

1R - 267

**APPROVALS**

**YEAR(S):**

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**Price, Wayne, EMNRD**

**From:** Price, Wayne, EMNRD  
**Sent:** Thursday, February 28, 2008 12:42 PM  
**To:** Mike Griffin  
**Cc:** Williams, Chris, EMNRD; Johnson, Larry, EMNRD  
**Subject:** Bagely Feild Projects

Dear Mike,

OCD is in receipt of the January 17, 2008 groundwater remediation reports for the following facilities:

frmOrdMaster				
Order No.	Amd #	Applicant	Facility Name	Facility Type
GW-260	0	Whole Earth Environmental Inc.	BELL STATE "A"	Tank Battery
GW-261	0	Whole Earth Environmental Inc.	COLLIER #1	Tank Battery
GW-262	0	Whole Earth Environmental Inc.	GULF STATE #1	Tank Battery
GW-263	0	Whole Earth Environmental Inc.	IVA COM #1	Tank Battery
GW-264	0	Whole Earth Environmental Inc.	MABEL COM #1	Tank Battery
GW-265	0	Whole Earth Environmental Inc.	NORTH BAGLEY FIELD PITS	Pit
GW-267	0	Whole Earth Environmental Inc.	SOHIO STATE #1	Tank Battery
GW-268	0	Whole Earth Environmental Inc.	SOHIO STATE "A"	Tank Battery

OCD hereby approves of the activities to enhance groundwater remediation and further investigation. Please submit all information in the next annual report and make sure the GW order numbers are included. Also this plan is approved with the stipulation that if groundwater exceeds the standards of any monitor well that had not exceeded the standards previously then an action plan must be submitted to the OCD within 30 days of discovery.

Please be advised that OCD approval of this plan does not relieve the owner/operator of responsibility should their operations fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Wayne Price-Environmental Bureau Chief  
Oil Conservation Division  
1220 S. Saint Francis  
Santa Fe, NM 87505  
E-mail [wayne.price@state.nm.us](mailto:wayne.price@state.nm.us)  
Tele: 505-476-3490  
Fax: 505-476-3462

2/28/2008

**Olson, William**

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**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.

112267

**Olson, William**

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**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

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-----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 Wrotenberg**

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.

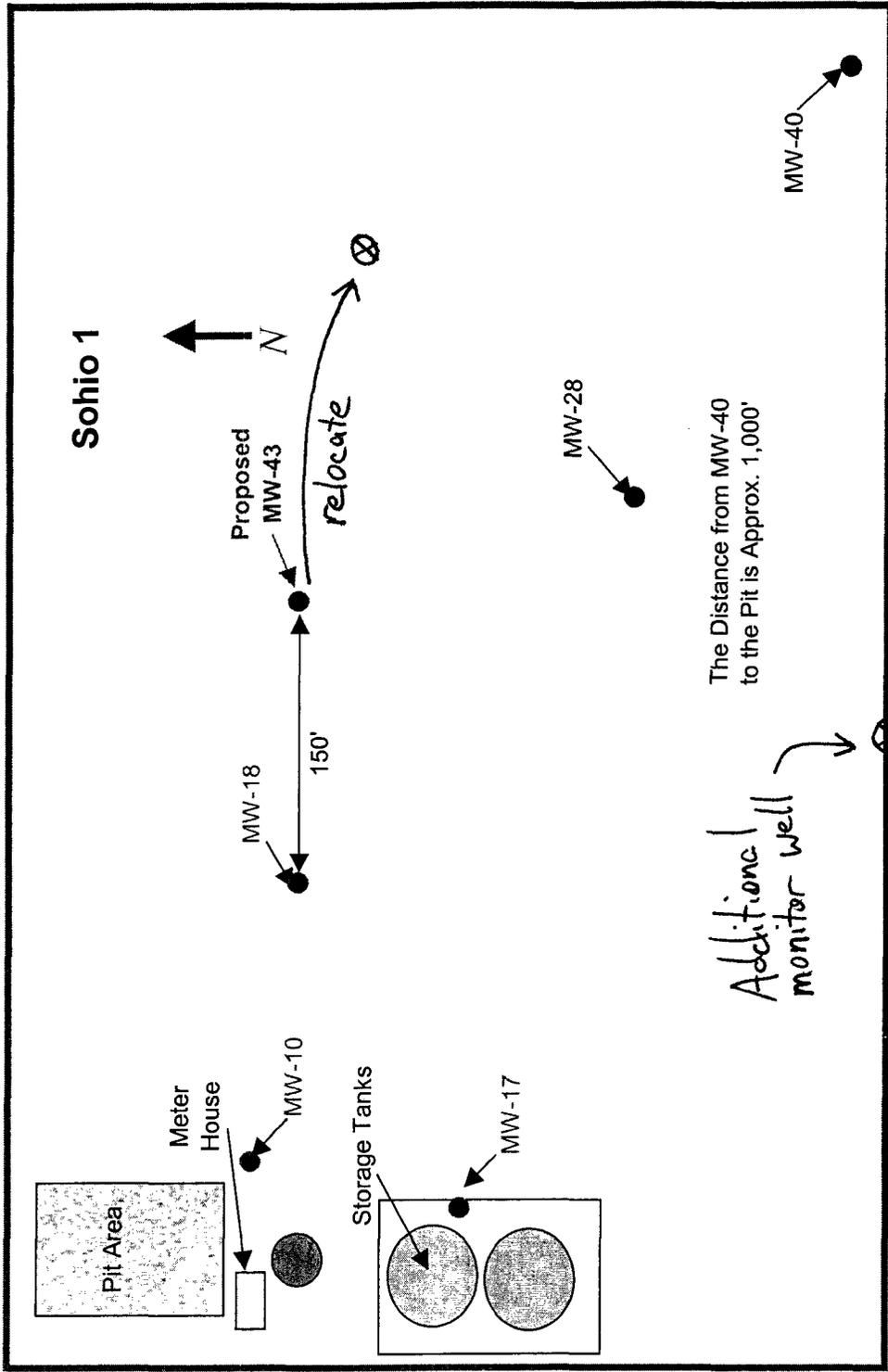
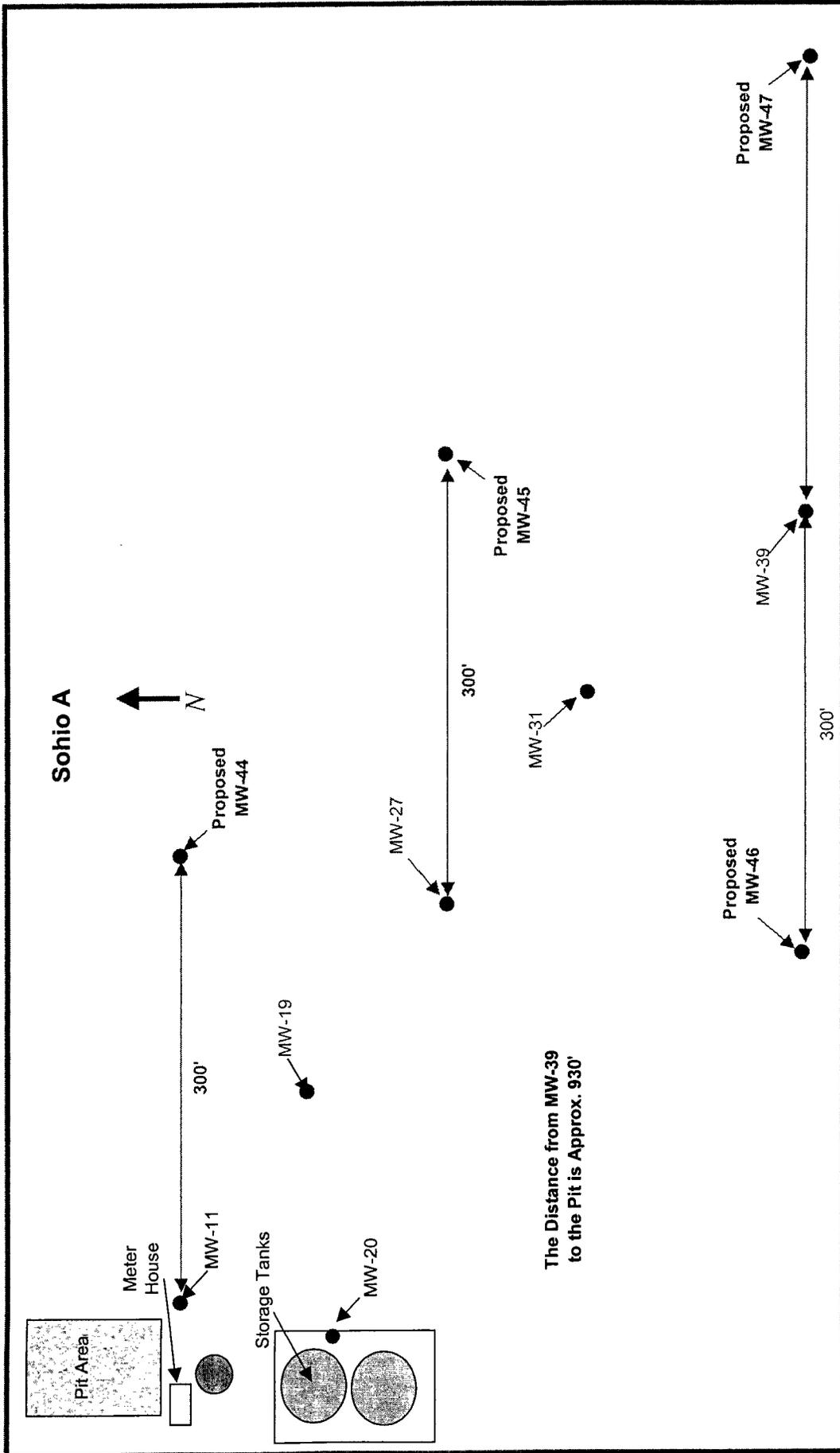


Figure # 1



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

Additional monitor well

⊗

Figure # 2

## Olson, William

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**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.

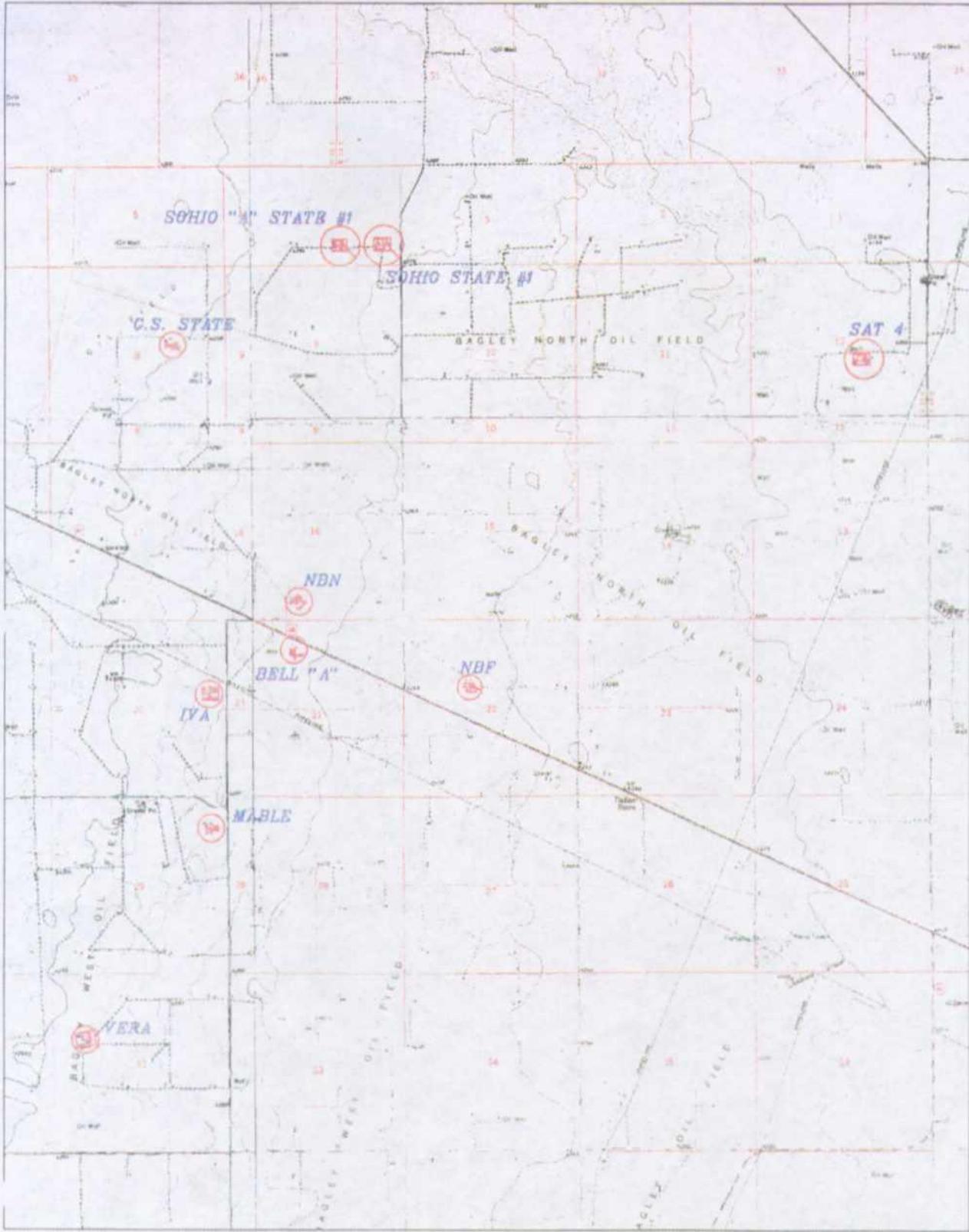
b. The wells will be constructed as are all others within the field. Drilled 2" dia. with a minimum of 10' of screen into the table and 5" of screen above the table. The surface will be flush mounted with a bolted steel cap. No cuttings will be allowed into the hole.

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

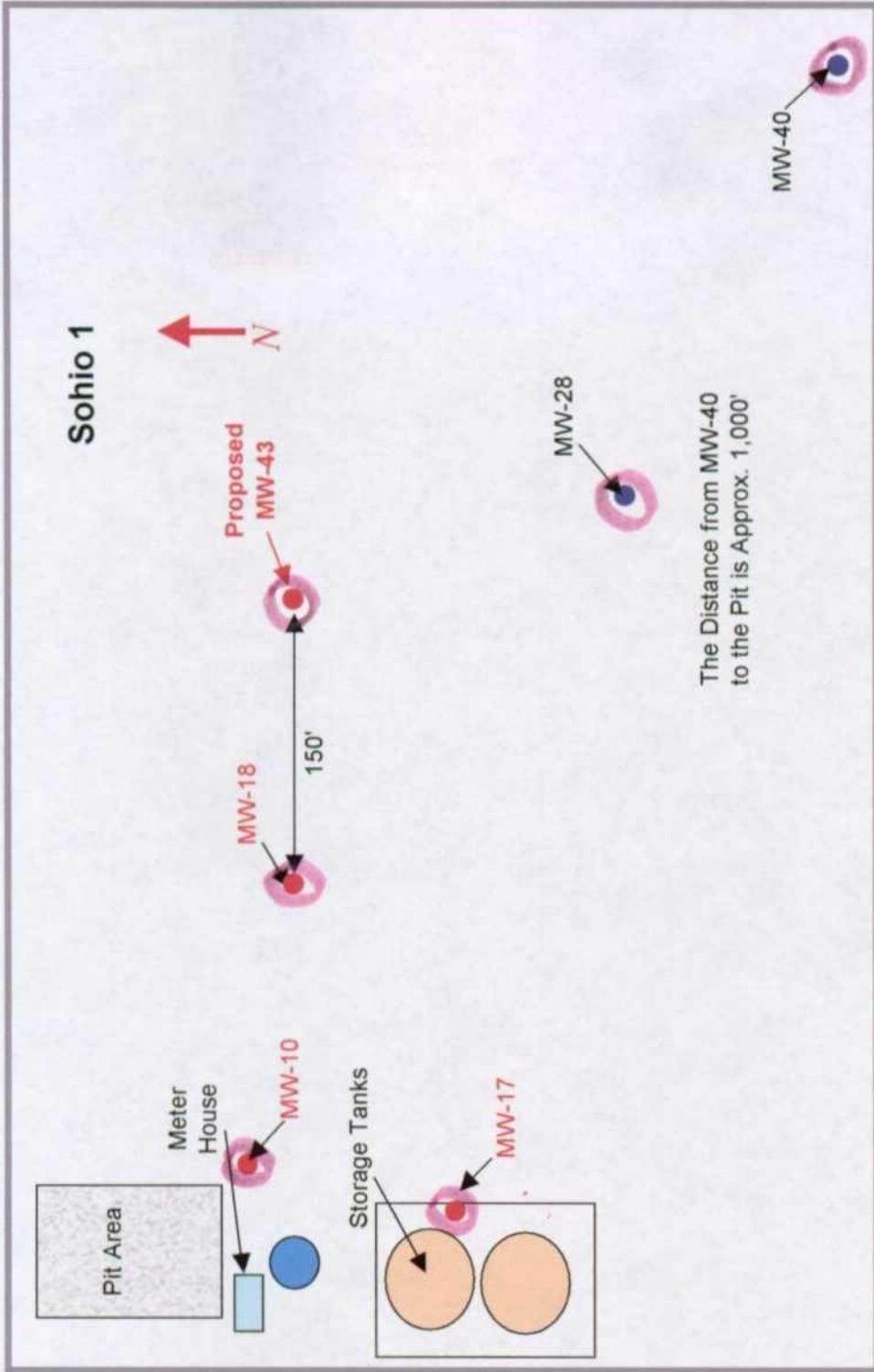
BASIN SURVEYS P.O. BOX 1786-HOBBS, NEW MEXICO

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.



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**GARY E. JOHNSON**  
Governor  
**Jennifer A. Salisbury**  
Cabinet Secretary

**Lori Wrotenberg**  
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.

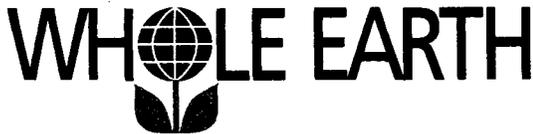
If you have any questions, please call me at (505) 476-3491.

Sincerely,

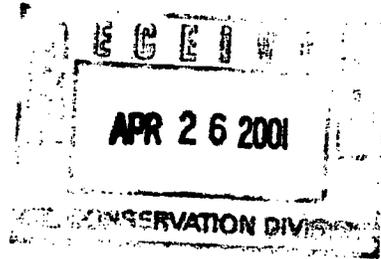


William C. Olson  
Hydrologist  
Environmental Bureau

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

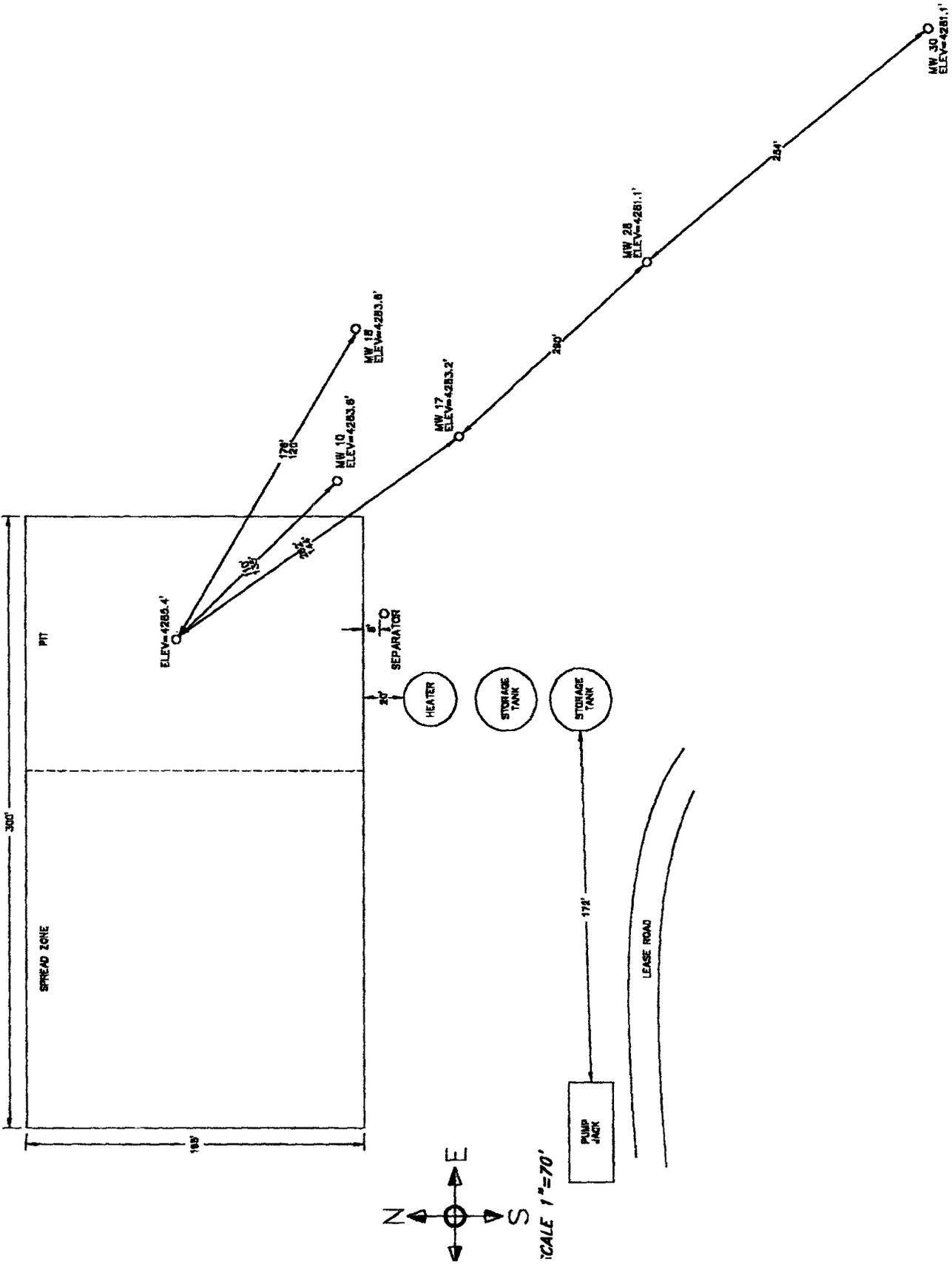
## P COORDINATES

	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

# SOHIO STATE #1



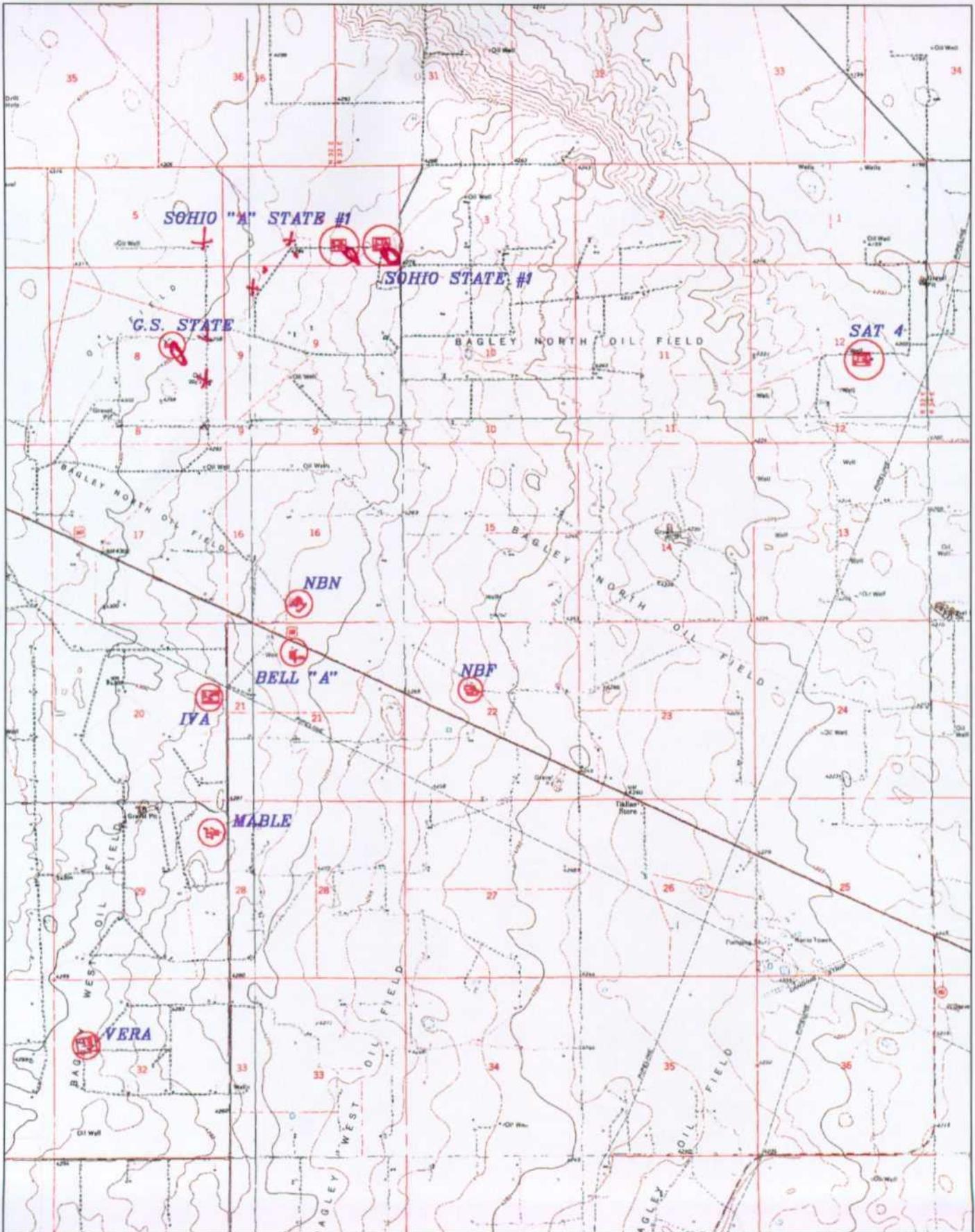


**Tipperary Corporation**  
**Tatum Pit Closure Project**  
**Monitor Well Water Elevation Table**

Well Name	Monitor Well No.	Surface Elevation	Date Well Drilled	Water Depth @ Drill Date	Water Elevation @ 8/9/99	Water Depth @ 10/21/99	Water Elev. @ 10/21/99	Depth Change Aug / Oct. 99	Distance to Pit Center (ft)	Gradient (Fl. / Ft.)	Gradient (Fl. / 100 Ft.)
Iva	1	4,298.42	Aug-97	52.0	4,246.42	48.83	4,243.27	2.92	115	0.080174	8.02
	2	4,291.93	Aug-97	53.0	4,238.93	49.17	4,242.76	2.33	140	0.063500	5.35
	3	4,287.22	Aug-97	52.0	4,235.22	48.75	4,236.47	3.75	148	0.022500	2.25
Mable	4	4,287.46	Aug-97	52.0	4,235.46	48.58	4,238.88	3.17	160	0.019313	1.93
	5	4,288.90	Aug-97	63.0	4,235.90	61.50	4,237.40		159	-0.037233	-3.72
Bell	6	4,281.12	Aug-97	61.0	4,230.12	42.13	4,238.99	0.88	93	0.021183	2.12
	13	4,280.84	Oct-97	47.8	4,233.04	40.83	4,240.01	2.83	43.66	0.044118	4.41
	14	4,280.80	Oct-97	48.3	4,232.80	43.00	4,237.30	0.50	47	0.048723	4.87
	25	4,280.37	Mar-99	47.4	4,232.97	43.50	4,236.87	0.00	154	0.017662	1.77
NBN	7	4,281.59	Aug-97	50.0	4,231.59	43.50	4,238.09		107	0.008037	0.80
	8	4,266.86	Aug-97	48.0	4,211.41	35.75	4,223.66	0.00	165	0.045152	4.52
NBF	15	4,269.68	Oct-97	47.0	4,212.68	34.75	4,224.83	2.25	198	0.062623	3.63
	16	4,269.06	Oct-97	47.1	4,211.96	36.00	4,223.06	0.10	247	0.031579	3.16
	26	4,268.04	Mar-99	43.0	4,215.04	34.75	4,223.29	-0.15	387	0.022791	2.28
Sohlio #1	10	4,285.42	Aug-97	50.0	4,233.63	44.90	4,239.13	0.40	110	0.016273	1.63
	17	4,283.31	Oct-97	49.4	4,233.91	44.00	4,239.31	0.50	262	0.006053	0.81
	18	4,283.59	Oct-97	48.6	4,234.99	43.75	4,239.84	0.35	176	0.010398	1.04
	28	4,283.21	Mar-99	46.3	4,236.96	35.00	4,248.21	9.15	562	0.040004	4.00
Sohlio "A"	30	4,281.13	Aug-99	45.3	4,235.82	45.31	4,235.82	-1.21	776	0.005528	0.55
	11	4,285.88	Aug-97	50.0	4,235.88	38.25	4,247.63	0.25	115	0.008348	0.83
	19	4,285.97	Sep-97	48.7	4,237.27	32.50	4,253.47	2.65	164	0.005305	0.53
G.S. State	20	4,285.96	Sep-97	49.5	4,236.46	38.00	4,247.96	0.66	151	0.005828	0.58
	27	4,285.81	Mar-99	40.0	4,245.81	36.83	4,248.78	1.37	264	0.004659	0.47
	31	4,283.54	Aug-99	37.5	4,246.09	37.45	4,246.09	1.45	624	0.005288	0.53
Set #4	9	4,208.66	Aug-97	31.0	4,182.66	26.17	4,182.49	0.58	80	0.035375	3.54
	23	4,209.03	Oct-97	28.0	4,181.03	26.25	4,182.78	0.90	158	0.015570	1.56
	24	4,208.54	Oct-97	28.9	4,179.74	26.08	4,182.56	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 ENVIROMENTAL, INC.



**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

**GARY E. JOHNSON**  
Governor  
**Jennifer A. Salisbury**  
Cabinet Secretary

**Lori Wrotenbery**  
Director  
**Oil Conservation Division**

March 15, 2001

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. 5051-4218**

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 reviewed Tipperary Corporation's (TC) December 7, 2000 "PROGRESS REPORT FOR YEAR 2000, TATUM PIT CLOSURE PROJECT, LEA COUNTY, NEW MEXICO". This document contains TC's annual report on the results of monitoring of ground water contamination related to the closure of 8 unlined pits west of Tatum, New Mexico.

The OCD has the following comments and requests for information regarding the above-referenced document:

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. Please provide this information.
2. The report does not contain a water table 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 monitor well. This information has been required in prior correspondence and must be submitted with the annual reports in order to be able to evaluate the effectiveness of the monitoring system. Please provide this information.

Larry G. Sugano  
March 15, 2001  
Page 2

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. This information has been required in prior correspondence and must be included in the annual reports in order to evaluate the effectiveness of the remediation system. Please provide this information.
4. The report does not contain information on the free product thickness in all wells containing products. Please provide this information such that the OCD can evaluate the effectiveness of the remediation system. In addition please provide this information in all future annual reports.

The above required information shall be submitted to the OCD Santa Fe Office by April 15, 2001 with a copy provided to the OCD Hobbs District Office.

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.



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.



**NEW MEXICO ENERGY, MINERALS  
& NATURAL RESOURCES DEPARTMENT**

OIL CONSERVATION DIVISION  
2040 South Pacheco Street  
Santa Fe, New Mexico 87506  
(505) 827-7131

March 29, 1999

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. Z-274-520-638**

Mr. Larry 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) February 16, 1999 "January 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 and requests final closure of the remedial actions related to unlined pits at the Iva Com #1, Mable Com #1, State NBN #1 and Vera #1 sites. The document also requests an extension of the deadline for submission of a report on ground water investigations from April 1 to May 1, 1999.

The above referenced deadline extension request is approved.

In order to complete a review of the above referenced closure requests, the OCD requires that TC submit a water table potentiometric map for each of the 10 sites 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.

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

Sincerely,

William C. Olson  
Hydrologist  
Environmental Bureau

cc: 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,

A handwritten signature in black ink, appearing to read "Will Olson".

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.