

1R - 269

APPROVALS

YEAR(S):

2004-1997

1R269

Olson, William

From: Olson, William
Sent: Monday, April 19, 2004 9:58 AM
To: 'Mike Griffin'; Olson, William
Cc: Larry Sugano; Darrell Glueck
Subject: RE: Tipperary 2nd Qtr. Bagley Field Sampling Relief

Dear Mr. Griffin:

This correspondence is sent to you in response to Tipperary Corporation's (TC) below April 2, 2004 request to modify the water quality monitoring program for ground water remediation sites in the Bagley Field west of Tatum, New Mexico. Due to the stability of contamination at the sites over time, the New Mexico Oil Conservation Division (NMOCD) agrees to modify the ground water monitoring program for the Bagley Field sites as set out below:

1. Ground water from **all** site monitoring wells at each site shall be sampled on an annual basis.
2. All ground water samples shall be obtained and analyzed for concentrations of benzene, toluene, ethylbenzene and xylene (BTEX) and major cations and anions using EPA approved methods and quality assurance/quality control procedures.
3. TC shall notify the NMOCD at least 1 week prior to the sampling events such that the NMOCD has the opportunity to witness the events and split samples.

Please be advised that NMOCD approval does not relieve TC of responsibility if the program fails to adequately monitor contamination at the sites, or if contamination outside the scope of the monitoring program is found to exist. In addition, NMOCD approval does not relieve TC of responsibility for compliance with any other federal, state, or local laws and regulations.

If you have any questions, please contact me.

Sincerely,

William C. Olson
Hydrologist
New Mexico Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505
(505) 476-3491

-----Original Message-----

From: Mike Griffin [mailto:whearth@msn.com]
Sent: Friday, April 02, 2004 11:27 AM
To: Bill Olson
Cc: Larry Sugano; Darrell Glueck

Subject: Tipperary 2nd Qtr. Bagley Field Sampling Relief

Good Morning, Bill:

On March 23rd, Tipperary sent you the results of last years results from monitoring fifty-one individual wells within the Bagley Field. What started six years ago as a series of single delineation wells at each pit site has grown in scope and size to a very significant quarterly expense. Part of this expense is the collection of data from wells that have either always had BTEX concentrations within the acceptance parameters of NMWQCC standards or wells whose concentrations have diminished over time to meet the standards for at least four consecutive quarters.

We've ten such wells we would like you to consider for omission within the 2nd quarter Tipperary sampling round described as follows:

Iva COM

MW-1 Twenty-three consecutive quarters of acceptable concentrations.

MW-2 Twenty-one consecutive quarters of acceptable concentrations.

Bell

MW-2 Ten consecutive quarters of acceptable results.

MW-4 Twelve consecutive quarters of acceptable concentrations.

Mable

MW-2 Nine consecutive quarters of acceptable results.

MW-3 Seven consecutive quarters of acceptable concentrations.

NBF

MW-4 Five consecutive quarters of acceptable results.

MW-5 Seven consecutive quarters of acceptable concentrations.

Sohio 1

MW-6 Five consecutive quarters of acceptable results.

MW-7 Five consecutive quarters of acceptable results.

All but the Iva wells have shown higher concentrations in the past. We request that we may be allowed to test them only once per year for BTEX only. If the analytical result for this annual sampling event comes back above the WQCC standards, the well will be immediately reverted to a quarterly sampling schedule.

At time of requested final closure, we propose that all wells within a pit group be tested for BTEX volatile & semi-volatile compounds, PAH's, cat and anions, hardness, etc. If ANY well from within the pit group exhibits concentrations in excess of NMWQCC standards, that well will be tested quarterly for the specific C of C in question. After four quarters of acceptable concentrations, each well within the group will again be subject to the full suite of tests. Closure would be granted ONLY when all wells show four quarters of acceptable concentrations for ALL C of C's.

Bill, I think this a reasonable and certainly more cost effective method of conducting our sampling program. We anticipate being out in Tatum within the next couple of weeks and

look forward to your earliest response.

Warmest regards,
Mike Griffin
Whole Earth Environmental, Inc.
Phone: 281.394.2050
FAX: 281.394.2051

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NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON

Governor

Joanna Prukop
Cabinet Secretary

Lori Wrotenbery

Director

Oil Conservation Division

May 21, 2003

Mr. Larry Sugano
Tipperary Corporation
633 Seventeenth St., Suite 1550
Denver, Colorado 80202

**RE: BELL STATE "A" PIT – CASE # 1R260
SOHIO STATE #1 PIT – CASE #1R267
SOHIO STATE "A" PIT – CASE #1R268
STATE NBF #1 PIT – CASE #1R269
LEA COUNTY, NEW MEXICO**

Dear Mr. Sugano:

The New Mexico Oil Conservation Division (OCD) has reviewed Tipperary Corporation's (TC) May 6, 2003 "TATUM PIT CLOSURE PROJECT YOUR LETTER OF 4-21-03" which was submitted on behalf of TC by their consultant Whole Earth Environmental. This document contains TC's response to the OCD's April 21, 2003 correspondence and TC's work plan for installation of additional ground water monitoring wells to further delineate the extent of contamination related to the closure of unlined pits at the above listed sites west of Tatum, New Mexico.

The above-referenced work plan is approved with the following conditions:

1. At the Sohio State #1 site, proposed monitor well MW-43 shall be relocated and an additional ground water monitoring well shall be installed at the locations shown on the attached figure #1.
2. At the Sohio State "A" site, an additional ground water monitoring well shall be installed at the location shown on the attached figure #2.
3. All monitor wells shall be constructed and completed as follows:
 - a. A minimum of 15 feet of well screen shall be installed with 5 feet of well screen placed above the water table and 10 feet of well screen placed below the water table.
 - b. An appropriately sized gravel pack shall be set in the annulus around the well screen from the bottom of the hole to 2-3 feet above the top of the well screen.

Mr. Larry G. Sugano
May 21, 2003
Page 2

- c. A 2-3 foot bentonite plug shall be placed above the gravel pack.
 - d. The remainder of the hole shall be grouted to the surface with cement containing 3-5% bentonite.
 - e. A concrete pad and locking well cover shall be placed at the surface.
 - f. The well shall be developed after construction using EPA approved procedures.
4. No less than 24 hours after the wells are developed, ground water from all site monitor wells at each site shall be purged, sampled and analyzed for concentrations of benzene, toluene, ethylbenzene, xylene (BTEX) using EPA approved methods and quality assurance/quality control procedures (QA/QC).
 5. All monitor wells shall be surveyed to determine their locations in reference to the former pits, tanks, other site monitor and recovery wells and any other pertinent site features.
 6. In order to resolve the issue of chloride and total dissolved solids (TDS) contamination at TC's remaining pit closure sites, during one of the 2003 sampling events TC shall sample and analyze ground water from all monitor wells at the Bell State "A", Gulf State #1 (Case #1R262), Iva Com #1 (Case #1R263), Mabel Com #1 (Case #1R264), Sohio State #1, Sohio State "A", and State NBF #1 sites for concentrations of TDS and major cations and anions using EPA approved methods and QA/QC.
 7. All wastes generated during the investigation shall be disposed of at an OCD approved facility.
 8. TC will submit the results the investigation and sampling activities to the OCD in the subsequent annual report for each site which is due on April 1, 2004. The report will present the investigation and sampling work for each site as a separate case report. Each case report will contain the following information:
 - a. A description of the investigation activities which occurred including conclusions and recommendations.
 - b. A geologic/lithologic log and well completion diagram for each newly installed monitor well.
 - c. A contoured ground water potentiometric map of each site, for each sampling event, showing the direction and magnitude of the hydraulic gradient, the location of the pits, tanks, monitor wells, recovery wells and any other pertinent site features.

Mr. Larry G. Sugano
May 21, 2003
Page 3

- d. Summary tables of all past and present ground water quality sampling results and copies of all recent laboratory analytical data sheets and associated QA/QC data.
- e. If ground water recovery is occurring at the site, the volume of ground water and volume of product recovered to date.
- f. The disposition of all wastes generated.

Please be advised that OCD approval does not limit TC to the proposed work plan if the plan fails to adequately determine the extent of contamination or if contamination exists which is outside the scope of the plan. In addition, OCD approval does not relieve TC of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions, please call me at (505) 476-3491.

Sincerely,



William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Office
Cody Morrow, NM State Land Office
Mike Griffin, Whole Earth Environmental, Inc.

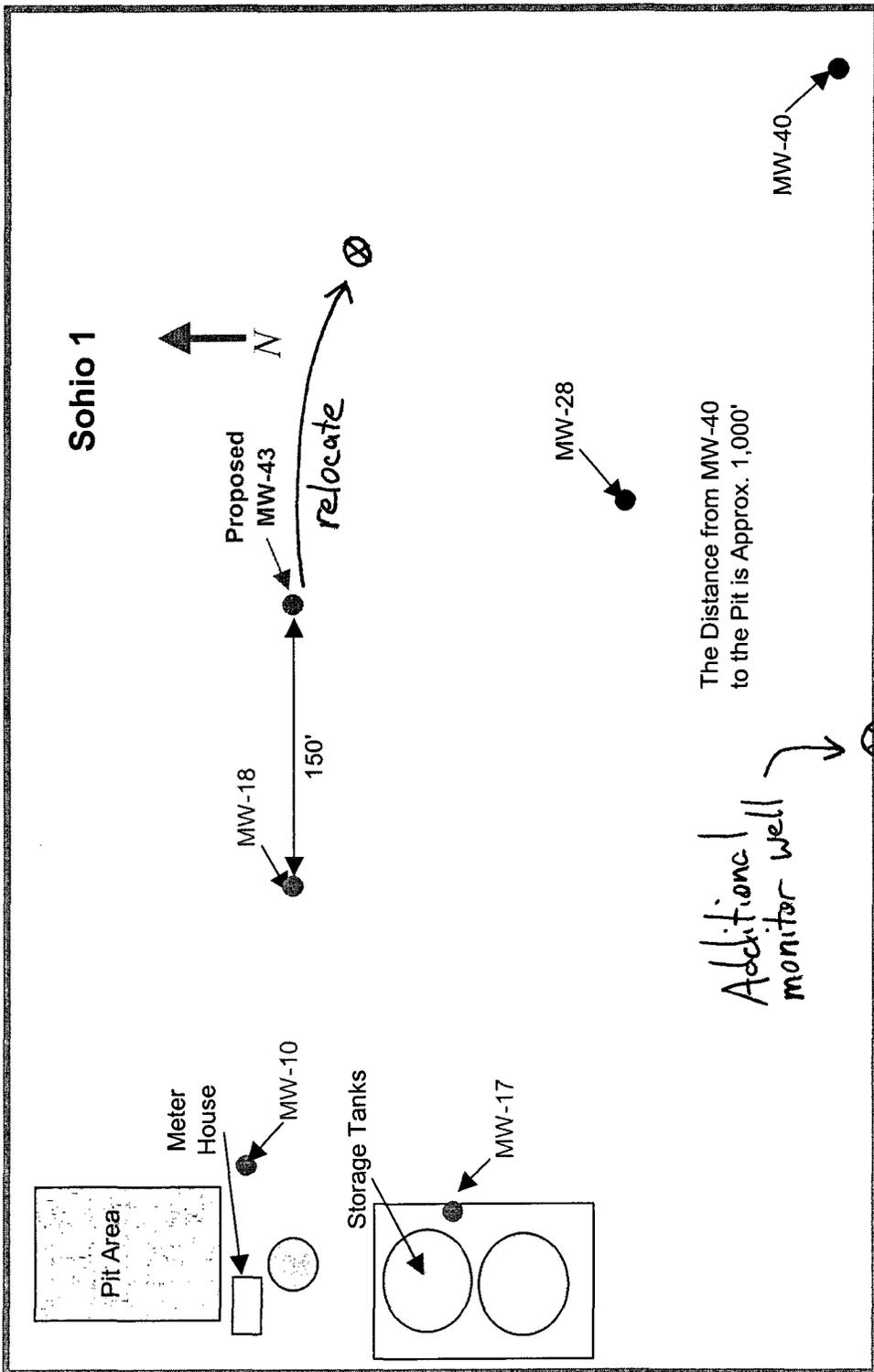
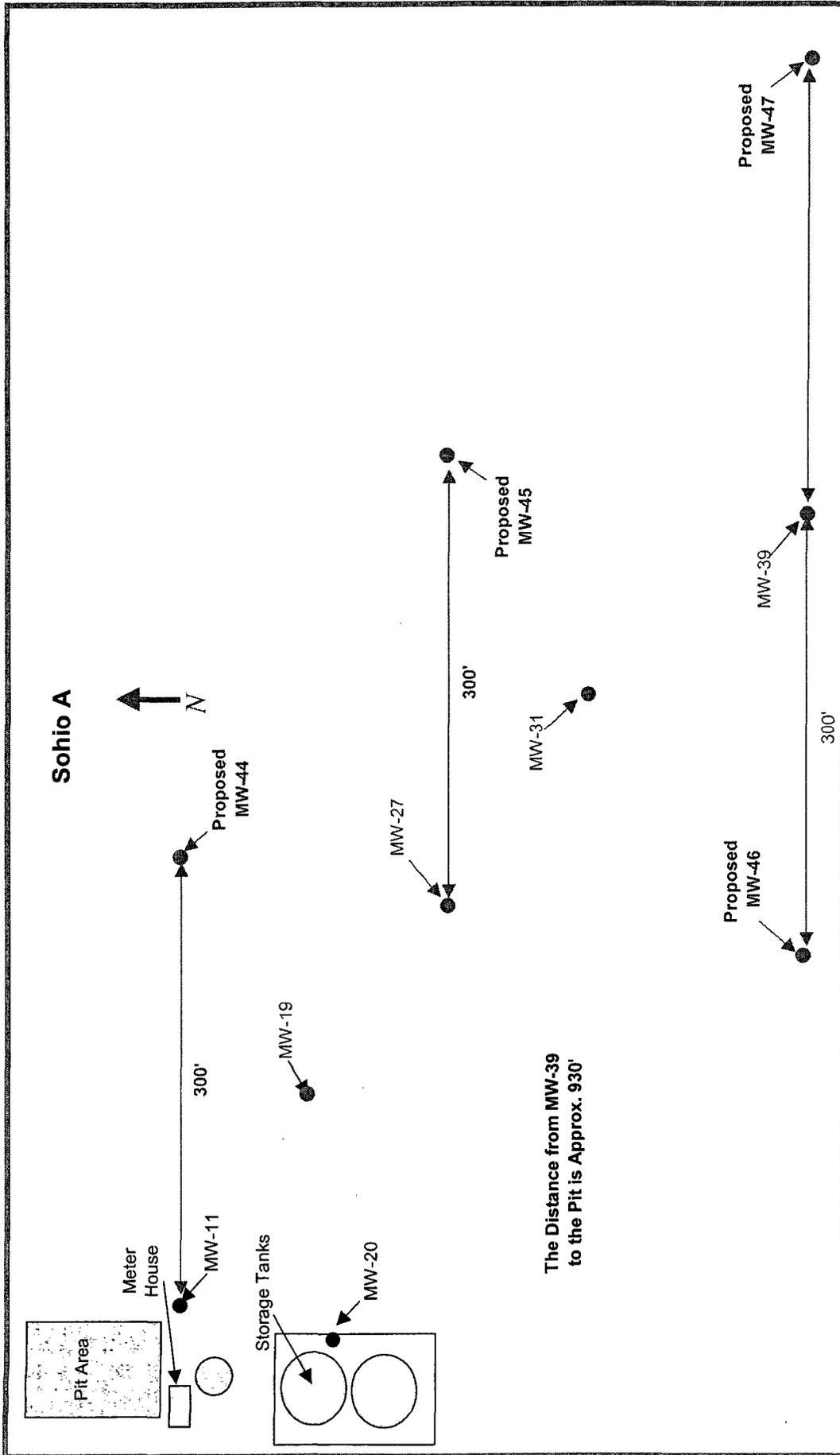


Figure # 1



The Distance from MW-39 to the Pit is Approx. 930'

Additional monitor well

⊗

Figure # 2

Olson, William

From: Mike Griffin [whearth@iamerica.net]
Sent: Tuesday, May 06, 2003 9:27 PM
To: Bill Olson
Cc: Larry Sugano
Subject: Tatum Pit Closure Project Your Letter of 4-21-03



Site Locations.jpg



Plat Map - Bell State
A.xls



Plat Map - NBF.xls



Plat Map - Sohio
1.xls



Plat Map - Sohio
A.xls

Good Morning, Bill:

I'm in receipt of your above letter and have a few questions or comments. It would probably be easiest for all concerned to go down your list in order.

1. You requested that future filings have a contoured ground water potentiometric map. We've included the map within this submittal.

2. You requested that we analyze each well - each quarter for TDS and major cat and anions. These analyses were performed at the time each well was drilled and we've a good baseline of their concentrations. With the sole exception of the Collier site, the non-organics were found to be within limits. In order to receive closure for each site, we will be required to pass the full NMWQCC spectrum of contaminants of concern including these minerals. At the present time, our main concern in each Tatum site location is benzene, (indeed all of the other BTEX constituents are within limits in all wells).

I would ask that you consider allowing us to continue our existing program for BTEX only until time of final closure. (Though I'll willingly concede the prudence of testing Collier at least annually and even quarterly if the concentrations show any significant increase over the original baselines).

3. You requested that we measure the phase-separated hydrocarbons where present. We can do so on all but the recovery wells.

4. You requested that we conduct further delineation on Bell, Sohio A, Sohio 1 and NBF. We propose to comply as follows:

a. Attached, please find copies of the plat map for each well site in question marked up to include our proposed new well locations. The existing well locations are all shown along with the locations of the major equipment. Existing wells with acceptable concentrations are shown in blue, and the wells with benzene concentrations exceeding NMWQCC standards are in red.

b. The wells will be constructed as are all others within the field. Drilled 2" dia. with a minimum of 10' of screen into the table and 5" of screen above the table. The surface will be flush mounted with a bolted steel cap. No cuttings will be allowed into the hole.

c. We propose to sample each well - each quarter in accordance with the existing sampling plan. The initial testing will include BTEX, major cat and anions, and TDS. Assuming that the minerals are within acceptable limits, subsequent tests will be for BTEX only.

d. We propose to begin drilling on or about May 15th. And will submit a report within two weeks of the receipt of the laboratory analytical results.

Thank you in advance for what I know will be prompt response.

WHOLE EARTH ENVIROMENTAL, INC.

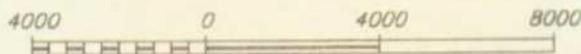
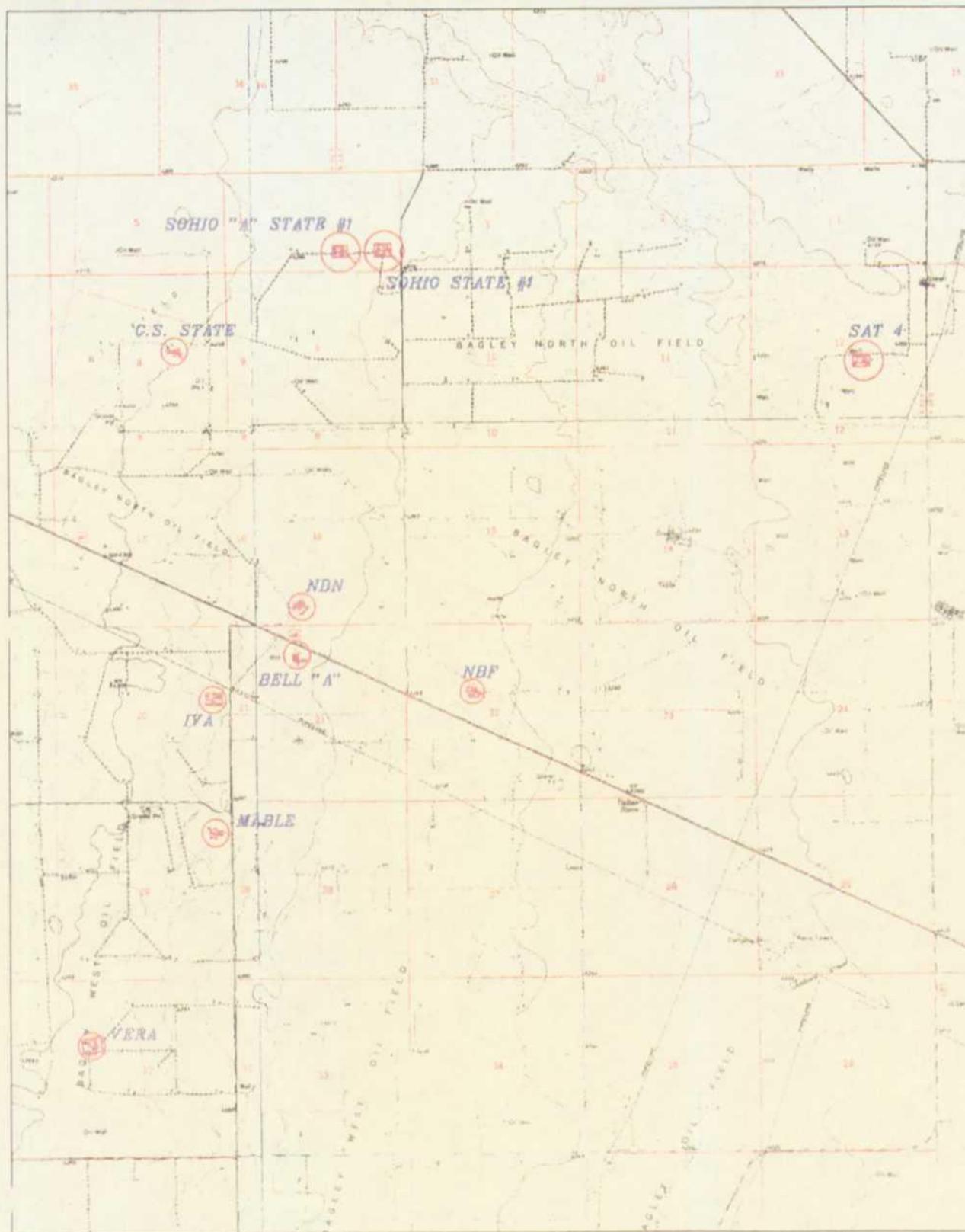


EXHIBIT 9

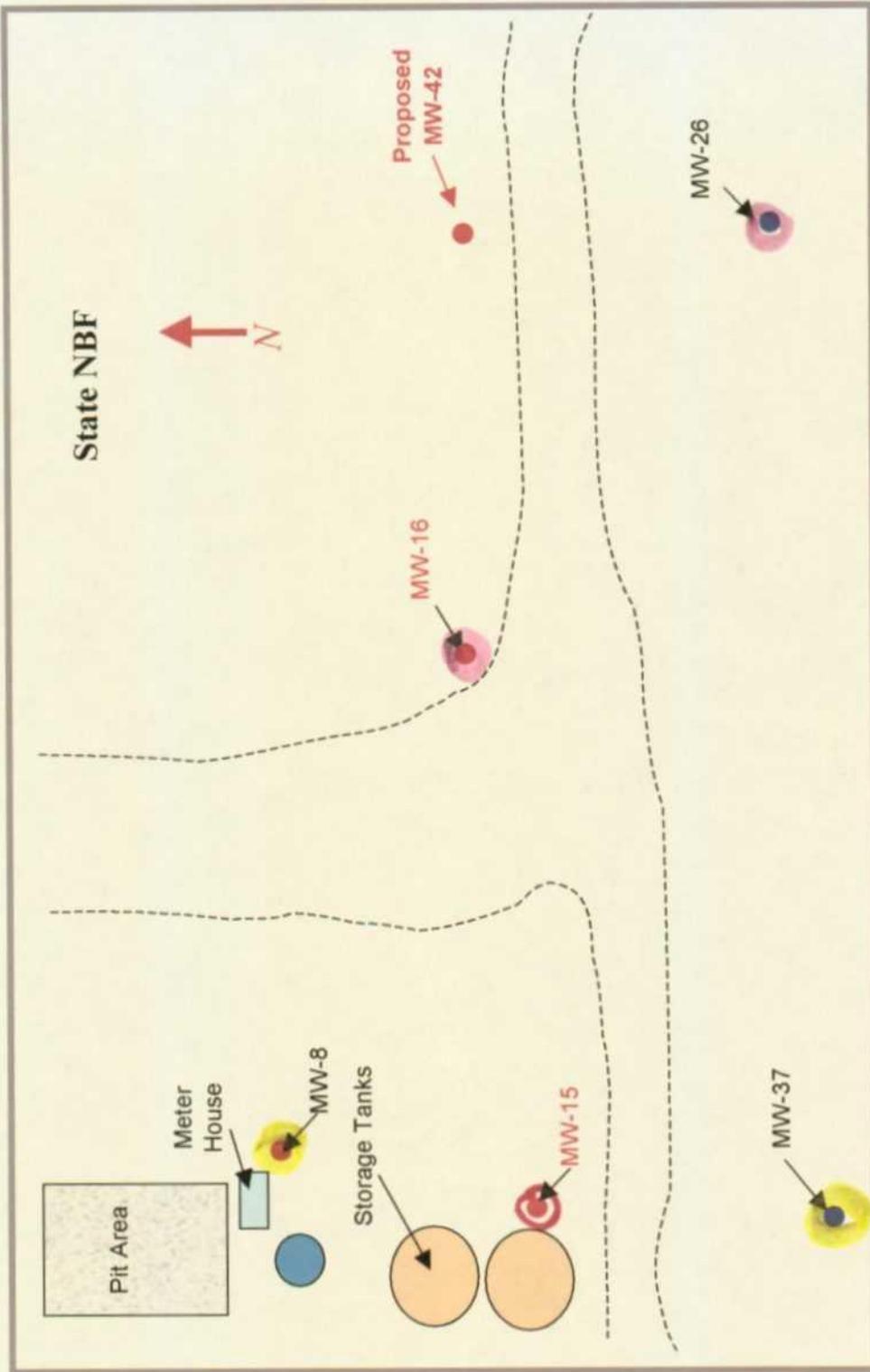
BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 9352

Drawn By: K. GOAD

Date: 10-21-99

Disk: KJG #122 - WE9352.DWG





NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON

Governor

Joanna Prukop

Cabinet Secretary

Lori Wrotenbery

Director

Oil Conservation Division

April 21, 2003

Mr. Larry G. Sugano
Tipperary Corporation
633 Seventeenth St., Suite 1550
Denver, Colorado 80202

**RE: TATUM PIT CLOSURE PROJECT
LEA COUNTY, NEW MEXICO**

Dear Mr. Sugano:

The New Mexico Oil Conservation Division (OCD) has reviewed Tipperary Corporation's (TC) February 12, 2003 "PROGRESS REPORT FOR YEAR 2002, TATUM PIT CLOSURE PROJECT, LEA COUNTY, NEW MEXICO". This document contains the results of TC's 2002 ground water quality monitoring and additional investigations of the extent of ground water contamination at the Bell State "A" (Case #1R260), Gulf State #1 (Case #1R262), Iva Com #1 (Case #1R263), Mabel Com #1 (Case #1R264), Sohio State #1 (Case # 1R267), Sohio State "A" (Case #1R268), State NBF #1 (Case #1R269) and Collier #1 (Case # AP-32) sites west of Tatum, New Mexico.

The OCD has the following comments and requirements concerning the above referenced documents:

1. The reports do not include a contoured ground water potentiometric map of each site, for each sampling event, showing the direction and magnitude of the hydraulic gradient. The OCD has required this information for all monitoring reports as a condition of approval of previous work plans. Please provide such a map for each site from the last monitoring event in calendar year 2002. In future reports, for each sampling event, TC shall include a contoured ground water potentiometric map of each site showing the direction and magnitude of the hydraulic gradient.
2. A review of site data shows that, at most of the sites, chloride and total dissolved solids (TDS) have been observed in ground water downgradient of the pits in concentrations in excess of New Mexico Water Quality Control Commission (WQCC) standards. Therefore, the OCD requires that all future ground water samples from each monitor well, during each sampling event, also be analyzed for concentrations of TDS and major cations and anions using EPA approved methods and quality assurance/quality control procedures.

Larry G. Sugano
April 21, 2003
Page 2

3. The reports note that phase-separated hydrocarbons (PSH) are present in some monitor wells, however, the OCD cannot evaluate the effectiveness of the recovery systems since the amount of PSH in each monitor or recovery well is not reported. In future reports please include tables showing the thickness of PSH, measured to the nearest 0.01 of a foot, in each monitor and recovery well during all past and present monitoring events.
4. A review of the analytical data shows that the lateral and/or downgradient extent of ground water contamination in excess of WQCC standards has still not been completely defined at the Bell State "A", Sohio State #1, Sohio State "A", and State NBF #1 sites. The OCD requires that TC submit work plans to complete the investigation of the extent of ground water contamination at these sites. The work plans shall include:
 - a. A map of each site showing proposed monitor well locations to accomplish the above task.
 - b. Proposed monitor well construction details.
 - c. A proposed ground water sampling plan.
 - d. A schedule for implementation of the plan and submission of an investigation report.

Please submit the information and work plans required in above items 1 and 4 to the OCD Santa Fe Office by June 21, 2003 with a copy provided to the OCD Hobbs District Office.

The investigation actions at the Collier #1 site are being conducted under an abatement plan pursuant to OCD Rule 19. The Stage 1 investigation proposal for the site is currently within a public comment period. The OCD reserves comment on the Collier #1 site until the public comment period for the Stage 1 investigation proposal has been completed.

If you have any questions, please call me at (505) 476-3491.

Sincerely,



William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Office
Mike Griffin, Whole Earth Environmental, Inc.

Olson, William

From: Olson, William
Sent: Monday, March 04, 2002 9:59 AM
To: 'Mike Griffin'
Cc: Johnson, Larry; Sheeley, Paul
Subject: RE: Tipperary Bagley Field

The below-referenced extension request is approved. If you have any questions, please contact me.

Sincerely,

William C. Olson
New Mexico Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505
(505) 476-3491

=====

-----Original Message-----
From: Mike Griffin [mailto:whearth@iAmerica.net]
Sent: Thursday, February 28, 2002 7:47 AM
To: bill olson
Cc: larry sugano
Subject: Tipperary Bagley Field

Bill:

We are now preparing the field platmaps showing both contours and the proposed location of the new wells. It should be ready early next week. Could you please extend our deadline to March 15?

Mike Griffin



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Betty Rivera
Acting Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

February 13, 2002

CERTIFIED MAIL
RETURN RECEIPT NO. 7001-1940-0004-3929-7143

Mr. Larry G. Sugano
Tipperary Corporation
633 Seventeenth St., Suite 1550
Denver, Colorado 80202

**RE: TATUM PIT CLOSURE PROJECT
LEA COUNTY, NEW MEXICO**

Dear Mr. Sugano:

On November 2, 2001, the New Mexico Oil Conservation Division (OCD) sent Tipperary Corporation (TC) correspondence stating that an OCD review of TC's April 19, 2001 correspondence, December 7, 2000 "PROGRESS REPORT FOR YEAR 2000, TATUM PIT CLOSURE PROJECT, LEA COUNTY, NEW MEXICO" and November 29, 1999 "JULY 1999 PROGRESS REPORT, OCTOBER 1999 PROGRESS REPORT, TATUM PIT CLOSURE PROJECT, LEA COUNTY, NEW MEXICO" shows that the downgradient extent of ground water contamination at the sites listed below had not been determined:

- Bell State "A" (Case #1R260)
- Gulf State #1 (Case #1R262)
- Iva Com #1 (Case #1R263)
- Mabel Com #1 (Case #1R264)
- Satellite #4 (Case #1R266)
- Sohio State #1 (Case # 1R267)
- Sohio State "A" (Case #1R268)
- State NBF #1 (Case #1R269)

The OCD's correspondence required that a work plan to complete the investigation of the extent of ground water contamination be submitted by December 7, 2001. On November 19, 2001, TC's consultant, Whole Earth Environmental, provided additional information and requested that TC not be required to install additional monitor wells at 3 of the sites. The OCD approved TC's request for 2 of the sites, the Iva Com #1 and Satellite #4 sites, on January 22, 2001. However, to date, the OCD has not received the required work plan.

Larry G. Sugano
February 13, 2002
Page 2

In order to correct this deficiency, the OCD requires that TC submit the work plan to complete the investigation of the extent of contamination at these sites to the OCD Santa Fe Office by March 1, 2002 with copy provided to the OCD Hobbs District Office. The work plan shall include:

1. A contoured ground water potentiometric map of each site showing proposed monitor well locations and the location of the former pit, excavated areas, existing monitor wells and other relevant site information.
2. Proposed monitor well construction details.
3. A proposed ground water sampling plan.
4. A schedule for implementation of the plan and submission of an investigation report.

If you have any questions, please call me at (505) 476-3491.

Sincerely,



William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Office
Mike Griffin, Whole Earth Environmental, Inc.



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

November 2, 2001

CERTIFIED MAIL
RETURN RECEIPT NO. 5357-8024

Mr. Larry Sugano
Tipperary Corporation
633 Seventeenth St., Suite 1550
Denver, Colorado 80202

**RE: TATUM PIT CLOSURE PROJECT
LEA COUNTY, NEW MEXICO**

Dear Mr. Sugano:

The New Mexico Oil Conservation Division (OCD) has completed a review of Tipperary Corporation's (TC) April 19, 2001 correspondence, December 7, 2000 "PROGRESS REPORT FOR YEAR 2000, TATUM PIT CLOSURE PROJECT, LEA COUNTY, NEW MEXICO" and November 29, 1999 "JULY 1999 PROGRESS REPORT, OCTOBER 1999 PROGRESS REPORT, TATUM PIT CLOSURE PROJECT, LEA COUNTY, NEW MEXICO". These documents contains the results of monitoring of ground water contamination related to the closure of unlined pits west of Tatum, New Mexico during the prior 2 years.

The remediation and monitoring actions conducted to date are satisfactory. However, a review of the monitoring data shows that the downgradient extent of ground water contamination at the following sites has not been determined:

- Bell State "A" (Case #1R260)
- Gulf State #1 (Case #1R262)
- Iva Com #1 (Case #1R263)
- Mabel Com #1 (Case #1R264)
- Satellite #4 (Case #1R266)
- Sohio State #1 (Case # 1R267)
- Sohio State "A" (Case #1R268)
- State NBF #1 (Case #1R269)

Larry G. Sugano
November 2, 2001
Page 2

Therefore, the OCD requires that TC submit a work plan to complete the investigation of the extent of contamination at these sites. The work plan shall be submitted to the OCD Santa Fe Office by December 7, 2001 with copy provided to the OCD Hobbs District Office and shall include:

1. A contoured ground water potentiometric map of each site showing proposed monitor well locations and the location of the former pit, excavated areas, existing monitor wells and other relevant site information.
2. Proposed monitor well construction details.
3. A proposed ground water sampling plan.
4. A schedule for implementation of the plan and submission of an investigation report.

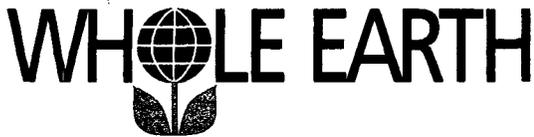
If you have any questions, please call me at (505) 476-3491.

Sincerely,

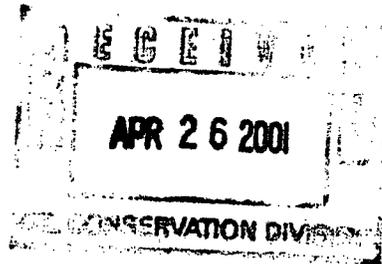


William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Office
Mike Griffin, Whole Earth Environmental, Inc.



Whole Earth Environmental, Inc.
19606 San Gabriel, Houston, Texas 77084
281/492-7077 • Fax: 281/646-8996



April 19, 2001

New Mexico Oil Conservation Division
1220 South St. Francis Drive
Sante Fe, NM 87505

Attn: Bill Olson

Dear Bill:

We are in receipt of your letter dated March 15, 2001 concerning the Tatum pit closure project and have prepared the following response:

Request # 1

A review of the OCD's files shows that TC has never responded to the OCD's August 6, 1999 correspondence requiring information related to the remediation and monitoring of contaminated ground water at TC's Tatum Pit closure sites.

Response

Tipperary Corporation did indeed respond to your request and sent copies to both Sante Fe and Hobbs in October, 1999. We duplicated the Hobbs office copy yesterday and re-sent it to you via UPS.

Request # 2

The report does not contain a water potentiometric map for each sampling event at each site which shows the location of the pit and excavated areas, the surveyed locations of all monitor wells and recovery wells and any other pertinent site features as well as the direction and magnitude of the hydraulic gradient created using the water table elevation in each monitoring well.

Response

Though the requested information is contained within the afore mentioned report, we are including it once again in this transmittal.

Request # 3

The report does not contain information on the quarterly volume of ground water and product recovered at each site nor the total volume recovered at each site to date.

Response

As stated in our October 1999 response, our collection and disposal system does not allow us to accurately measure either the total volume of water produced by the windmills or the oil / water ratio. We propose to install flow meters between the collection tanks and the downstream check valves leading into the Burro Pipeline disposal system at each location so as to capture total fluid volumes. We



further propose to collect samples directly from the lines coming from the windmills into a large graduated cylinder in order to determine the oil / water ratios. These results will be collected quarterly and reported annually.

Request # 4

The report does not contain information on the free product thickness in all wells containing products.

Response

We've not been asked to provide such information in the past. We do however plan to provide you with the information in the future and have resultantly purchased a new Waterra ultrasonic oil / water LNAPL / DNAPL interface meter expressly for this purpose.

Thank you again for your interest in this project. We will continue to strive to provide you with accurate information for your future evaluations.

Warmest regards,

Mike Griffin
President

Whole Earth Environmental, Inc.

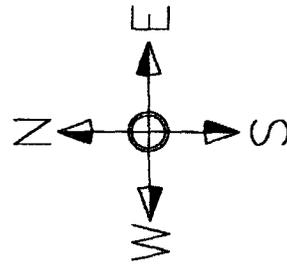
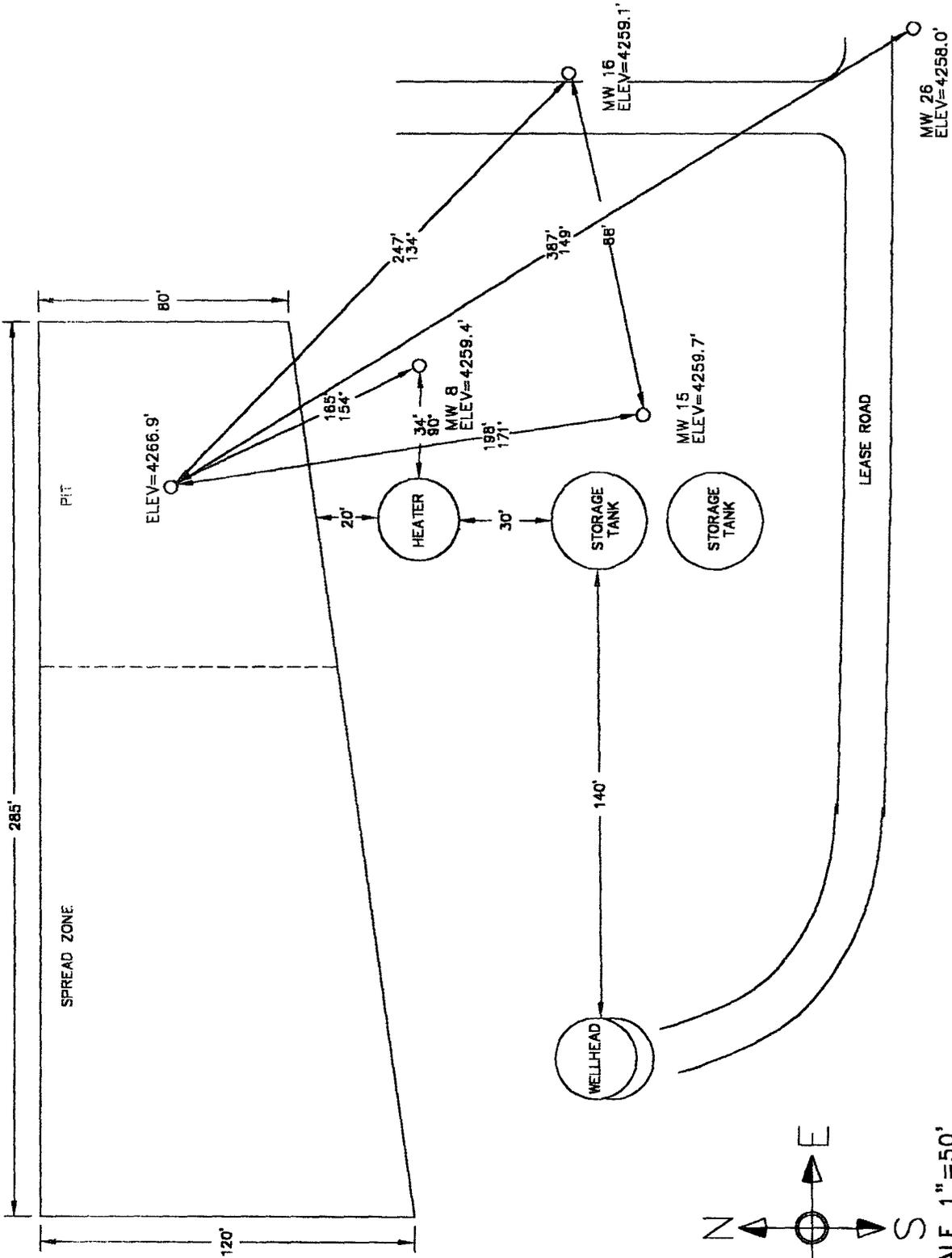
COORDINATE FILE : TIPARARY.CRD

I COORDINATES

| | PT# | NORTH | EAST | ELEV |
|----------------------|-----|------------|------------|---------|
| SOHIO A STATE 1 PIT | 253 | 870084.293 | 760084.206 | 4286.84 |
| SOHIO A STATE 1 MW11 | 254 | 869981.125 | 760134.902 | 4285.88 |
| SOHIO A STATE 1 MW19 | 255 | 869974.033 | 760205.397 | 4285.97 |
| SOHIO A STATE 1 MW28 | 256 | 869892.771 | 760255.240 | 4285.61 |
| SOHIO A STATE 1 MW31 | 257 | 869667.200 | 760452.460 | 4283.54 |
| SOHIO STATE 1 PIT | 258 | 870105.632 | 761381.498 | 4285.42 |
| SOHIO STATE 1 MW10 | 259 | 870027.049 | 761459.334 | 4283.63 |
| SOHIO STATE 1 MW17 | 260 | 869969.168 | 761443.837 | 4283.31 |
| SOHIO STATE 1 MW18 | 261 | 870017.865 | 761533.683 | 4283.59 |
| SOHIO STATE 1 MW28 | 262 | 869892.594 | 761534.416 | 4283.21 |
| SOHIO STATE 1 MW30 | 263 | 869677.360 | 761728.469 | 4281.13 |
| VERA 1 PIT | 264 | 846366.089 | 752525.766 | 4289.49 |
| VERA #1 MW5 | 265 | 846217.026 | 752582.067 | 4298.90 |
| STATE NBF 1 PIT | 266 | 856893.939 | 764024.682 | 4266.86 |
| STATE NBF 1 MW8 | 267 | 856806.388 | 764165.403 | 4259.41 |
| STATE NBF 1 MW15 | 268 | 856747.667 | 764157.788 | 4259.68 |
| STATE NBF 1 MW16 | 269 | 856774.041 | 764241.604 | 4259.06 |
| STATE NBF 1 MW26 | 270 | 856658.728 | 764331.675 | 4258.04 |
| BELL A 1 PIT | 271 | 857796.692 | 758625.535 | 4279.64 |
| BELL A 1 MW6 | 272 | 857857.556 | 758583.503 | 4281.12 |
| BELL A 1 MW13 | 273 | 857754.617 | 758597.054 | 4280.84 |
| BELL A 1 MW14 | 274 | 857821.944 | 758664.690 | 4280.80 |
| BELL A 1 MW25 | 275 | 857614.080 | 758714.518 | 4280.37 |
| GS STATE 1 SOURCE | 276 | 867037.530 | 755087.975 | 4307.00 |
| GS STATE 1 MW21 | 277 | 866953.249 | 755213.712 | 4303.08 |
| GS STATE 1 MW22 | 278 | 866905.186 | 755154.733 | 4302.77 |
| GS STATE 1 MW29 | 279 | 866798.038 | 755260.271 | 4303.20 |
| GS STATE 1 MW? | 280 | 867001.862 | 755131.639 | 4303.27 |
| MABEL COM 1 SOURCE | 281 | 852659.555 | 756329.277 | 4290.55 |
| MABEL COM 1 MW3 | 282 | 852517.536 | 756370.356 | 4287.22 |
| MABEL COM 1 MW4 | 283 | 852592.288 | 756473.774 | 4287.46 |
| STATE NBN 1 PIT | 284 | 859499.318 | 758793.854 | 4282.45 |
| STATE NBN 1 MW7 | 285 | 859397.517 | 758825.203 | 4281.59 |
| SATELLITE 4 MW9 | 286 | 866587.512 | 775890.421 | 4208.66 |
| SATELLITE 4 MW23 | 287 | 866507.846 | 775901.105 | 4209.03 |
| SATELLITE 4 MW24 | 288 | 866562.481 | 775964.699 | 4208.64 |
| IVA COM 1 SOURCE | 289 | 856721.216 | 756252.189 | 4298.42 |
| IVA COM 1 MW1 | 290 | 856654.035 | 756344.507 | 4292.10 |
| IVA COM 1 MW2 | 291 | 856695.146 | 756388.036 | 4291.93 |

HORIZONTAL DATUM NAD 83
 VERTICAL DATUM NAVD 88

NBF



SCALE 1" = 50'

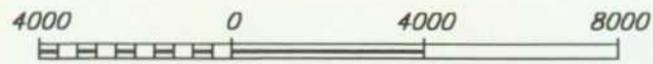
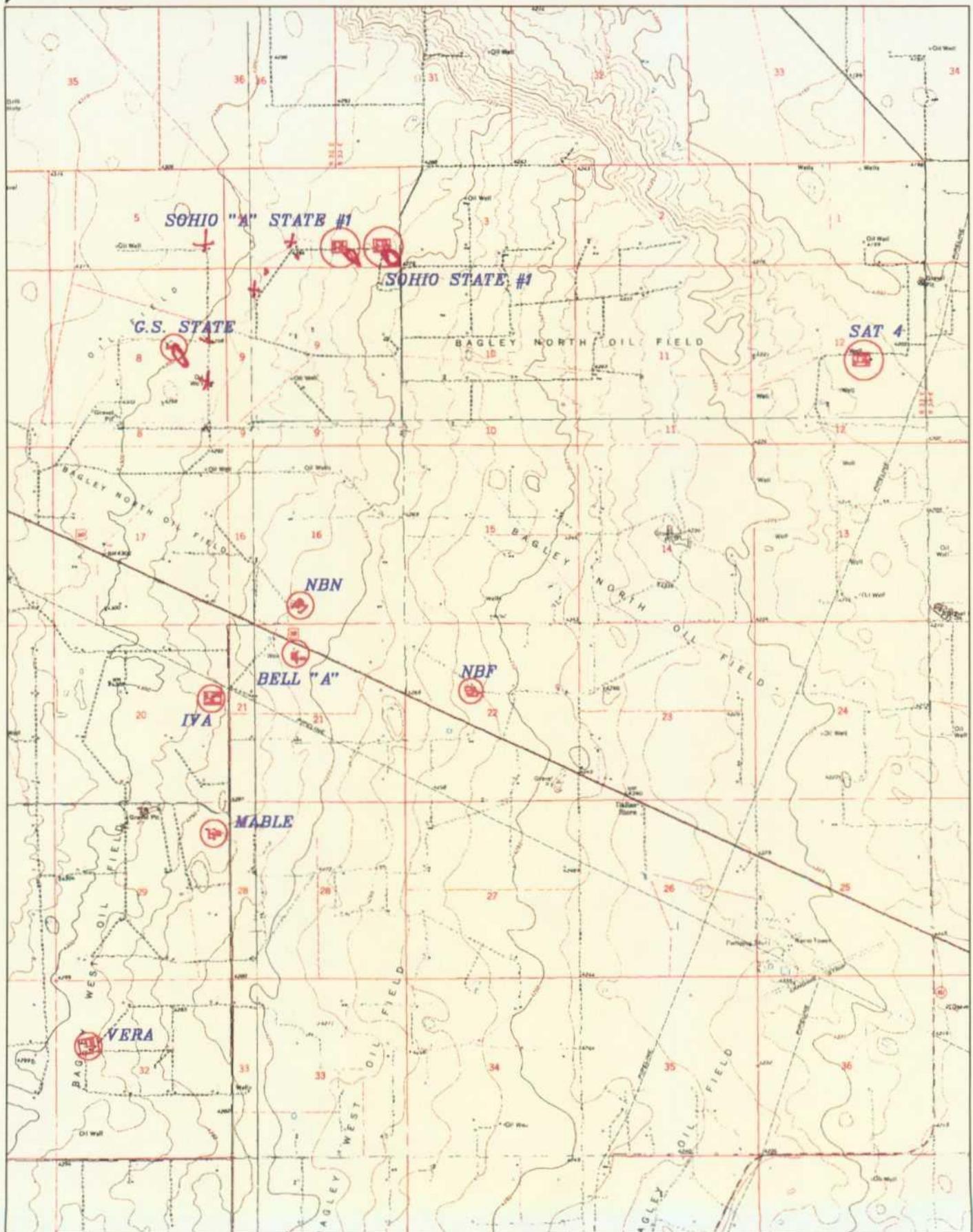


**Tipperary Corporation
Tatum Pit Closure Project
Monitor Well Water Elevation Table**

| Well Name | Monitor Well No. | Surface Elevation | Date Well Drilled | Water Depth @ Drill Date | Water Elevation | Water Depth @ 8/9/99 | Water Elev. @ 8/9/99 | Water Depth @ 10/21/99 | Water Elev. @ 10/21/99 | Depth Change Aug./Oct. 99 | Distance to Pit Center (ft) | Gradient (Ft./ Ft.) | Gradient (Ft./100 Ft.) |
|------------|------------------|-------------------|-------------------|--------------------------|-----------------|----------------------|----------------------|------------------------|------------------------|---------------------------|-----------------------------|---------------------|------------------------|
| Iva | 1 | 4,298.42 | Aug-97 | 52.0 | 4,246.42 | 48.83 | 4,243.27 | 51.75 | 4,240.35 | 2.92 | 115 | 0.080174 | 8.02 |
| | 2 | 4,291.93 | Aug-97 | 53.0 | 4,238.93 | 48.17 | 4,243.76 | 51.60 | 4,240.43 | 2.33 | 140 | 0.053500 | 5.35 |
| | 3 | 4,290.65 | Aug-97 | 52.0 | 4,238.55 | 48.75 | 4,238.47 | 52.50 | 4,234.72 | 3.75 | 148 | 0.022500 | 2.25 |
| | 4 | 4,287.22 | Aug-97 | 52.0 | 4,235.22 | 48.58 | 4,238.88 | 51.75 | 4,235.71 | 3.17 | 160 | 0.019313 | 1.93 |
| Vera | 5 | 4,292.98 | Aug-97 | 52.0 | 4,289.90 | 61.50 | 4,237.40 | | | | 159 | -0.037233 | -3.72 |
| | 6 | 4,288.90 | Aug-97 | 63.0 | 4,236.90 | 42.13 | 4,238.99 | 43.01 | 4,238.11 | 0.88 | 93 | 0.021183 | 2.12 |
| Bell | 13 | 4,281.12 | Aug-97 | 51.0 | 4,230.12 | 40.83 | 4,240.01 | 43.66 | 4,237.18 | 2.83 | 51 | 0.044118 | 4.41 |
| | 14 | 4,280.84 | Oct-97 | 47.8 | 4,233.04 | 43.00 | 4,237.80 | 43.50 | 4,237.30 | 0.50 | 471 | 0.048723 | 4.87 |
| | 25 | 4,280.80 | Oct-97 | 48.3 | 4,232.50 | 43.50 | 4,236.87 | 43.50 | 4,236.87 | 0.00 | 154 | 0.017662 | 1.77 |
| | 26 | 4,280.37 | Mar-99 | 47.4 | 4,232.97 | 43.50 | 4,236.87 | 43.50 | 4,236.87 | 0.00 | 107 | 0.008037 | 0.80 |
| NBN | 7 | 4,282.45 | Aug-97 | 50.0 | 4,231.59 | 43.50 | 4,238.09 | | | | | | |
| | 8 | 4,281.59 | Aug-97 | 50.0 | 4,231.59 | 43.50 | 4,238.09 | | | | | | |
| NBF | 8 | 4,286.86 | Aug-97 | 48.0 | 4,286.86 | 35.75 | 4,223.66 | 35.75 | 4,223.66 | 0.00 | 165 | 0.049152 | 4.52 |
| | 15 | 4,259.41 | Aug-97 | 47.0 | 4,212.68 | 34.75 | 4,224.93 | 37.00 | 4,222.68 | 2.25 | 198 | 0.036283 | 3.63 |
| | 16 | 4,259.06 | Oct-97 | 47.1 | 4,211.96 | 36.00 | 4,223.06 | 36.10 | 4,222.96 | 0.10 | 247 | 0.031579 | 3.16 |
| | 26 | 4,258.04 | Mar-99 | 43.0 | 4,215.04 | 34.75 | 4,223.29 | 34.80 | 4,223.44 | -0.15 | 387 | 0.022791 | 2.28 |
| | 10 | 4,285.42 | Aug-97 | 50.0 | 4,285.42 | 44.50 | 4,233.63 | 44.90 | 4,238.73 | 0.40 | 110 | 0.016273 | 1.63 |
| | 17 | 4,283.31 | Oct-97 | 49.4 | 4,233.91 | 44.00 | 4,239.31 | 44.50 | 4,238.81 | 0.50 | 262 | 0.008053 | 0.81 |
| Sohio # 1 | 18 | 4,283.59 | Oct-97 | 48.6 | 4,234.99 | 43.75 | 4,238.84 | 44.10 | 4,239.49 | 0.35 | 176 | 0.010398 | 1.04 |
| | 28 | 4,283.21 | Mar-99 | 46.3 | 4,236.96 | 35.00 | 4,245.21 | 44.16 | 4,239.06 | 9.15 | 552 | 0.040004 | 4.00 |
| | 30 | 4,281.13 | Aug-99 | 45.3 | 4,235.92 | 45.31 | 4,235.82 | 44.10 | 4,237.03 | -1.21 | 776 | 0.005528 | 0.55 |
| | 11 | 4,286.84 | Aug-97 | 50.0 | 4,286.84 | 35.25 | 4,247.63 | 35.50 | 4,247.38 | 0.25 | 115 | 0.008348 | 0.83 |
| | 19 | 4,285.88 | Aug-97 | 50.0 | 4,235.88 | 32.50 | 4,253.47 | 35.15 | 4,250.82 | 2.65 | 164 | 0.005305 | 0.53 |
| | 20 | 4,285.97 | Sep-97 | 48.7 | 4,237.27 | 32.50 | 4,253.47 | 35.15 | 4,250.82 | 2.65 | 164 | 0.005305 | 0.53 |
| Sohio "A" | 27 | 4,285.61 | Mar-99 | 40.0 | 4,245.61 | 36.83 | 4,248.78 | 36.20 | 4,247.41 | 1.37 | 264 | 0.004659 | 0.47 |
| | 31 | 4,283.54 | Aug-99 | 37.5 | 4,246.09 | 37.45 | 4,246.09 | 38.90 | 4,244.64 | 1.45 | 624 | 0.005288 | 0.53 |
| | 12 | 4,303.27 | Aug-97 | 48.0 | 4,255.27 | 42.75 | 4,260.62 | 42.90 | 4,260.37 | 0.15 | 52 | 0.071731 | 7.17 |
| | 21 | 4,303.08 | Oct-97 | 48.0 | 4,255.08 | 43.25 | 4,259.83 | 43.66 | 4,259.42 | 0.41 | 151 | 0.025960 | 2.60 |
| | 22 | 4,302.77 | Oct-97 | 47.5 | 4,255.27 | 43.50 | 4,259.27 | 43.90 | 4,258.87 | 0.40 | 148 | 0.025203 | 2.52 |
| | 29 | 4,303.20 | Mar-99 | 49.1 | 4,254.14 | 44.00 | 4,259.20 | 44.25 | 4,258.96 | 0.25 | 295 | 0.016476 | 1.65 |
| G.S. State | 9 | 4,208.66 | Aug-97 | 31.0 | 4,177.66 | 26.17 | 4,182.49 | 26.75 | 4,181.91 | 0.58 | 80 | 0.035375 | 3.54 |
| | 23 | 4,209.03 | Oct-97 | 28.0 | 4,181.03 | 26.25 | 4,182.78 | 27.15 | 4,181.88 | 0.90 | 158 | 0.015570 | 1.56 |
| | 24 | 4,208.64 | Oct-97 | 28.9 | 4,179.74 | 26.08 | 4,182.56 | 26.45 | 4,182.19 | 0.37 | 150 | 0.019000 | 1.90 |
| | 24 | 4,208.64 | Oct-97 | 28.9 | 4,179.74 | 26.08 | 4,182.56 | 26.45 | 4,182.19 | 0.37 | 150 | 0.019000 | 1.90 |

Note: Vera, Bell and Satellite 4 had significant subsidence within the pit area. The red elevations include an added 3.49' (Ave. of seven other sites) Correct elevations noted in column 6.

WHOLE EARTH ENVIRONMENTAL, INC.



BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 9352
Date: 10-21-99

Drawn By: K. GOAD
Disk: KJG #122 - WE9352.DWG



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

August 6, 1999

CERTIFIED MAIL
RETURN RECEIPT NO. Z-274-520-689

Mr. Larry G. Sugano
Tipperary Corporation
633 Seventeenth St., Suite 1550
Denver, Colorado 80202

RE: TATUM PIT CLOSURES

Dear Mr. Sugano:

The New Mexico Oil Conservation Division (OCD) has reviewed Tipperary Corporation's (TC) April 27, 1999 "APRIL 1999 PROGRESS REPORT, TATUM PIT CLOSURE PROJECT, LEA COUNTY, NEW MEXICO". This document contains the results of TC's monitoring of ground water contamination related to the closure of 10 unlined pits west of Tatum, New Mexico. The document also requests final closure of the remedial actions related to unlined pits at the State NBN #1 and Vera #1 sites and proposes modifications to the ground water sampling program.

In order to complete a review of the above referenced closure requests and sampling modifications, the OCD requires that TC submit the following information, with all maps, tables and data segregated into separate case files for each site:

1. A water table potentiometric map for each site which shows the location of the pit and excavated areas, the surveyed locations of all monitor wells and recovery wells and any other pertinent site features as well as the direction and magnitude of the hydraulic gradient created using the water table elevation in each monitor well. On March 29, 1999, the OCD required that TC submit this information. The above referenced document states that TC was preparing the maps. To date the OCD has not received this required information.
2. Tables of water table elevations in each monitor well during each sampling event. The document discusses seasonal fluctuations in the water table as responsible for increases in contaminant concentrations in ground water. However, the supporting water table elevation vs. time data for each monitor well is not provided.
3. Tables of all past and present water quality sampling results for each ground water monitoring and recovery well as required in the OCD's January 15, 1999 conditions of approval. The document only contains analytical data for ground water monitoring wells that are currently being sampled.

Mr. Larry G. Sugano
August 6, 1999
Page 2

4. An explanation of the use of drill cuttings as backfill in the annular space above the bentonite plug in each newly constructed monitor well . This is a direct violation of the OCD's January 15, 1999 conditions of approval which required that the remainder of the annular space be grouted to the surface with cement containing 3-5% bentonite. As a result the monitor wells as constructed by TC are potentially direct conduits to ground water.
5. The monitor well development procedures and volumes for each monitor well.
6. The volume of ground water and product recovered to date at all sites with fluid recovery as required in the OCD's January 15, 1999 conditions of approval.
7. A completed OCD pit closure and remediation report form for each site requested for closure. Each form will contain a discussion and the results of all soil and ground water site closure activities including all soil analytical data from the excavations and the backfilled materials as well as figures showing all sample locations.

The above required information shall be submitted to the OCD Santa Fe Office by October 4, 1999 with a copy provided to the OCD Hobbs District Office. Submission of this information will allow the OCD to complete a review of TC's closure requests and proposed ground water sampling plan modifications.

If you have any questions or comments, please call me at (505) 827-7154.

Sincerely,



William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Office
Mike Matush, NM State Land Office
Mike Griffin, Whole Earth Environmental, Inc.



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

January 15, 1999

CERTIFIED MAIL
RETURN RECEIPT NO. Z-274-520-592

Mr. Larry Sugano
Tipperary Corporation
633 Seventeenth St., Suite 1550
Denver, Colorado 80202

**RE: TATUM PIT CLOSURES
LEA COUNTY, NEW MEXICO**

Dear Mr. Sugano:

The New Mexico Oil Conservation Division (OCD) has reviewed Tipperary Corporation's (TC) September 8, 1998 "WORK PLAN & 6/98 PROGRESS REPORT, TATUM PIT CLOSURE PROJECT, LEA COUNTY, NEW MEXICO". This document contains the results of TC's monitoring of ground water contamination related to the closure of 10 unlined pits west of Tatum, New Mexico. The document also contains TC's work plan for additional investigations through installation of monitor wells and ground water sampling.

The above referenced work plan is approved with the following conditions:

1. A sufficient number of monitor wells will be installed to determine the downgradient and lateral extent of ground water contamination at each site with either downgradient monitor wells which show ground water contamination in excess of standards or with evidence of contaminants migrating as a slug through the monitoring system.
2. Each monitor well will be constructed and completed as follows:
 - a. A minimum of 15 feet of well screen will be installed with 5 feet of well screen placed above the water table and 10 feet of well screen placed below the water table.
 - b. An appropriately sized gravel pack will be set in the annulus around the well screen from the bottom of the hole to 2-3 feet above the top of the well screen.

Mr. Larry G. Sugano
January 15, 1999
Page 2

- c. A 2-3 foot bentonite plug will be placed above the gravel pack.
 - d. The remainder of the hole will be grouted to the surface with cement containing 3-5% bentonite.
 - e. A concrete pad and locking well cover will be placed at the surface.
 - f. The well will be developed after construction using EPA approved procedures.
3. No less than 48 hours after the wells are developed, ground water from all monitor wells at each site will be purged, sampled and analyzed for concentrations of benzene, toluene, ethylbenzene, xylene (BTEX) major cations and anions, total dissolved solids (TDS), and New Mexico Water Quality Control Commission (WQCC) metals using EPA approved methods and quality assurance/quality control (QA/QC).
 4. All wastes generated during the investigation will be disposed of at an OCD approved facility.
 5. TC will submit a report on the investigations to the OCD by April 1, 1999. The report will be submitted to the OCD Santa Fe Office with a copy provided to the OCD Hobbs District Office. The report will present the investigation work for each site as a separate case report. Each case report will contain the following information:
 - a. A description of the investigation activities which occurred including conclusions and recommendations.
 - b. A geologic/lithologic log and well completion diagram for each monitor well.
 - c. A water table map showing the location of the pit, monitor wells, recovery wells and any other pertinent site features as well as the direction and magnitude of the hydraulic gradient created using the water table elevation from each monitor well.
 - d. Summary tables of all past and present ground water quality sampling results and copies of all recent laboratory analytical data sheets and associated QA/QC data.
 - e. If ground water recovery is occurring at the site, the volume of ground water and volume of product recovered to date.
 - f. The disposition of all wastes generated.

Mr. Larry G. Sugano
January 15, 1999
Page 3

Please be advised that OCD approval does not limit TC to the proposed work if the plan fails to adequately determine the extent of contamination or if contamination exists which is outside the scope of the plan. In addition, OCD approval does not relieve TC of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,



William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Office
Mike Matush, NM State Land Office
Mike Griffin, Whole Earth Environmental, Inc.



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

June 29, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. Z-235-437-303

Mr. Larry Sugano
Tipperary Corporation
633 Seventeenth St., Suite 1550
Denver, Colorado 80202

**RE: TATUM PIT CLOSURES
LEA COUNTY, NEW MEXICO**

Dear Mr. Sugano:

The New Mexico Oil Conservation Division (OCD) has reviewed Tipperary Corporation's (TC) April 2, 1998 "PROGRESS REPORT, TATUM PIT CLOSURE PROJECT, LEA COUNTY, NEW MEXICO" and December 11, 1997 "TATUM PIT CLOSURE PROJECT, CLOSURE REPORT". These documents contain the results of TC's investigation of ground water contamination related to the closure of 10 unlined pits west of Tatum, New Mexico.

A review of the above referenced documents shows that at the majority of the sites the extent of ground water contamination has not been completely defined. Therefore, the OCD requires that TC submit a work plan to completely define the extent of ground water contamination which is in excess of New Mexico Water Quality Control Commission (WQCC) ground water standards. The work plan will be submitted to the OCD Santa Fe Office by August 28, 1998 with a copy provided to the OCD Hobbs District Office.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Wayne Price, OCD Hobbs District Office
Mike Matush, NM State Land Office
Mike Griffin, Whole Earth Environmental, Inc.



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

June 4, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-410-431-177

Mr. Larry G. Sugano
Tipperary Corporation
633 Seventeenth St., Suite 1550
Denver, Colorado 80202

**RE: PIT CLOSURES
TATUM, NEW MEXICO**

Dear Mr. Sugano:

The New Mexico Oil Conservation Division (OCD) has reviewed Tipperary Corporation's (TC) April 9, 1997 "PIT CLOSURES TATUM, NEW MEXICO" and TC's undated "TATUM PIT CLOSURE PROJECT". This document contains the results of soil investigations and remedial action plans for field production pits at the following TC locations in the North Bagley Oil Field near Tatum, New Mexico:

| | |
|-------------------|----------------------------|
| - Bell State "A" | Unit C, Sec 21, T11S, R33E |
| - G.S. State #1 | Unit G, Sec 08, T11S, R33E |
| - Iva Com #1 | Unit H, Sec 20, T11S, R33E |
| - Mabel Com #1 | Unit D, Sec 29, T11S, R33E |
| - Satellite #4 | Unit I, Sec 12, T11S, R33E |
| - Sohio State "A" | Unit P, Sec 04, T11S, R33E |
| - State NBF #1 | Unit N, Sec 22, T11S, R33E |
| - State NBN #1 | Unit N, Sec 16, T11S, R33E |
| - Vera #1 | Unit E, Sec 32, T11S, R33E |

The remedial action work plan, as contained in the above referenced documents, is approved with the following conditions:

1. All soil samples from the excavations and remediated soils will be taken and analyzed for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylene (BTEX) using EPA approved methods and quality assurance/quality control procedures.

NOTE: The proposed BTEX soil analytical method QP-19 is not an EPA approved method for analysis of soils. In fact, the QP-19 procedure does not measure BTEX in soils but actually measures the concentrations of BTEX in vapors emanating from the soil in an enclosed headspace. This method is not acceptable for a final determination of the

Mr. Larry G. Sugano
June 4, 1997
Page 2

remaining concentrations of BTEX in soils. EPA approved methods must be used.

In addition, the TPH analytical data sheets for the initial surveys do not contain the EPA method QA/QC data such as duplicates, spikes, etc. for each site nor do they contain the signature of the analyst. The soil TPH analyses from the excavations and remediated soils must include appropriate QA/QC data for the EPA method TPH soil analysis and a data sheet signed by the analyst.

2. Upon completion of the soil remedial actions at the Vera #1, State NBN #1, State NBF #1, Bell State "A" and G.S. State #1, TC will install a monitor well directly adjacent to and downgradient of the pit at each site.
3. At the Mabel Com #1 and Iva Com #1, TC will define the full extent of free phase and dissolved phase hydrocarbon contaminants in ground water which are in excess of New Mexico Water Quality Control Commission (WQCC) standards. During the initial ground water investigations at least 2 monitor wells will be installed in a radial pattern downgradient of each site recovery well such that the direction of the local ground water gradient can be determined.
4. At the Mabel Com #1 and Iva Com #1, the recovery wells will be installed directly adjacent to the excavated pit such that the well bore does not pierce the liners in the excavated pit areas.
5. All monitor wells and recovery wells will be constructed and completed as set out below:
 - a. A minimum of fifteen feet of well screen will be installed, with at least five feet of well screen above the water table and ten feet of well screen below the water table.
 - b. An appropriately sized gravel pack will be set around the well screen from the bottom of the hole to 2-3 feet above the top of the well screen.
 - c. A 2-3 foot bentonite plug will be placed above the gravel pack.
 - d. The remainder of the hole will be grouted to the surface with cement containing 5 % bentonite.
 - e. Each well will be developed after construction using EPA approved procedures.

Mr. Larry G. Sugano
June 4, 1997
Page 3

6. Ground water from all monitor wells and recovery wells will be initially sampled and analyzed for concentrations of benzene, toluene, ethylbenzene, xylene (BTEX), major cations and anions, WQCC metals and polynuclear aromatic hydrocarbons using EPA approved methods and QA/QC procedures.
7. All wastes generated during the investigative and remedial actions will be disposed of at an OCD approved facility.

NOTE: The OCD permitted Gandy/Marley Landfarm is not allowed to accept liquids. This landfarm is only permitted to accept contaminated soils and sludges. If liquids are recovered during the remedial actions they will need to be disposed of at an alternate OCD approved facility which is permitted for those types of wastes.

8. TC will submit a report on the investigations and remedial actions to the OCD by September 5, 1997. The report will contain:
 - a. A description of all activities which occurred during the investigations and remedial actions including the final excavated size of each pit, the volume of material remediated as well as conclusions and recommendations.
 - b. A completed OCD "PIT REMEDIATION AND CLOSURE REPORT" form for each site for which final pit closure approval is sought.
 - c. A summary of all laboratory analytic results of soil and water quality sampling for each site including copies of all laboratory analytical data sheets and associated QA/QC data.
 - d. A water table elevation map for the Mable Com #1 and Iva Com #1 sites using the water table elevation of the ground water in all site monitor wells.
 - e. A geologic log and as built well completion diagram for each monitor well and recovery well.
9. The OCD defers comment on the long term ground water monitoring plan for the Mabel Com #1 and Iva Com #1 until the full extent of contamination has been determined.
10. TC will notify the OCD at least one week in advance of all scheduled activities such that the OCD has the opportunity to witness the events and/or split samples.

Mr. Larry G. Sugano
June 4, 1997
Page 4

11. All documents submitted for approval will be submitted to the OCD Santa Fe Office with copies provided to the OCD Hobbs District Office.

Please be advised that OCD approval does not relieve TC of liability if contamination exists which is beyond the scope of the work plan or if the activities fail to adequately determine the extent of or adequately remediate contamination related to TC's activities. In addition, OCD approval does not relieve TC of responsibility for compliance with any other federal, state or local laws and/or regulations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,



William C. Olson
Hydrogeologist
Environmental Bureau

xc: Jerry Sexton, OCD Hobbs District Supervisor
Wayne Price, OCD Hobbs Office
Linda Freedman, NM State Land Office
Mike Griffin, Whole Earth Environmental, Inc.

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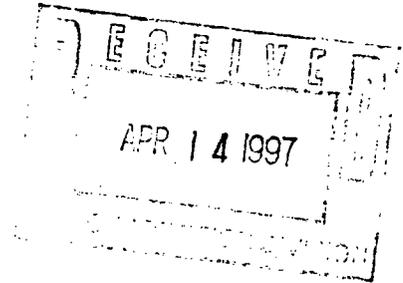
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PS Form 3800, April 1995



Tipperary
CORPORATION

633 Seventeenth Street
Suite 1550
Denver, Colorado 80202



April 9, 1997

Mr. William C. Olson
Hydrogeologist - Environmental Bureau
New Mexico Energy and Natural Resources Dept.,
Oil Conservation Division
2040 Pacheco
Santa Fe, New Mexico

RE: PIT CLOSURES TATUM, NEW MEXICO

Dear Mr. Olson:

Enclosed is a copy of Tipperary's work results to date, and a new proposed closure plan, for the production emergency upset pits at Tatum, New Mexico. I believe that this report includes all the information that you requested in your March 27, 1997 letter concerning Tipperary's progress with this project.

I have forwarded a copy of this report to Jerry Sexton, in the OCD's Hobbs, NM office. Let me know if you have any questions.

Sincerely,

Larry G. Sugano
Vice President - Engineering

cc: Jerry Sexton, OCD Hobbs Office