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(FEDERAL EXPRESS)



**DEPARTMENT OF THE AIR FORCE**  
377<sup>th</sup> Civil Engineer Squadron (AFMC)



MEMORANDUM FOR MR. WILLIAM C. OLSON, CHIEF  
GROUNDWATER QUALITY BUREAU (GWQB)  
NEW MEXICO ENVIRONMENT DEPARTMENT (NMED)  
HAROLD RUNNELLS BUILDING  
1190 ST. FRANCIS DRIVE, PO BOX 26110  
SANTA FE, NM 87502-6110

FROM: 377 MSG/CEAN  
2050 Wyoming Blvd S.E. Room 116A  
Kirtland AFB NM 87117-5270

SUBJECT: Operations and Maintenance Plan, Interim Remedial Action Operation, Nitrate Abatement Ponds (Golf Course) Repair at WP-026 and ST-105, Annual Inspection Report January-December 2007, Kirtland Air Force Base (AFB), New Mexico

1. The Natural Resource Management Branch at Kirtland Air Force Base (KAFB) is submitting two copies of the subject report, including one electronic copy with each document. One copy is being submitted to your office, and one copy is being submitted to Mr. Baird Swanson of your staff.
2. If you have any questions, please do not hesitate to contact myself at (505) 846-8546 or Mr. Robert Warder at (505) 853-0012.

A handwritten signature in black ink, appearing to read "John S. Pike".

JOHN S. PIKE  
Chief, Natural Resource Management Branch

Attachments:

1. Operations and Maintenance Plan, Interim Remedial Action Operation, Nitrate Abatement Ponds (Golf Course) Repair at WP-026 and ST-105, Annual Inspection Report January-December 2007.
2. Electronic copies of Operations and Maintenance Plan, Interim Remedial Action Operation, Nitrate Abatement Ponds (Golf Course) Repair at WP-026 and ST-105, Annual Inspection Report January-December 2007

KAFB3189



cc:

NMED GWQB, Mr. Swanson w Atchs

NMED HWB, Mr. Kieling wo Atchs

NMED HWB, Mr. McDonald w Atchs

USEPA-Region 6 (6PD-N), Ms. King w Atchs

HQ AFMC/A7CVP, Mr. McCann wo Atchs

377 MSG/CE, Mr. Wilson

377 MSG/CEANR, Mr. Bitner

USACE, Ms. Trussell wo Atchs

Tetra Tech, Ms. Moss wo Atchs

Admin. Record, CNM, Montoya Campus w Atch 2 only

AR/IR w Atch 2 only

File

# KIRTLAND AIR FORCE BASE

## Operations and Maintenance Plan Interim Remedial Action—Operation Nitrate Abatement Ponds (Golf Course) Repair at WP-026 and ST-105—January 2007 Inspection

**May 2007**



**377 MSG/CEVR  
2050 Wyoming Blvd SE  
Kirtland AFB, New Mexico 87117-5270**

**KIRTLAND AIR FORCE BASE  
ALBUQUERQUE, NEW MEXICO**

**OPERATIONS AND MAINTENANCE PLAN  
INTERIM REMEDIAL ACTION—OPERATION  
NITRATE ABATEMENT PONDS (GOLF COURSE) REPAIR  
AT WP-026 AND ST-105—JANUARY 2007 INSPECTION**

**May 2007**

***Prepared for***

U.S. Army Corps of Engineers  
Tulsa District  
Tulsa, Oklahoma

Project No. MHMV 06-7037  
Task Order 0003

***Prepared by***

Tetra Tech EC, Inc.  
143 Union Boulevard, Suite 1010  
Lakewood, Colorado 80228

## **Inspection Reports**



**Operations and Maintenance Inspection Checklist**  
 IRA-O Nitrate Abatement Ponds (Golf Course)  
 Kirtland Air Force Base, Bernalillo County, New Mexico

Inspector Name and Title: Robert C. Suarez Super  
 Days since last rainfall: N/A  
 (Contact Base Weather Service 846-9707)

Date: 1-3-07  
 Amount of rainfall: 0

**Erosion Control Measures**

1. Pond Rim and Banks:	GCMP		Pond 1		Pond 2		Pond 3		Pond 4		Pond 5	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
• Is erosion present on slopes (gullies, depressions, washouts)?		X		X		X		X		X		X
• Is HDPE liner exposed?		X		X		X		X		X		X
• Is HDPE liner damaged?		X		X		X		X		X		X
• Are anchor trenches in good condition?	X		X		X		X		X		X	
• Is riprap displaced?		X		X		X		X		X		X
• Are liner, anchor trenches, and riprap functioning as designed?	X		X		X		X		X		X	

Problems observed with the pond rim and banks:  
None

Maintenance or repairs required for the pond rim and banks:  
None

Maintenance or repairs performed (list Subcontractor name and date):  
N/A

2. Pond Bottom/Basin:	GCMP		Pond 1		Pond 2		Pond 3		Pond 4		Pond 5	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
• Is silt present in pond basin? Estimated Thickness:		X		X		X		X		X		X
• Is vegetation growing from pond bottom?		X		X		X		X		X		X
• Is debris present in pond basin?		X		X		X		X		X		X

Problems observed with the pond bottom/basin:  
Cat tails growth on NW corner, Tfec removed most cattails during construction activities,

Maintenance or repairs required for the pond bottom/basin:  
Cat tail from be remove during spring, at present time no growth, will wait until green so roots are also pulled

Maintenance or repairs performed (list Subcontractor name and date):  
Tfec

**Operations and Maintenance Inspection Checklist**  
 IRA-O Nitrate Abatement Ponds (Golf Course)  
 Kirtland Air Force Base, Bernalillo County, New Mexico

3. Inlet/Outlet Pipes:	GCMP		Pond 1		Pond 2		Pond 3		Pond 4		Pond 5	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
• Is erosion present at inlet/outlet?		X		X		X		X		X		X
• Is drainage directed so there is no ponding?	X		X		X		X		X		X	
• Is excessive buildup of silt and debris present?		X		X		X		X		X		X
• Are blockages developing in the pipe?		X		X		X		X		X		X
• Are the inlet/outlet pipes functioning as designed?	X		X		X		X		X		X	

Problems observed with the inlet/outlet pipes:  
*None*

Maintenance or repairs required for the inlet/outlet pipes:  
*None*

Maintenance or repairs performed (list Subcontractor name and date):  
*N/A*

4. Vegetation surrounding ponds:	GCMP		Pond 1		Pond 2		Pond 3		Pond 4		Pond 5	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
• Are sparsely vegetated areas present?		X		X		X		X		X		X
• Is the Golf Course specified grass mixture present?		X		X		X		X		X		X
• Is undesirable vegetation present? <i>N/A</i>		X		X		X		X		X		X

Problems observed with vegetation surrounding ponds to report to Golf Course Maintenance:  
*None*

Maintenance or repairs recommended for the vegetation surrounding ponds:  
*Scheduled for spring 07*

Maintenance or repairs performed (list Subcontractor name and date):  
*N/A*

**Operations and Maintenance Inspection Checklist**  
IRA-O Nitrate Abatement Ponds (Golf Course)  
Kirtland Air Force Base, Bernalillo County, New Mexico

5. Changes required to the Operations and Maintenance Plan?

*NONE*

*Ruben C. Suarez*  
\_\_\_\_\_  
Inspector's Name

*Ruben C. Suarez*  
\_\_\_\_\_  
Inspector's Signature

*1/3/07*  
\_\_\_\_\_  
Date



TETRA TECH FW, INC.

Storm Water Pollution Prevention Inspector Report  
Golf Course Main Ponds

Kirtland Air Force Base, Bernalillo County, New Mexico

Inspector Name and Title: Robert C. [Signature]  
Days since last rain fall: \_\_\_\_\_  
(Contact Base Weather Service 846-9707)

Date: 1/5/07  
Amount of rainfall: \_\_\_\_\_

Erosion Control Measures  
Golf Course

1. Stabilized construction entrance:		Yes	No	Yes	No	Yes	No
• Does sediment get tracked onto aprons and roads?			X				
• Is the gravel clean or filled with sediment?		X					
• Does all traffic use the construction entrance?		X					
Problems observed with the construction entrances:							
2. Silt Fences (on Soil):		Yes	No	Yes	No	Yes	No
• Is the bottom of the silt fence fabric buried?							
• Is the silt fence fabric in good condition?							
• Are the stakes intact?							
• How deep is the sediment at the silt fence?							
Problems observed with the silt fences:							
Maintenance required for the silt fences:							
Maintenance to be performed by (Subcontractor name and date):							
3. Inlet protection barriers(on soil):		Yes	No	Yes	No	Yes	No
• Are straw bales intact?							
• Is the bottom of the straw buried?							
• How deep is the sediment at the barriers?							
Problems observed with the barriers:							
Maintenance required for Barriers:							
Maintenance to be performed by (Subcontractor name and date):							

**Storm Water Pollution Prevention Inspector Report**  
**Golf Course Main Ponds**  
**Kirtland Air Force Base, Bernalillo County, New Mexico**

Golf Course

4. Earth Berms	Yes	No	Yes	No	Yes	No
• Is any erosion present?	NA	A				
• Is any ponding present?						
• Other problems?						
Maintenance required for Earth Berm:						
Maintenance to be performed by (Subcontractor name and date):						
5. Changes required to the Storm Water Pollution Prevention Plan (provide reason for each required change):						

Ruben C Juarez

Inspector's Name

*Ruben C Juarez*

Inspector's Signature

*1/5/07*

Date

## **Photographs**



**December 6, 2006**





**Photo 1. Golf Course Main Pond, northeast corner, looking west.**



**Photo 2. Golf Course Main Pond, northwest side, looking east.**



**Photo 3. Golf Course Main Pond, southeast corner, looking north.**



**Photo 4. Golf Course Main Pond, southeast corner, looking west.**



**Photo 5. Golf Course Main Pond, southwest side, looking east.**



**Photo 6. Golf Course Main Pond, northwest end, looking southeast.**



**Photo 7. Pond 1 outlet.**



**Photo 8. Pond 1, southeast end, looking northwest.**



**Photo 9. Pond 1, southwest side, looking northeast.**



**Photo 10. Pond 2, northeast end, looking south.**



**Photo 11. Pond 2, southeast corner, looking northwest.**



**Photo 12. Pond 2, southeast end, looking northwest.**



**Photo 13. Pond 2, southeast end, looking northwest.**



**Photo 14. Pond 3, north end, looking west.**



**Photo 15. Pond 3, northwest corner, looking south.**



**Photo 16. Pond 3, southwest corner, looking north.**



**Photo 17. Pond 3, southwest corner, looking north.**



**Photo 18. Pond 4, southwest end, looking northeast.**



**Photo 19. Pond 4, west side, looking east.**



**Photo 20. Pond 5, south end, looking north.**



**Photo 21. Drainage swale south of Pond 5.**



**Photo 22. Drainage swale south of Pond 5.**

**January 2007**





**Photo 1. Golf Course Main Pond, looking east—January 2007.**



**Photo 2. Golf Course Main Pond, looking southeast—January 2007.**

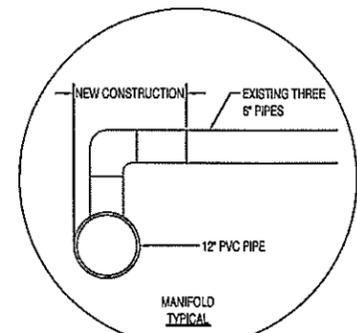
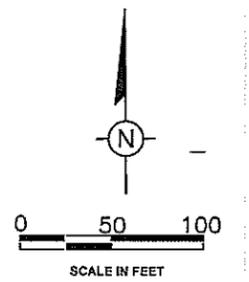
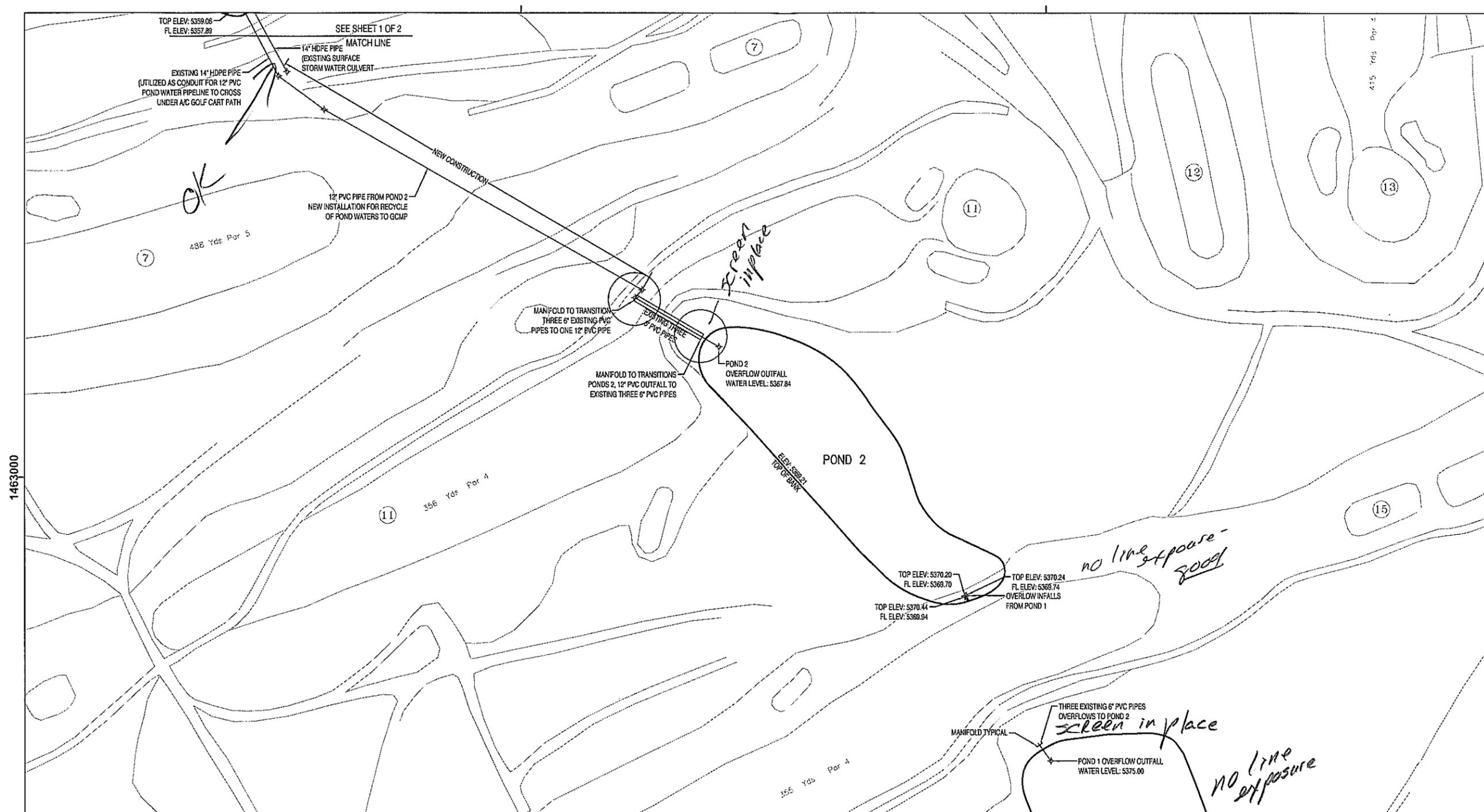


**Photo 3. Golf Course Main Pond, northwest end, looking southeast—January 2007.**

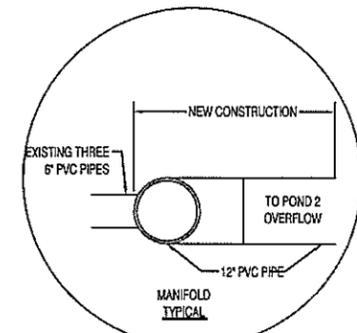
## **Figures**







DETAIL "A"  
N.T.S.



DETAIL "B"  
N.T.S.

**Bohman & Huston**

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REVISIONS			
SYMBOL	DESCRIPTIONS	DATE	APPROVED

<b>TETRA TECH EC, INC.</b> ALBUQUERQUE, NM	U.S. ARMY CORPS OF ENGINEERS TULSA DISTRICT TULSA, OKLAHOMA	DESIGNED BY:	BH
		DRAWN BY:	AK
CHECKED BY:	AK	DATE:	01/15/07
REVIEWED BY:	REV	DESIGN FILE:	
SUBMITTED BY:	REV	CONTRACT NO.:	

KIRTLAND AFB, NEW MEXICO  
**MAINTENANCE INSPECTION MAP (PONDS 1 & 2)**

Figure 3-2

SHEET NUMBER:  

REVISION: