type | N |
| Drilling Company KLIENF | elder_ | . Drilling N | Method\\SA | Notes |
| Driller | | Log by | P. Walsh | |
| Depth (Feet) Well Construction Notes | Sample Number | Graphic Log | Description/So | oil Classification re, Structures) |
| - 3 ⁴ - 1 ⁴ - 3 5 7 10 11 15 1 20 35 | | | Asphalt Reddish brown soil Clayey reddish soil with Clayey brown soil with a Brown clay Dark brown clay Dark brown clay with gra Lighter brown clayey soil Saturated light brown clay Rethom of well | some gravel avel Layey mud |

Well Number_

| 0 | GROUNDWATER |
|---|--|
| | TECHNOLOGY |
| | Division of Oil Recovery Systems, Inc. |

| | | Well Number | |
|--|-----------------------|---|--|
| Project Chevron/Castro Val | ley_Owner | | Sketch Map |
| Location 5269 Crow Canyon R | d Projec | t Number <u>20-3231</u> | CROW CANYON RD. |
| Date Drilled 3-14-85 Total | Depth of Hole | 351 Diameter 411 | |
| | | 18.51 24-hrs. | |
| Screen: Dia. 4" Lengt | .h251 | Slot Size . OZO | `\ |
| Casing: Dia Lengt | h <u>1</u> 0_ | TypePVC | |
| | | Method <u>HSA</u> | Notes |
| | Log by | _P. Walsh | |
| Depth (Feet) Well Construction Notes | Number Graphic Log | | oil Classification ure, Structures) |
| - 5'- - 8 - - 13 - - 15 - - 15 - - 20 - - 25 - - 30 - - 35 - - 35 - - 3 - - | | Dark brown top soil Dark gray clay Lighter brown clay Initial depth to water Light brown clay water Bottom of well. | saturated |



Division of Oil Recovery Systems, Inc. **Drilling Log** Well Number _____68__ Sketch Map Project Castro Valley Owner Chevron Location Waterford Place Project Number 20-3231 Date Drilled 3_13_85 Total Depth of Hole 11' Diameter Surface Elevation _____ Water Level, Initial _____ 24-hrs. ____ Screen: Dia. _____ Slot Size ______ Casing: Dia. _____ Type ______ Notes Drilling Company Sierra Pacific Drilling Method - HSA ----Abandoned ___ Log by __P._ Walsh___ Well Construction Depth (Feet Sample Number Description/Soil Classification Graphic (Color, Texture, Structures) 34 Asphalt 44 Gravel bed Brown sandy soil Sandy clay 10 Refusal at 11 feet powder on end of bit white 11 limey dust boulder; Backfilled hole and re-surfaced road



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Division of Oil Recovery Systems, Inc. **Drilling Log** Well Number _____ Sketch Map Project Chevron/Castro Calley Owner _____ Location 5269 Crow Canyon Rd. Project Number ____20-3231___ Date Drilled 3-21-85 Total Depth of Hole 35! Diameter 2" Surface Elevation _____ Water Level, Initial _____ 24-hrs. _____ Screen: Dia. 2" Length 15" Slot Size 020 Casing: Dia. 2'' Length 15' Type PVC Notes Drilling Company Latine Western Drilling Method HSA Driller __Mike/Mark _____ Log by __P. Walsh____ Weil Construction Graphic Log Sample Number Notes Description/Soil Classification (Color, Texture, Structures) 4" Top soil with gravel 5" Light brown soil Dark brown clay Some gravel Back into dark brown clay 1" of wet clay Back into dark brown clay Lighter brown clay 20 Water 21 feet 28 Firmed up a bit, flowing water at 30 feet Bottom of well 30

Page - 1 of ...



| | | | Well Number | Drilling Lo |
|--|------------------|-------------|--|--|
| Project Chevron/Castro | ∟Valley. | _ Owner . | | Sketch Map |
| Location 5269 Crow Car | yon Rd. | _ Project | Number20_3231 | CROW CANYON RD |
| Date Drilled 3_21_85 | Total Depti | of Hole | | + |
| Surface Elevation | Water Leve | l, Initial | _ <u>23_501</u> 24-hrs | |
| Screen: Dia. 211. | Length | 20'_ | Slot Size <u>.020</u> | |
| Casing: Dia. 211 | Length | 9! | TypePVC | N |
| Drilling Company Layne We | stern | _ Drilling | Method <u>HSA</u> | Notes |
| Driller Gunner | | | | |
| Depth (Feet) Well Construction | Sample Number | Graphic Log | • | oil Classification re, Structures) |
| - 5'- - 4'- - 5 - - 7 - - 8 - - 12- - 13- - 13- - 20- - 21- - 23- - 23- - 23- - 25- - 29- - 31- | | | Asphalt over concrete Light brown clayey soil Light brown clay Dark brown moist clay Light brown sandy clayer mixed with some gravel a Very sandy light brown s Clayey soil Tight clay Initial depth to water Weathered bedrock Bedrock rejection (gray | y fill (dry) at 13 feet slightly |
| | | | | |



PROJECT:

LOCATION:

CHEVRON Castro Valley 3-26-85

DATE:

| | | | WELL | WELL | WELL | WELL | WELL | WELL | WELL | WELL | WELL | WELL | WELL |
|----------|-------|-------|-------|------------|-------|----------------|----------------|----------|----------------|------|------|------|------|
| | | | 1 | 2 | 3 | . 4 | 5 | 6 | · 7 | . 8 | | | |
| DATE | • | ELEV. | | | | | | | | | | | |
| 03-06-8 | 5 DTW | | 23.26 | 26.10 | 30.00 | - | _ | _ | _ | | | | |
| • | DTP | | 23.24 | _ | 26.30 | | _ | <u>-</u> | _ | _ | | | |
| | PT | | 0.02 | - | 3.70 | . 0 | 0 | 0 | 0 | 0 | | | |
| 03-08-8 | | | 22.18 | 17.91 | 26.59 | _ | · - | _ | . - | _ | • | | • |
| • | DTP | | 22.15 | - | 25.24 | - | · - | _ | - | | | | |
| | PT | | 0.03 | 0 | 1.35 | 0 | 0 | . 0 | 0 | 0 | | | • |
| 03-09-8 | | | 22.01 | 17.48 | 26.35 | . - | - | · · · | _ | - | • | | |
| 9:30 an | | | 21.99 | · – | 25.01 | - | - | _ | _ | _ | | • | |
| | PT | | 0.02 | . 0 | 1.34 | Ó | 0 | 0 | 0 | 0 | | | |
| 03-09-8 | | • | 21.90 | 17.33 | 26.29 | 14.84 | 26.94 | _ | _ | _ | | | • |
| 7:00 pm | | | 21.89 | - | 24.98 | - | _ | _ | _ | _ | | | |
| . | PT | | 0.01 | 0 | 1.31 | 0 | 0 | 0 | 0 | 0 | | | - |
| 03-11-8 | | • | 21.59 | 16.97 | 25.93 | 14.14 | 24.82 | - | - | *** | | | |
| • | DTP | | - | _ | 24.66 | - | - | _ | _ | _ | | | |
| . • | PT | | 0 | 0 | 1.27 | 0 | 0 . | 0 | 0 | 0 - | | | |
| 03-13-8 | | | 21.46 | 16.85 | 24.85 | 13.88 | 24.34 | _ | *** | _ | | • | |
| | DTP | | _ | _ | 24.74 | - | _ | _ | | · _ | | | |
| • | PT | • | 0 | 0 . | 0.11 | 0 | 0 | 0 | 0 | 0 | | | • |

TABLE 2 MONITORING SUMMARY



PROJECT:

CHEVRON

LOCATION: DATE:

Castro Valley 3-26-85

| | | WELL | WELL | WELL | WELL | WELL | WELL | WELL | WELL | WELL | WELL | WELL |
|----------|------------|-------|-------|--------|------------|---------|-------|------|------|------|------|------|
| | | 1 | 2 · | 3 | . 4 | 5 | 6 | · 7 | . 8 | • | | |
| DATE | ELEV. | | | | | | | | • | | | • |
| 03-14-85 | | 21.49 | 16.88 | 24.76 | 13.89 | 24.28 | _ | _ | _ | | | |
| • | DTP | - | | 24.67 | – . | _ | _ | _ | _ | | | |
| | PT | 0 | 0 | 0.09 | 0 | 0 | 0 | 0 | 0 | | | |
| 03-18-85 | | 21.63 | 17.22 | bailed | 14.05 | car | 15.70 | _ | _ | | | |
| | DTP | _ | _ | twice | - | parked | | _ | _ | | | |
| | PT | 0 | 0 | daily | 0 | over it | 0 | 0 | 0 | | | |
| 03-21-85 | DTW | 21.81 | 11.51 | 24.76 | 14.20 | 24.30 | 15.81 | _ | | | | |
| .• | DTP | - | _ | _ | | _ | 13.61 | Ξ. | _ | | | |
| | PT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | : · | • |
| 03-22-85 | DTW DTP | 21.83 | 17.57 | 24.75 | 14.20 | 24.31 | 15.79 | 9.39 | 7.47 | | | |
| | PT | 0 | ō | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| 03-26-85 | | 22.83 | 18.69 | 25.68 | 15.14 | 25.33 | 16.74 | 9.61 | 8.68 | | | |
| • | DTP | • 🖦 | 4- | - | _ | _ | ~ | - | - | | | • |
| | PT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 . | | | |
| | DTW | | | | | • | | | | | | |
| | DTP | | | | | | | | | | • | |
| | PT | | | | | | | | | | | _ |
| | | | | | | | | | | | | • |