

REPORT OF THE



**UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
Region 8**

**OIL AND GAS
ENVIRONMENTAL ASSESSMENT EFFORT
1996 - 2002**

January 2003

This Page Intentionally Left Blank

AVAILABILITY OF DOCUMENTS

Documents referenced in this report are available from a variety of sources.

Many can be accessed through the Internet at the following sites:

http://epa.gov/region08/land_waste/ogea/ogea.html

<http://www.r6.fws.gov/contaminants/oilpits.htm>

Cover Photos: The photo on the left is of an improperly managed site with oil on the surface of the pit and no effective exclusionary device for birds and other wildlife (flagging has been shown to be ineffective). The photo on the right depicts a properly managed site with properly installed and maintained netting used as an effective exclusionary device.

ACRONYM LIST

API.....	American Petroleum Institute
BIA.....	United States Bureau of Indian Affairs
BLM.....	United States Bureau of Land Management
CDPHE.....	Colorado Department of Public Health and Environment
CDPHE-SW.....	Colorado Department of Public Health and Environment - Solid Waste
COE.....	United States Army Corps of Engineers
COWDF's.....	Commercial Oilfield Waste Disposal Facilities
COGCC.....	Colorado Oil and Gas Conservation Commission
CWA.....	Clean Water Act (Federal)
DOGMA.....	Department of Oil, Gas and Mining (Utah)
E&P Waste.....	oil and gas exploration and production waste
EPA.....	United States Environmental Protection Agency
ESA.....	Endangered Species Act (Federal)
FLPMA.....	Federal Land Policy and Management Act
FWS.....	United States Fish and Wildlife Service
GPS.....	Global Positioning System
IOGCC.....	Interstate Oil and Gas Compact Commission
MBOGCC.....	Montana Board of Oil and Gas Conservation Commission
MBTA.....	Migratory Bird Treaty Act (Federal)
MDEQ.....	Montana Department of Environmental Quality
NDAC.....	North Dakota Administrative Code
NDDH.....	North Dakota Department of Health
NDDH/SW.....	North Dakota Department of Health / Solid Waste
NDIC.....	North Dakota Industrial Commission's Oil and Gas Division
NOV.....	Notice of Violation
NPDES.....	National Pollutant Discharge Elimination System (Federal)
OGEA.....	Oil and Gas Environmental Assessment
OPA.....	Oil Pollution Act (Federal)
POP.....	Problem Oil Pit
P/A.....	Plugging and Abandonment
RCRA.....	Resource Conservation and Recovery Act (Federal)
RMOGA.....	Rocky Mountain Oil and Gas Association
SDDENR.....	South Dakota Department of Environment and Natural Resources
SDDGFP.....	South Dakota Department of Game, Fish and Parks
SPCC.....	Spill Prevention, Control, and Countermeasure (requirements of CWA)
UDEQ.....	Utah Department of Environmental Quality
USFS.....	United States Forest Service
WDEQ.....	Wyoming Department of Environmental Quality
WOGCC.....	Wyoming Oil and Gas Conservation Commission
WQCA.....	Water Quality Control Act (Colorado)

TABLE OF CONTENTS

Availability of Documents and Information.....	i
Acronym List.....	ii
EXECUTIVE SUMMARY.....	v
I. BACKGROUND.....	1
A. Oil and Gas Exploration and Production Waste Determination.....	1
B. Past IOGCC Actions and State Review Process.....	1
C. FWS Experience.....	2
D. Past EPA Region 8 Activities.....	2
II. APPROACH.....	3
A. Phase 1 - Information Gathering, Exchange, and Distribution.....	3
B. Phase 2 - Ground Inspections.....	4
C. Phase 3 - Evaluation of Findings.....	4
D. Phase 4 - Site-specific Follow-up.....	4
E. Other Activities.....	5
III. RESULTS.....	6
A. The Sites Investigated.....	6
B. Environmental Conditions.....	7
C. Actions Taken.....	8
D. Commercial Facilities.....	9
IV. RECOMMENDATIONS.....	11
A. Program Implementation.....	11
B. Outreach/Communication.....	12
C. Site Design and Operation.....	13
V. FUTURE EPA ACTIONS.....	15

APPENDICES

Appendix A: Results by Jurisdiction	
Appendix B: Selected Photographs	
Appendix C: Results at Commercial Facilities	
Appendix D: FWS Pit Netting Recommendations	
Appendix E: Response to Comments on Draft Report	

This Page Intentionally Left Blank

EXECUTIVE SUMMARY

This report covers the actions and findings of the U.S. Environmental Protection Agency (EPA) Region 8 Oil and Gas Environmental Assessment (OGEA) effort from 1996 through the present. EPA's OGEA Team (the Team) and other Federal, State, and Tribal co-regulators (the co-regulators) pursued several activities intended to improve compliance and environmental conditions at oil exploration and production (E&P) sites, including commercial waste management facilities. This report: (1) reviews the work of the Team in Region 8, (2) makes recommendations, (3) identifies future activities of EPA's OGEA Team, and (4) addresses the question of how the co-regulators and the regulated community can ensure lasting environmental benefits from this effort.

Background

In 1996, EPA Region 8 and the U.S. Fish and Wildlife Service (FWS) Region 6 created a Team to assess site operator management of oil and E&P waste. Co-regulators participating in the effort included state oil and gas agencies, state environmental agencies, tribal energy and environmental agencies, the US Bureau of Land Management (BLM), and the US Bureau of Indian Affairs (BIA). The Team wanted to determine where oily waste in open pits posed a significant threat to migratory birds and other wildlife and to correct problems as they found them. The Team also wanted to assess the potential threat posed by these facilities to surface and ground water resources, as well as wetlands. Based on prior experience, the Team was concerned about bird and other wildlife mortality resulting from contact with oil on the surface of pits, as well as the harm caused by releases to surface and ground waters from these sites.

Approach

The effort was generally accomplished in four phases: 1) information gathering, exchange, and distribution; 2) ground inspections; 3) evaluation of findings; and 4) site-specific follow-up. The Team used a small airplane to conduct aerial surveys. Where apparent problems were identified from aerial assessment, that information was shared with co-regulators who, in turn, distributed it to the regulated community. Owners and operators of potential problem sites were also informed that their sites would be inspected no less than thirty days after contacting them (which is generally not normal EPA Region 8 procedure, but is more in conformance with co-regulator procedure). This gave the operators an opportunity to fix problems and, indeed, a large percentage of those sites inspected had problems addressed prior to actual ground inspections.

A multi-year phased process was used and all six states in EPA's Region 8 were included in the effort. Wyoming, Montana and Colorado were the focus in the first year (1997). North and South Dakota were addressed in the second year (1998). Utah was covered in year three (1999). For each site which continued to have problems at the time of the ground inspection, the Team and co-regulators evaluated appropriate follow-up activities determining: (a) the best action to be taken; (b) which agency should take that action; and (c) the steps to follow for problems not fixed in a timely manner. Tools ranged from compliance assistance to enforcement.

Results

In less than four years, 15% to 20% of the approximately 28,000 pits (based on information provided by co-regulators) in Region 8 were observed during aerial surveys; most of them (between 80% and 90%) did not appear to present a threat to the environment and were not in need of any further

attention. Five hundred sixteen (516) sites (sites can have multiple pits) were identified as warranting ground inspection. Of these, 475 field inspections were conducted at sites with one or more production pits or at individual commercial facilities; 348 informal actions and 80 formal enforcement actions were taken. Many of these sites were found to be well-managed and operated in a manner protective of human health and the environment. Credit should be given to the co-regulators for the good conditions found at many sites. For those that were not, co-regulator follow-up was integral to the success of the effort. Co-regulators took the lead on the majority of sites requiring follow-up action; EPA took less than one-third of the total actions taken. Actions taken were the result of conditions observed; for example:

- bird and other wildlife mortality resulting from exposure to oil
- improperly designed, located, and operated pits (including exposed oil on pits)
- ineffective or non-existent wildlife exclusion devices
- improper or non-existent secondary containment for oil storage tanks
- unpermitted or out-of-compliance discharges to surface waters
- leaks and spills from equipment, and
- improper discharges to ground water.

Through these actions, a more level playing field was ensured for those members of the regulated community who operate sites in an environmentally sound manner. One key finding was that almost every commercial facility evaluated had significant environmental issues (even though commercial oilfield waste disposal operations make up a small percentage of the total pits in the region).

To date, the collaborative effort has put into place measures intended to save a significant number of birds and other wildlife, including threatened and endangered species. The effort has also improved protection of surface water, ground water and wetlands. Most follow-up work has been completed, including installation of netting, redesign or elimination of pits, and installation of secondary containment for tanks. Co-regulators took the lead on the majority of sites and continue to work to eliminate environmental threats at the relatively few remaining problem sites.

The effort's impact goes beyond protecting birds and the environment. Developing collaborative approaches among state, tribal and other federal agencies is viewed by EPA as an overall positive. In some situations it has created new working relationships, where none previously existed, and has also enhanced each agency's understanding of the responsibilities, authorities, and accomplishments of the other regulators. The Team also engaged in a dialogue with oil producers and operators of commercial waste management facilities. This dialogue frequently resulted in education, outreach, and technical assistance provided directly to the regulated community. Contact was also made with the Interstate Oil and Gas Compact Commission (IOGCC) as well as industry trade groups.

A draft version of this Report was provided to co-regulators on two separate occasions for review and comment and several changes were made as a result of feedback received. A detailed Response to Comments from the initial review can be found in Appendix E.

Recommendations and The Future

This Report includes several recommendations for improvement of regulatory agency program implementation, site operations, and outreach. The Report also identifies future activities that EPA's OGEA Team may pursue in order to further advance the goals of the effort. These include continued outreach and coordination with IOGCC, co-regulators, and industry groups as well as aerial surveys, ground inspections, and follow-up, as appropriate.

I. BACKGROUND

A. Oil and Gas Exploration and Production Waste Determination

In 1988, EPA determined that E&P wastes¹ (those wastes from oil and gas exploration and production) did not warrant regulation as hazardous waste, even though they exhibit some of the same characteristics as hazardous waste. The Agency concluded that wastes could be better controlled through alterations in existing state and federal regulatory programs.

The E&P waste determination was based largely on the *Report to Congress on the Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas, and Geothermal Energy* (EPA 1987). A hazard assessment performed for this report modeled the potential effects of certain management practices. However, it did not address storage and disposal of produced water in unlined pits. EPA acknowledged that such practices might "pose higher risks" than other approaches. The document also expressed particular concern about "centralized and commercial facilities that treat, store, or dispose of oil field wastes in concentrated form. . . [because] centralized facilities are responsible for some of the most significant damages the Agency documented."

B. Past IOGCC Actions and State Review Process

In December 1974, the Interstate Oil Compact Commission (now the Interstate Oil and Gas Compact Commission or IOGCC) published the results of a survey of states regarding environmental problems, including bird and wildlife mortality, associated with oil and gas production (*Additional Environmental Problems Relating to Oil and Gas Production*). In December 1990, the IOCC published the *EPA/IOCC Study of State Regulation of Oil and Gas Exploration and Production Waste (IOCC Study)*. The study found the Commission to be the appropriate forum to "develop comprehensive approaches, and establish a baseline of performance that could be used for administrative and technical aspects of E&P waste management." In May 1994, the IOGCC developed a consensus update called the *IOGCC Environmental Guidelines for State Oil and Gas Regulatory Programs (IOGCC Guidelines)*. It identified ten interrelated strategies that could work to enhance state and federal relations (IOGCC Strategies): (1) a commitment to work cooperatively; (2) recognition of different priorities; (3) recognition of different statutory objectives; (4) recognition of regional diversity; (5) baseline of performance; (6) state responsibility for enforcement; (7) state program review process; (8) resolving conflicts/building consensus; (9) effective multi-agency coordination; and (10) technical and financial assistance. General technical criteria were also set out for pits, land application (including roadspreading), and centralized and commercial facilities.

¹ Some examples of E&P wastes include produced water, drilling fluids and cuttings, rigwash, well completion, treatment, and stimulation fluids and accumulated materials from production pits, tanks, and vessels.

In addition, in 1990 EPA, state agencies, the oil industry, and several environmental groups joined with the IOGCC to implement a collaborative state review program. Under this program, joint review teams assessed individual state oil and gas programs. In 1999, a non-profit corporation, State Review of Oil and Natural Gas Environmental Regulations, Inc. (“STRONGER”), was created to administer the State Review Process. STRONGER, Inc. and five committees reviewed each section of the May 1994 Guidelines and developed an updated, consensus, Guidelines document which was expanded to include state performance issues. The IOGCC member states voted to accept these new Guidelines at their 2000 mid-year meeting. States volunteer to be reviewed against the new guidelines, and IOGCC has continued to participate in this multi-stakeholder review process by providing advance support to states in preparation for reviews and by providing an observer during reviews. Since its inception in 1990, initial state reviews and follow-up reviews have been conducted in states representing over ninety five percent of wells and production in the U.S.. EPA, DOE and API have provided support in furtherance of these activities. States within EPA’s Region 8 which have been subject to the State Review Process (all prior to 1999) include North Dakota, Colorado, and Wyoming.

C. FWS Experience

During studies of oil covered pits in the 1980's, FWS learned that birds and animals can be killed by being entrapped and drowning or by ingesting toxic amounts of oil during preening of feathers or by licking their fur (if they escape). Further, cold stress can kill if oil damages the insulation provided by feathers or fur. During breeding season, birds transfer oil from their feet and feathers to their eggs. In some cases, a few drops of oil on an egg shell can kill the embryo. Scavengers and predators suffer when consuming oil-covered carcasses. Deaths in oil pits can be episodic. There may be long periods without incident, but then large numbers of birds may be killed during short periods of time, such as migration. Since carcasses tend to dissolve or sink to the bottom of the pit in about four days (*Number of oil-killed birds and fate of bird carcasses at crude oil pits in Texas*, Flickinger, E.L. and C.M. Bunck, Southwestern Naturalist, 1987), it is virtually impossible to determine accurate numbers of bird and animal deaths.

D. Past EPA Region 8 Activities

In 1994 EPA initiated litigation at a site in Wyoming, alleging mismanagement of oily wastes that resulted in an imminent threat to human health or the environment. At that time, EPA and FWS began discussing in detail the hazards of poorly designed and/or operated pits, a potentially serious problem both across the country and around the world. FWS protects migratory birds under the Migratory Bird Treaty Act of 1918 (MBTA), and endangered species under the Endangered Species Act (ESA) of 1973. Neither statute provides authority to require site operators to clean up or redesign dangerous sites. In 1995, FWS personnel brought a Colorado commercial facility to EPA’s attention. During the work there, EPA found that such facilities can also significantly impact ground water.

II. APPROACH

In 1996, EPA Region 8 and the FWS Region 6 created a team to assess site operator management of oil and E&P waste. Co-regulators participating in the effort included state oil and gas agencies, state environmental agencies, tribal energy and environmental agencies, BLM, and BIA. The original “Problem Oil Pit” or “POP” name for the effort grew out of the belief that, based on prior FWS and EPA experience, oily waste in open pits posed a threat to migratory birds and other wildlife. Although the concern with exposed oil on the surface of pits was a primary focus of the effort, the Team decided to take a multi-program approach and address a variety of environmental issues. The primary EPA authorities utilized by the Team included RCRA, CWA, and OPA, however, the Team was also prepared to use additional authorities, as appropriate. EPA members of the Team came from a wide variety of program areas. The effort has since been renamed the Oil and Gas Environmental Assessment (OGEA) effort.

A multi-year phased process was used and all 6 states in EPA’s Region 8 were included in the effort. Wyoming, Montana and Colorado were the focus in the first year (1997). North and South Dakota were addressed in the second year (1998). Utah was covered in year three (1999). The approach is summarized below to provide a general overview of the steps taken. However, it was modified as State/Tribal conditions demanded. A state-by-state summary of the approach used (and results) can be found in Appendix A.

A. Phase 1 - Information Gathering, Exchange, and Distribution

As work began in each state, the first step was to identify the other co-regulators and invite them to a discussion of the effort. At these initial meetings, FWS explained the nature and extent of the threats to wildlife while EPA outlined the general approach and invited co-regulator participation. Co-regulators involved in the effort included state oil and gas agencies, state environmental agencies, tribal energy and environmental agencies, BLM, and BIA. An aerial survey team then took photographs and Global Positioning System (GPS) coordinates of potential problem sites. Though it was not possible to fly over every pit in the region, a significant number were monitored. The main criterion for identifying a potential problem site was the observation of exposed oil, either on the ground or on the surface of a pit. However, other observed conditions (such as discharges to surface waters, abandoned drums, etc.) that were thought to pose a risk to human health or the environment were also identified as deserving of further investigation. The aerial survey identified 516 potential problem sites throughout Region 8, a significant portion (about 15% to 22%) of the total number of pits observed. Many sites had more than one problem pit.

This information was shared with the co-regulators, who passed it on directly to the regulated community. The co-regulators shared their facility-specific knowledge with EPA and FWS. Discussions also addressed the range of compliance tools available to each co-regulator, in order to get a clear understanding of the full range of regulatory responses available.

B. Phase 2 - Ground Inspections

Ground inspections were conducted at least thirty days after notification, giving operators the opportunity to repair problems before the actual site inspection. Ground inspections were scheduled to allow participation by all interested co-regulators. Team members developed a comprehensive EPA multimedia inspection checklist that addressed all anticipated regulatory programs and environmental concerns related to E & P sites. The Team and co-regulators documented environmental concerns and problems of potential noncompliance. Conditions documented included things such as construction and management of pits, condition and management of tanks, containers and other equipment, discharges to surface waters, and ecological setting. Potential impacts to ground water were also considered; however, resources allowed only a cursory investigation of those impacts. The Team also looked for things such as mismanagement of pesticides, electrical equipment that might contain PCBs, illegal dumping, and air emissions.

C. Phase 3 - Evaluation of Findings

Ground inspection teams met after the inspections and filled out a site “matrix” that identified environmental problems requiring follow-up. These teams also made recommendations for follow-up action. The matrices were then reviewed by co-regulator groups responsible for establishing priorities and reviewing compliance tools. Agreements were worked out for next steps at each site. Often, one co-regulator was assigned the lead. EPA took the lead at only a few sites, including most of those in Indian Country, where EPA is the lead agency for implementing its federal environmental programs. EPA also addressed any site in noncompliance with the Spill Prevention, Control, and Countermeasure Plan (SPCC) regulations and other non-delegable requirements of the Clean Water Act. Most problems were corrected in response to the first effort of the assigned regulator. However, when this was not the case, the co-regulator groups discussed additional steps to be taken.

D. Phase 4 - Site-specific Follow-up

A broad range of tools were utilized by co-regulators during follow-up with operators. These included informal follow-up² through telephone calls, meetings, and site visits as well as written follow-up through letters and notices of violation. In some cases, more formal follow-up actions³ were taken, including enforcement orders and complaints with associated penalties. Commitments were often obtained to keep other co-regulators informed of progress on sites;

² For the purposes of this report, informal follow-up includes informal enforcement which are those actions other than formal enforcement that notify the facility of its non-compliance and establish a date by which non-compliance is to be corrected.

³ For the purposes of this report, formal enforcement is an action which mandates compliance and initiates a civil, criminal, or administrative process which results in an enforceable agreement or order.

however, results have been uneven. Some actions are still open and the agencies continue to work individually and cooperatively to close out actions.

E. Other Activities

The Team addressed three critical factors which encompass the IOGCC strategies: (1) involving co-regulators; (2) supporting a mix of tools available to co-regulators (including compliance assistance, voluntary compliance tools, informal notification of violations with requests for correction, and formal enforcement); and (3) providing education, outreach and technical assistance to the regulated community as a whole, by making presentations across the country to national and regional industry groups.

Compliance assistance by the co-regulators has been an integral component of the Team effort. Outreach included training and workshops developed for owners/operators of E&P sites. The Team also created informational materials and helped EPA headquarters develop a Sector Notebook for E&P waste management sites. Significant interest in the project from other federal regulators resulted in a national conference in November 1998. Some 60 federal regulators attended. The OGEA Team also sponsored a limited study of the impact of pits on ground water and the effectiveness of low cost push probe technology for sampling subsurface soils and ground water (*Final Trip Report for Wyoming Oil Pit Groundwater Investigations*, SAIC, December 1998). The results of this study support EPA's concerns regarding the potential for sites to adversely impact ground water resources.

Since 1991, FWS has conducted outreach to educate oil operators of the bird mortality problem at oil pits. FWS routinely sends oil operators applying for a National Pollutant Discharge Elimination System (NPDES) permit a form letter apprising them of the mortality problem, solutions to the problem and potential liability under the MBTA for the mortality of migratory birds in oil pits.

III. RESULTS

The following summarizes the overall results of the OGEA effort. More detailed state-by-state results can be found in Appendix A.

A. The Sites Investigated

Based on estimates provided by co-regulators, there were approximately 27,680 pits⁴ in existence within EPA Region 8 at the time of the aerial surveys (see Appendix A for state-specific estimates). A total of 516 sites were identified during the aerial surveys as potential problems which would merit a ground inspection. The total number of pits observed was not recorded during all flyovers. Ground inspections were conducted at 475 sites, including some not identified from the air (*i.e.*, identified by co-regulators as potential problems or observed during other ground inspections). Many sites had more than one pit and there were a total of 802 pits observed at the 475 sites inspected. Some sites were not visited because they: (a) were reported by co-regulators to have been cleaned up; (b) were duplicates; or (c) could not be found. Invaluable first-hand knowledge was provided by Tribal and State co-regulators, as well as by BLM and BIA. Ground inspections revealed that problems had been addressed prior to inspection at 185 sites. A summary of the sites within EPA Region 8 is provided in Table 1.

Table 1. Sites Investigated

	CO	MT	ND	SD	UT	WY	TOTAL
Potential problem <u>sites</u> * identified from the air	51	129	59	2	52	223	516
<u>Sites</u> inspected	38	137	41	9	49	201	475
<u>Sites</u> w/ no problems observed during ground inspection	8	76	19	6	13	63	185

* Note that sites often include multiple pits.

⁴ For the purposes of this report, a “pit” is considered to be any pit or pond constructed or used for the purpose of oil or gas exploration or production, regardless of whether or not it contains water, oil, or other liquids or wastes at the time it was observed by the OGEA Team. Note: SDDENR disagrees with this definition and with the estimated number of pits in South Dakota as reflected in this report.

B. Environmental Conditions

A summary of key environmental conditions found during the ground inspections is provided in Table 2. The Table includes information describing the amount of oil coverage found on pits, bird and wildlife mortality observed, discharges from pits, and sites with SPCC violations. Some selected photographs of site conditions observed can be found at Appendix B.

Table 2. Environmental Conditions Found

	CO	MT	ND	SD	UT	WY	TOTALS
Pit Condition							
Number of <u>Pits</u> Observed	96	169	56	16*	115	347	802
Oil Covered <u>Pits</u> (100%)	32	19	10	1	51	70	182
Oil Covered <u>Pits</u> (<100%)	19	94	5	1	26	85	229
<u>Pits</u> Free of Oil	45	56	41	14	38	192	391
Bird and Wildlife Mortality							
<u>Sites</u> with Bird Mortalities	4	6	3	0	2	25	40
# of Bird Mortalities	35	17	4	0	2	84	142
<u>Sites</u> with Wildlife Mortalities	0	3	0	0	1	5	9
# of Wildlife Mortalities	0	7	0	0	1	6	14
Ongoing Discharges							
<u>Sites</u> with Ongoing Discharges	6	21	0	0	0	76	103
# of Permitted Discharges	1	0	0	0	0	67	68
# of Unpermitted Discharges	5	21	0	0	0	9	35
Spill Prevention Controls and Countermeasure							
<u>Sites</u> with SPCC violations	18	1	20	1	24	35	99

* As previously noted, SDDENR disagrees with the definition of “pit” and estimated number of pits in South Dakota reflected in this report.

Overall, 411 (51 %) of the pits observed during the ground inspections had some oil on the surface with 182 pits (23 %) completely covered with oil. (Note: sites often had multiple pits; see Table 2). Bird mortalities were documented at 40 sites (9 % of the 475 sites inspected) with a total of 142 mortalities observed. Other wildlife mortalities were observed at 9 sites (2 % of the sites inspected) with 14 mortalities observed. Ongoing discharges were documented at 103 sites (22 % of the sites inspected) and those discharges were unpermitted at 35 of those sites (34% of the sites with ongoing discharges observed). In EPA's view, the number of sites with exposed oil on pits and bird mortality was higher than expected given that advance notice of inspections was provided to site operators.

Non-compliance with SPCC requirements was more pervasive than anticipated. Although the SPCC program has been the focus of outreach and compliance assistance nationally for more than 25 years, there remains a strong need to communicate its requirements, inspect regulated facilities, and conduct appropriate technical assistance or enforcement to ensure improved compliance.

C. Actions Taken

There have been 348 informal follow-up actions taken to date by EPA, FWS, and co-regulators. In most states, these informal actions have been taken primarily by the state oil and gas agency. Informal actions taken by EPA have been primarily notices of violation (NOV) issued for non-compliance with SPCC requirements. The response to almost all SPCC violations was to issue a NOV. NOV's give violators full notice of the violations and an adequate period to correct them without being penalized. Many NOV recipients came into compliance without escalation to formal enforcement.

Formal enforcement actions have been taken to address non-compliance or to order clean-up actions at 80 sites to date and, except in Wyoming and North Dakota, these actions have been taken exclusively by EPA or FWS. Formal EPA actions have included nine clean-up orders issued pursuant to RCRA section 7003 authority, as well as a number of enforcement actions related to SPCC violations. RCRA authority was used sparingly to order owners/operators to remove oil from pits, install effective exclusionary devices, and/or clean up sites. At many of these sites, netting was installed as an effective exclusionary device. The FWS has issued numerous citations under the MBTA for the "taking" of migratory birds found during this effort. Table 3 describes site follow-up actions taken in each state (as of December 2001). Subsequent progress towards follow-up has been made but has not yet been quantified.

Table 3. Site Follow Up by Co-Regulators

	CO				MT				ND				SD				UT				WY				
	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	
OG*	13	13	0	13	31	31	0	31	59	58	1	59	0	0	0	0	19	16	3	10	44	29	7	35	
EA**	9	9	0	9	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	49	35	7	37	
BLM	0	0	0	0	0	0	0	0	0	0	0	0	3	2	1	2	17	17	0	17	35	33	2	35	
FWS	16	2	14	16	6	0	6	6	6	5	0	6	0	0	0	0	0	0	0	0	46	?	4	4?	
EPA	19	18	4	12	9	9	6	5	20	17	4	15	1	1	0	1	24	24	6	23	39	23	15	35	
BIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	?	?	?	
TR***	3	3	0	3													1	1	0	0	0	0	0	0	0

Note: In some cases, follow-up actions were taken by more than one regulator. Also, in some cases, both informal and formal action was taken at the same site.

- a Number of sites at which the agency assumed some follow up responsibilities.
- b Number of sites where the agency took informal actions including notices of violation, letters, telephone calls, meetings, site visits, etc.
- c Number of sites where the agency took formal enforcement actions.
- d Number of sites where follow up actions have been completed and are now closed out (e.g. pit closure, spills, leaks, stained pit banks, etc. cleaned up, wildlife exposures controlled, NPDES discharges controlled).
- ? The co-regulator has not provided information regarding the status of follow-up activities.
- * State Oil & Gas Agency (*i.e.* COGCC, DOGM, MBOGCC, NDIC, and WOGCC)
- ** State Environmental Agency (*i.e.* CDPHE, MDEQ, NDDH, SDDENR, UDEQ, and WDEQ)
- *** Tribal Authority (*i.e.* Ute Mountain Ute Energy and Environmental Offices, and Northern Ute Energy and Minerals Department)

D. Commercial Facilities

Commercial oilfield waste disposal facilities (COWDF's) pose unique problems and received special emphasis during the effort. For purposes of this report, the term COWDF's refers to those commercial disposal facilities that receive produced water and other E&P wastes for treatment and disposal and that utilize ponds for evaporation. It does not include facilities that dispose of oilfield

waste via injection into the subsurface. The amount of oil and water stored in ponds prior to injection is generally much less than that stored in ponds at facilities utilizing primarily evaporation for waste treatment and disposal. COWDF's are more often of concern than production sites because they generally utilize much larger evaporation ponds (either passive or with aeration) to dispose of and treat E&P wastes. As discussed above, COWDF's were singled out in EPA's 1987 Report to Congress because they were responsible for some of the most significant damages documented by the Agency. The Team confirmed that this is still true, at least in EPA Region 8.

There are 36 COWDF's in Region 8. Most were observed during the aerial surveys. All were in Colorado, Utah and Wyoming. As a result of either observations made during the aerial surveys or through discussions with co-regulators, twenty seven (27) had some indication of a problem requiring a ground inspection and were inspected by ground inspection teams (which included EPA, FWS, and co-regulators). The remaining nine (9) facilities were either currently being addressed by the co-regulator or were identified as not having problems based on discussions with co-regulators. These facilities were not inspected by ground inspection teams. All of the COWDFs inspected required some sort of follow-up to correct environmental conditions and/or noncompliance. This is notable because it is significantly greater than the percentage of production facilities requiring follow-up (61% for production facilities vs 100% for COWDFs). The types of problems found at COWDFs were the same as those found at production facilities (exposed oil on pits, bird and wildlife mortality, improper or non-existent secondary containment for storage tanks, oil spills and leaks, discharges of oil to surface waters, violations of permitted discharge limits, and ground water contamination), although often of greater magnitude.

One common problem observed was significant quantities of oil on the surface of very large pits without effective exclusionary devices. One pit at each facility is usually designated as the receiving pit and the greatest amount of oil tends to float to the surface in that pit. Water from receiving pits is often sent to another pit or series of pits for evaporation or other management. At many COWDF's these subsequent pits were also found to have significant quantities of oil and no exclusionary devices.

As a result of follow-up at COWDF's, some operators have modified facility design and/or operations to improve environmental conditions. For example, some operators have replaced receiving pits with heated tanks. This improves oil and water separation; reducing the opportunity for oil to collect on the surface of pits and improving the efficiency of oil recovery. Other operators have added smaller netted pits as receiving pits. This design facilitates oil removal, reduces oil in subsequent pits, and minimizes exposure of wildlife to oil. In most of Region 8, COWDF's are generally subject to more comprehensive regulations than those applicable to production facilities. Requirements, and enforcement of them, vary significantly from state to state. A state-by-state discussion of findings related to commercial facilities can be found in Appendix C.

IV. RECOMMENDATIONS

The following are EPA Region 8's recommendations based on the Team's experiences during the OGEA effort.

A. Program Implementation

1. Continue to implement the IOGCC Strategies and place a high priority on environmental protection

As previously discussed, the IOGCC guidelines (set forth in "IOGCC Environmental Guidelines For State Oil and Gas Regulatory Programs", 1994) were developed by IOGCC to help the states and EPA improve state-lead E&P waste management programs. EPA Region 8 recognizes that IOGCC has made great strides in establishing baseline requirements for the states. As the results of the OGEA effort show, however, additional work remains to be done in some areas in establishing and maintaining baseline performance by the states. Consequently, it is recommended that EPA Region 8 and IOGCC continue to work together on these issues.

The OGEA Team found that significant environmental harm can result from improperly designed or operated facilities. Tribal, state and federal agencies can achieve mutual objectives by continuing to implement the IOGCC strategies and focus on the threats to the environment from oil exploration and production related sites. It is strongly recommended that co-regulators continue to modify their programs to ensure that each meets the baseline established by the IOGCC, and that environmental protection be designated as one of the highest priorities.

2. Improve compliance and environmental conditions at COWDF's

Since 1987, EPA has been aware that COWDF's are of particular environmental concern. Ten years later, every COWDF visited during the OGEA effort had significant environmental problems. While many COWDF's have fixed the problems identified during the OGEA effort, it will take the continued attention of all regulators to maintain and improve current levels. Environmental problems existed at some COWDF's despite being operated according to existing applicable state standards. Regulatory programs need to include effective minimum standards for the design and operation of COWDF's. These standards need to be fully enforceable, with no barriers to administrative and judicial enforcement. Programs that "grandfather" facilities under less stringent or non-existent requirements should be revised to phase in comprehensive new requirements at those facilities (see, for example, the American Petroleum Institute's (API) recently published *Guidelines for Commercial Exploration and Production Waste Management Facilities* (March 2001)). Also, in order to improve conditions and compliance rates, COWDFs need to be more frequently monitored.

3. Conduct more frequent compliance monitoring and utilize no-notice inspections

During the OGEA effort, inspections were generally conducted at least thirty days after operators were notified that their sites had been identified in the aerial survey and would be inspected. The fact that 185 site operators fixed problems prior to ground inspection shows that advance notice can be a useful tool. More conditions of environmental concern and of noncompliance were observed at sites where advance notice was not provided. Several sites in

Colorado, Wyoming, and on the Wind River Indian Reservation were inspected without advance notice to the facility, primarily because they were identified as potential repeat problem sites. Most continued to have problems. Bird mortalities were observed at many of these sites.

While it has been shown that advance notice of ground inspections will result in improved conditions at many sites, an accurate assessment of site conditions can only be achieved by conducting ground inspections without advance notice. No-notice inspections and more frequent inspections will likely improve conditions and compliance within the regulated industry, reducing the impact on the environment.

4. Utilize formal enforcement tools

When EPA determined in 1987 that control of E&P wastes was not warranted under Subtitle C of RCRA, EPA noted that enforcement of existing requirements was sometimes inadequate. All regulators are now aware that it takes a variety of tools to ensure that the playing field is level and that program goals are achieved and maintained throughout the regulated community. Compliance assistance, outreach and education are valuable tools in assuring that a significant percentage of the regulated community achieves compliance. Informal approaches towards addressing problems identified during inspections (*e.g.* verbal or written notification of violations) have also been shown to be very effective with many operators.

In some cases, however, formal enforcement is the most effective at bringing about improved site conditions and sustained compliance. Formal actions can be especially effective when recalcitrance is suspected based on an operator's past behavior. In such cases, early initiation of formal enforcement may limit the time and cost of achieving compliance as well as the extent of environmental impact. Another effective use of formal enforcement tools is as a response to an operator's non-compliance with more informal approaches. To be effective, escalation to formal measures must be taken in a timely manner. A growing body of literature confirms that well-aimed formal enforcement actions have a deterrent effect on the rest of the regulated community and increase the likelihood that the violator will quickly return to compliance. In order to be effective, formal enforcement actions must be an integral part of program implementation.

B. Outreach/Communication

1. Continue to maintain networks established through the OGEA effort

One of the biggest successes of the OGEA effort has been the strengthening of communication channels and working relationships among some of the agencies involved, as well as the understanding of agency responsibilities and objectives. Agencies involved in the effort are encouraged to take advantage of this network by maintaining communication and cooperation among themselves. Such an approach allows agencies to effectively address identified issues and promote industry compliance. An example of an area in which mutual understanding has improved significantly, but which requires more attention, is the Federal SPCC Program. Many operators confused the requirements of the Federal SPCC Program with spill prevention requirements established by other agencies. By working together, agencies can improve the overall understanding of the various spill prevention requirements by the regulated industry.

2. Communicate results of the OGEA effort within agencies

During the effort, the Team identified sites with exposed oil on pits and with bird mortalities which were being addressed under regulatory programs other than those involved in the OGEA effort or, typically, with oil and gas activities. For example, multiple bird mortalities were observed during the ground inspection of an abandoned refinery which was in the process of being cleaned-up under state superfund authority. Two other closed refineries in a different state were being addressed through RCRA corrective action and also had multiple bird mortalities. All of these sites had oily waste on the surface of pits with no exclusionary devices. Once attention was called to the potential harm to wildlife posed by open pits with oily wastes, the lead program for activities at that site raised the priority for addressing the pits. All such identified problems have now been addressed. This experience is a positive example of the benefit of heightened awareness among relevant programs within an agency.

3. Stress industry responsibility

Industry groups and agency outreach efforts can play a strong role in stressing that regulated industry has a responsibility to be aware of applicable regulatory requirements and best management practices. Meeting IOGCC's baseline for performance will minimize the likelihood of conditions existing at a site that might warrant EPA's use of Section 7003 of RCRA. Agencies need to make regulated industry aware of available IOGCC, API, EPA and other applicable guidance and other compliance assistance tools whenever possible. Examples of guidance recently made available include EPA's *Profile of the Oil and Gas Extraction Industry* (October 2000, EPA-310-R-00-004) and API's *Guidelines for Commercial Exploration and Production Waste Management Facilities* (March 2001). Finally, agencies and industry groups are encouraged to recognize efforts and achievements which promote environmental stewardship and compliance. For example, the IOGCC has recognized numerous producers with awards for environmental stewardship over the last several years. Activities recognized by IOGCC have included closed-loop / pitless drilling, wellbore separation of oil and brine, and pit remediation efforts.

C. Site Design and Operation

1. Utilize alternatives to management of oil in pits

Alternatives to management of produced water and oil in pits are becoming increasingly practical and can be used by industry and promoted by agencies to reduce the impact of E&P sites on the environment. For example, new pitless drilling technologies have been employed at some E&P sites in recent years. These technologies treat and reuse drilling fluids by state-of-the-art methods, and eliminate or reduce the need for pits. The IOGCC Environmental Stewardship Committee has awarded, or nominated for awards, companies using pitless drilling technologies.

Where practicable, closed-containment systems should be used to contain produced water. Closed-containment systems require little maintenance, and the system can be moved to a new site when the well is shut in. The systems can minimize or eliminate remediation expenses. With these

systems, pits are used for evaporation (if necessary) only after all oil has been removed. Percolation is only acceptable if no ground water resources will be affected.

Of course, E&P waste is also successfully reinjected at many sites across the country. Where economically feasible, this option should be strongly considered. It is recommended that members of the regulated community evaluate this option as they consider upgrading their facilities to manage oil and E&P wastes in a more environmentally sound manner. For many, reinjection might be a practical option when the costs for clean up of pits and potential soil and ground water contamination are evaluated.

2. Prohibit exposed oil on the surface of pits

Agency regulations and guidance regarding exposed oil on pits varies significantly. Some agencies allow oil on the surface of pits for a defined period of time (*e.g.* 24 hours) while others prohibit exposed oil on the pit surface altogether. Compliance with a requirement based on a defined period of time is very difficult to monitor. Even when complied with, this approach can result in bird and wildlife mortality and is not adequately protective. It is recommended that agencies modify their requirements, as appropriate, to prohibit the existence of exposed oil on pit surfaces at any time. If oil is anticipated on the surface of a pit, the operator would be required to either: 1) operate the pit so as to keep it continuously free of oil, or 2) install an effective wildlife exclusionary device. Operating the pit free of oil also reduces the potential for a release of oil from the pit. When properly installed and maintained, pit netting is a practical and effective exclusionary device. Specific recommendations for installation of effective netting have been provided by FWS and are included as Appendix D.

Agency requirements for design and operation of reserve pits generally do not include a requirement for netting. Based upon bird and wildlife mortality observed in reserve pits, a shorter time period for reserve pit closure is recommended, as is netting if closure cannot be effected within a few days of completion. Flare pits, open-topped tanks, and other containers containing oil were regularly observed as were associated bird and wildlife mortality. Agency requirements prohibiting exposed oil on pits should apply to these types of pits as well as open-topped tanks and containers that may accumulate oil on the surface. These requirements should also apply to emergency pits if fluids cannot be removed within a short period of time (*i.e.* 24 hours) after a spill. By implementing and enforcing requirements that minimize the potential for exposed oil on pits, the potential for bird and wildlife mortality is minimized as is the operator's liability under the MBTA.

3. Enforce requirements regarding discharges from pits

Federal and state law does not allow for discharges of produced waters into surface waters without a permit. Also, the federal Clean Water Act does not allow for discharges of oil to surface waters that cause a sheen. Unpermitted discharges and discharges with an oil sheen were observed at several sites, many of which appeared to have been occurring for extended periods of time. Sites must be constructed and operated to eliminate these discharges. Violations should be aggressively enforced to provide a deterrent to non-compliance and assure that those who comply are not placed at a competitive disadvantage with those who violate environmental laws (*i.e.* level the playing field).

4. Improve requirements for site closure and remediation

Bonding requirements for operators of sites that manage oil and E&P waste are generally inadequate to cover costs of surface remediation. This conclusion is based on the team member's prior experiences, as well as our observations and experiences during the OGEA effort. Even with the significant improvements recently made by some state agencies, federal and state agencies should consider if bonding amounts (which usually focus on costs associated with well plugging and abandonment (P/A)), are also adequate to cover costs associated with remediation of surface areas near the wellhead, including pits. Some regulatory agencies require surface remediation at the time of well P/A; others do not. Pit closure requirements vary widely among regulatory agencies. Therefore, bonding levels should be reviewed to ensure that they are adequate for anticipated P/A and surface remediation costs (note: in some instances existing bonding levels may not adequately cover the costs of P/A or surface remediation). Appropriate bonding requirements for these activities should be established or updated by states or federal agencies as necessary, taking into account any other available and effective sources of funding.

Agencies should ensure that their regulatory and compliance monitoring efforts regarding landfarming, landspreading and roads spreading are fully protective of human health and the environment. These activities should be conducted so as not to result in exposed oil which may pose a threat to wildlife or surface water bodies. Also, pit closure requirements vary widely among co-regulators. Agencies should review closure requirements for adequacy and, as required, environmentally protective standards should be developed, and methods employed to ensure that they are followed.

V. FUTURE EPA ACTIONS ⁵

Future EPA work will focus on promoting long-term compliance and environmental protection. EPA is committed to continuing to share information and resources when possible, and to conducting joint or independent follow-up when non-compliance or areas of concern are identified.

Some activities EPA Region 8 OGEA Team will pursue include:

- 1) continued follow-up on and close out of those site-specific follow-up activities (identified in Section III) that EPA has committed to;
- 2) continued coordination with co-regulators regarding follow-up and close out activities that they have committed to;

⁵ The FWS has indicated that the following activities related to the OGEA effort will be pursued: The FWS will continue to enforce the MBTA at oil production facilities and COWDF's causing migratory bird mortality. Law enforcement and environmental contaminants staff will continue to follow up on problem sites as staff and funding allows. Outreach efforts will continue as in the past. The FWS will pursue the development of an informational brochure to be provided to oil operators by the BLM and the state and tribal regulatory agencies. The FWS will contact BLM and IOGCC for collaboration and funding for printing and distributing the brochure. The FWS will pursue the development of efforts similar to the OGEA effort in other EPA regions.

- 3) aerial survey activities as resources allow. Aerial surveys are the most cost effective means of identifying potential problem sites and evaluating the long-term impact of the OGEA effort. Data obtained from future surveys will be provided to co-regulators. Several co-regulators have expressed support for future aerial surveys. EPA's preference is to conduct future aerial surveys in conjunction with one or more co-regulators who may be willing to share costs;
- 4) some ground inspections and appropriate follow-up activities, including at those areas or sites at which significant problems have been found in the past or which are repeat problem sites;
- 5) continued outreach with industry groups, including SPCC compliance training for the oil and gas industry and E&P waste handlers. EPA continues to work with IOGCC and STRONGER, Inc. on a national level on a number of issues related to the OGEA effort such as state reviews, reviews of waste management practices, and aerial surveys; and,
- 6) potential involvement in the new EPA/IOGCC Oil and Gas Task Force.

Appendix A

RESULTS BY JURISDICTION

This Page Left Intentionally Blank

COLORADO

Most of the oil pits in Colorado fall within the jurisdiction of the Colorado Oil and Gas Conservation Commission (COGCC). Prior to this effort the FWS and COGCC established an effective working relationship and were already working together to address the problem of oily pits.

- Kick-off Meeting(s) with co-regulators:** (a) January, 1997
(b) February, 1997
- Co-regulators Attending:** (a) COGCC, CDPHE-SW, Ute Mountain Ute Tribe, FWS, EPA
(b) BLM (Colorado Office), BIA, EPA
- Aerial Surveys Done:** August, 1997
June, 1999
- Number of Sites Identified:** 51 (none under BLM jurisdiction)
- Ground Inspections Done:** September, 1997; Spring, 1998; Summer, 1999; 38 sites inspected by multi-agency teams (of the 13 remaining sites; 8 were inspected by FWS and COGCC only (and all 8 required follow-up by both COGCC and FWS), 3 were re-flown with no problems observed, and 2 were inspected by COGCC only (and required no additional follow-up). Several additional inspections and follow-up actions were conducted at sites other than those observed during the 97/99 aerial surveys and they are not addressed here.
- Conditions Found:** 8/38 (21%) cleaned-up or clean, no environmental conditions of concern, no non-compliance noted; 30/38 (79%) required follow-up. Note: At the 8 sites inspected by COGCC and FWS only, avian mortalities were observed at all 8 sites (32 additional mortalities).

Colorado Results At a Glance

The OGEA Effort Universe								
Estimated Number of Pits	10950							
Potential Problem Sites Identified from the air	51	Environmental Conditions Found						
Sites Inspected	38	Number of Pits Observed	96					
Sites w/ no problems observed during ground inspections	8	Oil Covered Pits (100%)	32	Site Follow-up by Co-Regulators				
		Oil Covered Pits (<100%)	19		<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
		Pits Free of Oil	45	OGCC	13	13	0	13
		Sites with Bird Mortalities	4	EA*	9	9	0	9
		# of Bird Mortalities	35	BLM	0	0	0	0
		Sites with Wildlife Mortalities	0	FWS	16	2	14	16
		# of Wildlife Mortalities	0	EPA	19	18	4	12
		Sites w/ Ongoing Discharges	6	BIA	0	0	0	0
		# of Permitted Discharges	1	TR**	3	3	0	3
		# of Unpermitted Discharges	5					

- a Number of sites at which the agency assumed some follow up responsibilities
- b Number of sites where the agency took informal actions including notices of violation, letters, telephone calls, meetings, site visits, etc.
- c Number of sites where the agency took formal enforcement actions
- d Number of sites where follow up actions have been completed and are now closed out. (e.g. pit closure, spills, leaks, stained pit banks, etc. cleaned up, wildlife exposures controlled, NPDES discharges controlled)
- * State Environmental Agency, i.e. CDPHE, MDEQ, NDDH, SDDENR, UDEQ, and WDEQ
- ** Tribal Authority

MONTANA

Most of the oil pits in Montana fall within the jurisdiction of the Montana Board of Oil and Gas Conservation Commission (MBOGCC). Prior to this effort, FWS and MBOGCC had established an effective relationship and were already cooperating on the problem of oily pits.

Kick-off Meeting(s) with co-regulators: January, 1997

Co-regulators attending: MBOGCC, MDEQ, Fort Peck Tribes, Blackfoot Tribe, Crow Tribe, BLM, BIA, EPA

Aerial Surveys done: May, 1997

Number of sites identified: 137

Ground inspections done: July, 1997

Conditions found: 76/137 (55%) cleaned-up or clean, no environmental conditions of concern, no non-compliance; 61/137 (45 %), required follow-up.

Montana Results At a Glance

The OGEA Effort Universe								
Estimated Number of Pits *	1370 + BLM							
Potential Problem Sites Identified from the air	129	Environmental Conditions Found						
Sites Inspected	137	Number of Pits Observed	169					
Sites w/ no problems observed during ground inspections	76	Oil Covered Pits (100%)	19	Site Follow-up by Co-Regulators				
		Oil Covered Pits (<100%)	94		<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
		Pits Free of Oil	56	OGCC	31	31	0	31
		Sites with Bird Mortalities	6	EA**	0***	0	0	0
		# of Bird Mortalities	17	BLM	0	0	0	0
		Sites with Wildlife Mortalities	3	FWS	6	0	6	6
		# of Wildlife Mortalities	7	EPA	9	9	6	5
		Sites w/ Ongoing Discharges	21	BIA	0	0	0	0
		# of Permitted Discharges	0	TR****	0	0	0	0
		# of Unpermitted Discharges	21					

- _____ a Number of sites at which the agency assumed some follow up responsibilities
- _____ b Number of sites where the agency took informal actions including notices of violation, letters, telephone calls, meetings, site visits, etc.
- _____ c Number of sites where the agency took formal enforcement actions
- _____ d Number of sites where follow up actions have been completed and are now closed out. (e.g. pit closure, spills, leaks, stained pit banks, etc. cleaned up, wildlife exposures controlled, NPDES discharges controlled)

* BLM does not keep a tally of the number of pits on BLM land in Montana.

** State Environmental Agency, i.e. CDPHE, MDEQ, NDDH, SDDENR, UDEQ, and WDEQ

*** Information regarding unpermitted discharges at 21 sites was provided to MDEQ. MDEQ had not committed to participating in the POP effort, however, and the status of follow-up activities at these sites is unknown.

**** Tribal Authority

NORTH DAKOTA

_____Of the estimated two thousand oil pits in ND (e.g., emergency, evaporation, flare, production, reserve, and skim), the majority fall under the jurisdiction of the North Dakota Industrial Commission (NDIC). Prior to this effort, FWS and NDIC established an effective working relationship to address oily pits.

Kick-off Meeting(s) with co-regulators: March, 1998

Co-regulators attending: NDIC, NDDH/SW, BLM, USFS, EPA

Aerial Surveys done: June, 1998; August 1998

Number of sites identified: 59 (57/NDIC; 1/BLM; 1/COE)

Ground inspections done: August-September, 1998 (41 inspections. Note: NDIC confirmed that 23 sites identified during aerial survey had been addressed prior to ground surveys. Also, 5 additional sites were inspected that were not identified during the aerial survey.) An additional 66 sites were inspected during May 2000 by NDIC and FWS only and the results are not included here.

Conditions found: 19/41 (46%) cleaned-up or clean, no environmental conditions found, no non-compliance; 22/41 (54%) required follow-up.

North Dakota At a Glance

The OGEA Effort Universe								
Estimated Number of Pits	2000							
Potential Problem Sites Identified from the air	59	Environmental Conditions Found						
Sites Inspected	41	Number of Pits Observed	56					
Sites w/ no problems observed during ground inspections	23	Oil Covered Pits (100%)	10	Site Follow-up by Co-Regulators				
		Oil Covered Pits (<100%)	5	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	
		Pits Free of Oil	41	OGCC	59	58	1	59
		Sites with Bird Mortalities	3	EA*	0	0	0	0
		# of Bird Mortalities	4	BLM	0	0	0	0
		Sites with Wildlife Mortalities	0	FWS	6	5	0	6
		# of Wildlife Mortalities	0	EPA	20	17	4	15
		Sites w/ Ongoing Discharges	0	BIA	NA	NA	NA	NA
		# of Permitted Discharges	0	TR**	NA	NA	NA	NA
		# of Unpermitted Discharges	0					

- a Number of sites at which the agency assumed some follow up responsibilities
- b Number of sites where the agency took informal actions including notices of violation, letters, telephone calls, meetings, site visits, etc.
- c Number of sites where the agency took formal enforcement actions
- d Number of sites where follow up actions have been completed and are now closed out. (e.g. pit closure, spills, leaks, stained pit banks, etc. cleaned up, wildlife exposures controlled, NPDES discharges controlled)

* State Environmental Agency, i.e. CDPHE, MDEQ, NDDH, SDDENR, UDEQ, and WDEQ

** Tribal Authority

SOUTH DAKOTA

_____Of the estimated oil pits in South Dakota (emergency, evaporation, production, reserve, and skim), the majority fall under the jurisdiction of the SDDENR. Prior to this effort, FWS, the SD Department of Game, Fish and Parks (SDDGFP) and SDDENR had already established an effective working relationship to address oily pits on an as-needed basis.

Kick-off Meeting(s) with co-regulators:	March, 1998
Co-regulators attending:	SDDENR, SDDGFP, BLM, USFS, EPA
Aerial Surveys done:	April, 1998
Number of sites identified:	2 (1 BLM/SDDENR; 1 BLM/BIA)
Ground inspections done:	July 1998, November 1998, July 1999 – 9 sites (2 non-tribal, 7 tribal)
Conditions found:	6/9 (67%) cleaned-up or clean; no environmental conditions found, no non-compliance; 3/9 (33%) required follow-up

South Dakota At a Glance

The OGEA Effort Universe								
Estimated Number of Pits	25							
Potential Problem Sites Identified from the air	2	Environmental Conditions Found						
Sites Inspected	9	Number of Pits Observed	16					
Sites w/ no problems observed during ground inspections	6	Oil Covered Pits (100%)	1	Site Follow-up by Co-Regulators				
		Oil Covered Pits (<100%)	1		<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
		Pits Free of Oil	14	OGCC	NA	NA	NA	NA
		Sites with Bird Mortalities	0	EA*	1	1	0	1
		# of Bird Mortalities	0	BLM	3	2	1	2
		Sites with Wildlife Mortalities	0	FWS	0	0	0	0
		# of Wildlife Mortalities	0	EPA	1	1	0	1
		Sites w/ Ongoing Discharges	0	BIA	0	0	0	0
		# of Permitted Discharges	0	TR**	NA	NA	NA	NA
		# of Unpermitted Discharges	0					

- _____ a Number of sites at which the agency assumed some follow up responsibilities
- _____ b Number of sites where the agency took informal actions including notices of violation, letters, telephone calls, meetings, site visits, etc.
- _____ c Number of sites where the agency took formal enforcement actions
- _____ d Number of sites where follow up actions have been completed and are now closed out. (e.g. pit closure, spills, leaks, stained pit banks, etc. cleaned up, wildlife exposures controlled, NPDES discharges controlled)

- * State Environmental Agency, i.e. CDPHE, MDEQ, NDDH, SDDENR, UDEQ, and WDEQ
- ** Tribal Authority

UTAH

Most of the sites identified in Utah fall under the jurisdiction of DOGM with others falling under the jurisdiction of BLM, the Uintah and Ouray Tribe, BIA, and/or UDEQ. _____

Kick-off Meeting(s) with co-regulators: (a) May 1998; (b) December 1998; (c) February 1999; (d) April 1999

Co-regulators attending: (a) Northern Ute Tribe; BIA, DOGM, BLM, UDEQ, FWS, USFS, EPA, Utah Petroleum Association
(b) Northern Ute Tribal Business Committee
(c) Oil E&P workshop held in Vernal (all co-regulators)
(d) Briefing for Utah Senator Bennett

Aerial Surveys done: April-June, 1999 (including some Navajo Nation/and 4 sites referred to EPA/R9)

Number of sites identified: 52

Ground inspections done: September, 1999 (49 sites inspected / 3 sites could not be located)

Conditions found: 13/49 (27%) cleaned-up or clean – no further action required; 36/49 (73%) required follow up. Two sites had bird mortalities; one site had wildlife mortality.

Utah At a Glance

The OGEA Effort Universe								
Estimated Number of Pits	4350							
Potential Problem Sites Identified from the air	52	Environmental Conditions Found						
Sites Inspected	49	Number of Pits Observed	115					
Sites w/ no problems observed during ground inspections	13	Oil Covered Pits (100%)	51	Site Follow-up by Co-Regulators				
		Oil Covered Pits (<100%)	26		<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
		Pits Free of Oil	38	OGCC	19	16	3	10
		Sites with Bird Mortalities	2	EA*	0	0	0	0
		# of Bird Mortalities	2	BLM	17	17	0	17
		Sites with Wildlife Mortalities	1	FWS	0	0	0	0
		# of Wildlife Mortalities	1	EPA	24	24	6	23
		Sites w/ Ongoing Discharges	0	BIA	1	1	0	0
		# of Permitted Discharges	0	TR**	1	1	0	0
		# of Unpermitted Discharges	0					

- a Number of sites at which the agency assumed some follow up responsibilities
- b Number of sites where the agency took informal actions including notices of violation, letters, telephone calls, meetings, site visits, etc.
- c Number of sites where the agency took formal enforcement actions
- d Number of sites where follow up actions have been completed and are now closed out. (e.g. pit closure, spills, leaks, stained pit banks, etc. cleaned up, wildlife exposures controlled, NPDES discharges controlled)

* State Environmental Agency, i.e. CDPHE, MDEQ, NDDH, SDDENR, UDEQ, and WDEQ

** Tribal Authority

WYOMING

_____ Primary jurisdiction over oil pits in Wyoming is approximately equally distributed between the Wyoming Oil and Gas Conservation (WOGCC) and the U.S. Bureau of Land Management (BLM).

Kick-off Meeting with co-regulators: January 1997

Co-regulators attending: (a) WOGCC, BLM, WYDEQ, USFWS (State and Federal), BIA, EPA, Business Councils of Northern Arapaho and Eastern Shoshone Tribes, Wyoming Environmental Quality Commission
(b) outreach meeting for industry and trade organizations

Aerial Surveys done: April 1997

Number of sites identified: 223

Ground Inspections done: June 1997 (201 sites)

Conditions found: 63/201 (31%) cleaned-up or clean, no further action required; 155 pits with oil on surface, bird mortalities; at 25 sites, unpermitted waste water discharges; discharges above permitted limits for oil and grease; oil contamination of waterways and wetlands.

Wyoming At a Glance

The OGEA Effort Universe								
Estimated Number of Pits	9000							
Potential Problem Sites Identified from the air	233	Environmental Conditions Found						
Sites Inspected	201	Number of Pits Observed	347					
Sites w/ no problems observed during ground inspections	63	Oil Covered Pits (100%)	70	Site Follow-up by Co-Regulators				
		Oil Covered Pits (<100%)	85	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	
		Pits Free of Oil	192	OGCC	44	29	7	35
		Sites with Bird Mortalities	25	EA*	49	35	7	37
		# of Bird Mortalities	84	BLM	35	33	2	35
		Sites with Wildlife Mortalities	5	FWS	46	?	4	4?
		# of Wildlife Mortalities	6	EPA	39	23	15	35
		Sites w/ Ongoing Discharges	76	BIA	3	?	?	?
		# of Permitted Discharges	63	TR**	0	0	0	0
		# of Unpermitted Discharges	9					

- _____ a Number of sites at which the agency assumed some follow up responsibilities
- _____ b Number of sites where the agency took informal actions including notices of violation, letters, telephone calls, meetings, site visits, etc.
- _____ c Number of sites where the agency took formal enforcement actions
- _____ d Number of sites where follow up actions have been completed and are now closed out. (e.g. pit closure, spills, leaks, stained pit banks, etc. cleaned up, wildlife exposures controlled, NPDES discharges controlled)
- ? The co-regulator has not provided information regarding the status of follow-up activities.
- * State Environmental Agency, i.e. CDPHE, MDEQ, NDDH, SDDENR, UDEQ, and WDEQ
- ** Tribal Authority

Appendix B

SELECTED PHOTOGRAPHS

This Page Intentionally Left Blank



Figure 1. Oil covered pit with stained sides, evidence of overtopping of sides, and no effective wildlife exclusionary device.



Figure 2. Dead birds retrieved from an oil covered pit.

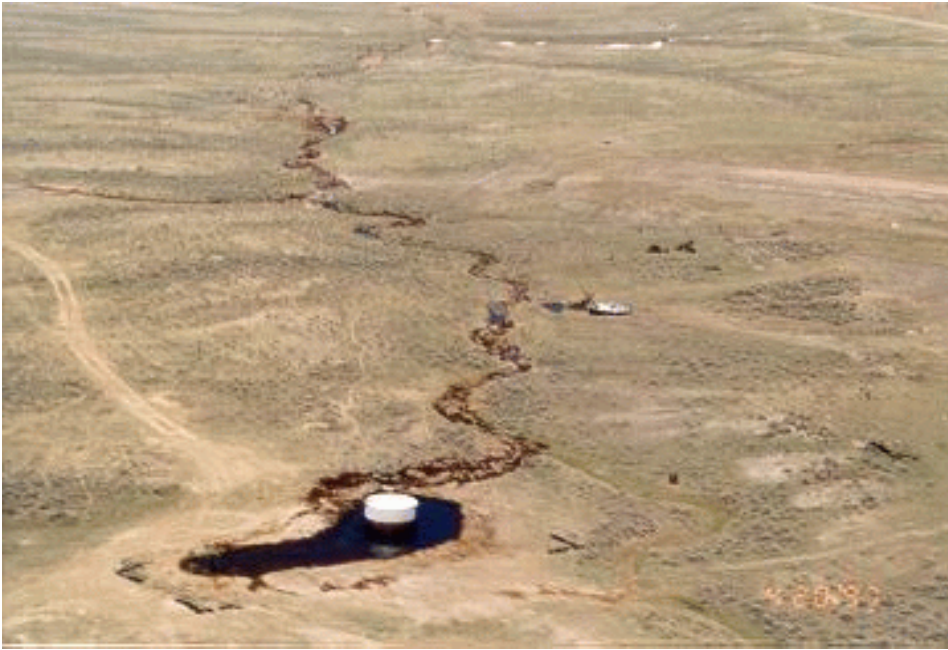


Figure 3. Site with discharge of oil into creek; possible leaking tank and/or overflowing pit. Photo taken during aerial surveillance of oil fields.



Figure 4. Dead calf found in pit covered with thick oil sludge.



Figure 5. Photo of facility where netting has been installed as an effective exclusionary device to prevent birds and wildlife from entering pits which might contain oil.



Figure 6. Photo of a facility where an SPCC Plan has been well implemented.

This Page Left Intentionally Blank

Appendix C

RESULTS AT COMMERCIAL FACILITIES

This Page Left Intentionally Blank

Results at Commercial Facilities

The following is a summary of the findings and follow-up activities related to COWDFs in Colorado, Utah, and Wyoming.

Colorado

At the time of the Colorado aerial surveys, there were six COWDF's operating. All are regulated by the Colorado Department of Public Health and Environment's Solid Waste Program (CDPHE-SW) and are subject to state solid waste regulations. All six (and one closed commercial facility) were observed during the aerial surveys and identified as requiring ground inspections. Problems observed during inspections included bird mortalities, significant oil cover on pits, and SPCC non-compliance. Two of the six sites had bird mortalities. Four sites had pits with 100% oil coverage with effective exclusionary devices, however, all six facilities also had pits with some oil coverage without effective exclusionary devices. Three of the six have SPCC violations. Cumulatively, there were nineteen pits with oil coverage with no exclusionary device and ten of the nineteen were 100% covered with oil.

Through informal action (letters, verbal communications, NOVs) CDPHE-SW was able to address most of the concerns identified during the inspections at five of the six sites. COGCC's leadership in facilitating the involvement of various stakeholders at one of these sites also resulted in significant improvements. EPA took a formal enforcement action at the sixth. SPCC issues were identified at three of these sites. Issues have been addressed at one of these sites and EPA continues to follow-up on the other two informally.

Many of the environmental conditions of concern and areas of non-compliance observed during the ground inspections had existed for a long time prior to the inspections. CDPHE-SW has historically relied heavily on technical assistance to promote compliance. Colorado's Solid Wastes Disposal Sites and Facilities Act was recently amended to provide the State with authority to take administrative enforcement action. Prior to that, court actions (which are more resource intensive) were the only option.

Utah

Of the nine COWDF's in Utah, seven were identified during the aerial surveys. Ground inspections at these sites revealed environmental problems requiring follow-up. Utah DOGM is the primary regulator, and a joint strategy was developed with EPA and FWS to address these facilities. DOGM assumed the lead and took informal action to encourage cleanup and compliance. EPA, FWS and DOGM conducted additional joint inspections at six of the COWDF's at the end of August 2000. Virtually no progress had been made in addressing the environmental conditions of concern at three of the six facilities. The other three facilities have made very minimal progress. Bird mortalities were found at three of the six. Two had unlined pits with 100% oil coverage with no exclusionary device, and three of the six had major SPCC violations. Cumulatively at all six sites, there were 27 pits with oil coverage with no exclusionary device, with 25 out of the 27 being 100% covered with oil. EPA and DOGM have agreed to a

strategy for follow-up at these facilities in which DOGM has assumed the lead for follow-up at the sites. DOGM continues to conduct follow-up activities at three of the sites.

One inactive COWDF in Indian Country is directly under the jurisdiction of the Uintah and Ouray Tribe and BIA. The Tribe, BIA and EPA have entered into a memorandum of understanding regarding the funding sources and process to be used for ensuring that this site is closed in an environmentally acceptable manner. The source of a portion of the funds being used is a Supplemental Environmental Project (SEP) resulting from an enforcement settlement unrelated to the OGEA effort.

Wyoming

COWDF's in Wyoming are regulated by the Wyoming Department of Environmental Quality (WDEQ). The authority used is a construction permit under the Wyoming Environmental Quality Act. Seven COWDF's were identified through the aerial surveys. Follow-up inspections were conducted at these seven in 1997. Of the fourteen pits observed, three were 100% covered with oil with no exclusionary device, four were 100% oil covered with exclusionary devices (though all were in need of maintenance), five had some oil on them with no exclusionary devices, and two had no oil on them. At one of the seven sites, a bird mortality was found.

After the 1997 inspections, a meeting was held to discuss the environmental condition of the COWDF's in Wyoming. Of the 21 facilities discussed, three required no follow-up action. WDEQ assumed the lead for follow-up on seven, issuing Notices of Violation and conducting inspections. It was decided that EPA, WDEQ and FWS would jointly inspect the remaining eleven COWDF's. The joint action plan involved documenting problems found at these facilities, meeting with facility representatives, getting a verbal commitment from the facility to address the environmental problems, and getting their commitment to address the problems by the start of the fall migratory season.

Nine COWDF's were jointly inspected in April 1998. Of the 18 pits observed during these inspections, five pits were 100% oil covered with no exclusionary device, four pits were 100% oil covered with exclusionary devices, five had some oil on them with no exclusionary device, and four had no oil on them. Seven of these nine were reinspected in September of 1998 to see what kind of progress had been made in correcting environmental problems noted. Three additional COWDF's, which had not been inspected in the spring, were also jointly inspected. Of the 20 pits observed as part of the September inspections, five pits had 100% oil coverage with no exclusionary device, and four pits had 100% oil coverage with an exclusionary device, six pits had some oil coverage. Four had no oil coverage on pits. Two of the ten sites had bird mortality. Based on the results of the reinspection, WDEQ issued formal enforcement actions against six COWDF's. Of these six, WDEQ has closed out three of these actions. Two still need to be completed. EPA assumed the lead on one of these and issued a RCRA 7003 order in October 2000. EPA continues to monitor the implementation of the clean-up work required by this order. Of the nine informal actions issued by WDEQ, seven have been closed out and two are still active.

A total of twenty-nine joint inspections have been conducted at twelve COWDF's in Wyoming as part of this special focus. All twelve of these facilities have required some sort of follow-up to correct environmental conditions and/or non-compliance.

Appendix D

FWS PIT NETTING RECOMMENDATIONS

This Page Left Intentionally Blank

FWS Pit Netting Recommendations

Effective installation requires a design allowing for snow-loading and one that also prevents ground entry by small mammals and birds. A maximum mesh size of one and one-half inches (1 ½") will allow for snow-loading and will exclude most birds. Netting should be suspended a minimum of four feet to five feet (4' to 5') from the surface of the pit to prevent the net from sagging into the oil-covered pit during heavy snow-loads. Three inch (3") steel tubing can be used for support posts, set a maximum of seven feet (7') apart, buried a minimum of seven feet (7') in depth, and set in concrete. Three-inch (3") steel tubing is also used as a top rail to connect the posts. Cable is strung across this frame at seven-foot (7') intervals along the x-axis and the y-axis to form a grid of seven foot (7') squares by the cable. The netting is draped over this cable grid. Netting should be wide enough to drape down the sides of the frame to prevent ground entry by wildlife. A bottom perimeter cable strung along the bottom of the posts at ground level is used to attach the bottom of the net. Cables are strung over the net at seven-foot (7') intervals to prevent the wind from whipping the net back and forth. Proper maintenance should be performed to repair holes in the netting and to re-stretch sagging nets after heavy snow-loads.

This Page Left Intentionally Blank

APPENDIX E

Response to Comments

1. Bureau of Land Management–Montana State Office
2. Colorado Oil and Gas Conservation Commission–Randal Ferguson
3. Interstate Oil and Gas Compact Commission–Christine Hansen
4. North Dakota Department of Health–Curt Erickson
5. North Dakota Industrial Commission-Lynn Helms
6. South Dakota Department of Environment and Natural Resources-Steve Pirner
7. Utah Division of Oil, Gas, and Mining-Lowell Braxton
8. Wyoming Department of Environmental Quality–Larry Robinson
9. Wyoming Oil and Gas Conservation Commission–Don Likwartz

The draft OGEA Report was distributed to each of the involved co-regulator organizations in November, 2001 for comment. Each of the organizations listed above provided comments on the draft report. Many of the comments addressed data issues - some of which highlighted errors that have been corrected. Several comments focused on data interpretation as well as the overall process itself. While we have made several changes based on these comments, as well as clarified portions of the report that were unclear - thus making it a stronger report - there are some areas where we disagree with the comment and have so stated. In our view, disagreements between professionals is legitimate and often necessary in order to initiate further discussion and achieve better solutions to issues of common interest. To that end, we thank the organizations and individuals noted above for their comments.

A final draft OGEA Report was distributed again to each of the involved co-regulator organizations in August, 2002 for comment prior to being finalized. Several changes were made to the final report as a result of feedback received.

OGEA Report – Response to Comments

Unless otherwise indicated, comments are quoted directly. Any deviations from the original text are noted.

Colorado Oil and Gas Conservation Commission , Randall Ferguson

COGCC Comment #1

Table 3 on page 8 and the same table in Appendix A/Results by Jurisdiction, Row OG*/Column a under Colorado: The number is currently 13; the revised number should be at least 33 (there appears to be at least two duplicate sites between 1998 and 1999).

Response to Comment:

The number of sites at which an agency assumed follow-up responsibilities (as reflected in Table 3 and Appendix A) is intended to be limited to those sites that were subject to a OGEA ground inspection, a multi-agency discussion of appropriate follow-up, and at which informal or formal action was taken. The number suggested by COGCC included several sites that were not subject to this process. Some discussion of these other sites can be found in the Colorado section of Appendix A. Note: Table 3 is now found on page 9.

Bureau of Land Management, Montana State Office

MtBLM Comment #1

Page 5 - Table 1 - The table shows the estimated number of pits in each state. The number for Montana (1370) has an asterisk beside it which indicates that “The number of pits on BLM land in Montana was not made available and is not included here.” The reason the number of pits on BLM land was not made available is because that number is not known. We do not keep a tally of pits on BLM land. We do, however, keep records of pits associated with Federal production, i.e., production attributed to Federal mineral estate. This includes some pits located on other surface management agencies lands, but which are used in the production of Federal oil and/or gas. The current number of these pits in Montana is 944.

Response to Comment:

Table 1 has been modified; see Appendix A for details. The footnote has been modified to clarify that the number of pits on BLM land in Montana is not known. Note: Table 1 is now found on Page 6.

MtBLM Comment #2

Page 8 - Table 3 - Please see our updates to the individual state tables in Appendix A. Also, it appears that this table is not in the appropriate location in the report. It is currently within part III.D., Commercial Facilities. This table does not address commercial facilities. It should be located in part III.C., Actions Taken.

Response to Comment:

Table 3 has been modified and relocated as suggested.

MtBLM Comment #3

Appendix A - Page 4 - Montana Results At a Glance - See comment above regarding the number of pits on BLM land. This table shows there were no sites at which BLM assumed some follow-up responsibilities. Our records agree with this as no sites were identified during this study that required BLM follow-up.

Response to Comment:

We agree. See Response to Comment #1.

MtBLM Comment #4

Appendix A - Page 5 - North Dakota - The “Number of sites identified” shows that one site was located on BLM lands. Our records show that none of the sites were located on BLM lands. This is consistent with the table on page 6 which shows there were no sites reported for the BLM. Our records agree with this as no sites were identified during this study that required BLM follow-up.

Response to Comment:

During the North Dakota aerial survey, one potential problem site was identified on BLM land (Waypoint #80). There are no BLM sites indicated in the “North Dakota at a Glance” table because there were none requiring follow-up and not because there were no sites on BLM land identified during the aerial survey.

MtBLM Comment #5

Appendix A - Page 8 - South Dakota - This table shows there were five sites at which BLM assumed some follow-up responsibilities. Our records indicate that there were only three sites which BLM assumed follow-up responsibilities. These numbers were discussed with Randy Lamdin of your office. He confirmed that there were three sites involving BLM. Notices of violation were issued on two of the sites, and the problems were corrected. Formal action was taken on the third site. It is unclear at this time if the follow-up actions have been completed. Randy is coordinating with our North Dakota Field Office on this issue. Therefore, the table should show “3” under column a, “2” under column b, “1” under column c, and either “2” or “3” under column d. The column d number will depend on the information Randy obtains from our North Dakota Field Office.

Response to Comment:

The table has been modified to reflect the numbers provided in BLM’s letter as well as in discussions between Randy Lamdin of EPA and BLM staff.

North Dakota Department of Health, Curt Erickson

NDDH Comment #1

In Appendix A, North Dakota at a glance on the second page, the table has an entry for sites addressed by TR. The legend lists the Ute tribe. I realize that the agencies listed for all states are sort of “generic” but listing this agency for all 6 states is somewhat confusing/misleading. Would be nice to either eliminate the TR row for the states that this doesn’t apply to or leave blank and remove the Ute ref.

Response to Comment:

The footnote to the “North Dakota at a Glance” table has been modified eliminating reference to Ute tribes.

North Dakota Industrial Commission , Lynn Helms

NDIC Comment #1

In table 2 in Section III.B, the number of sites with bird mortalities should be 3 not 4.

Response to Comment:

Table 2 has been modified.

NDIC Comment #2

The North Dakota At a Glance table in Appendix A includes 3 bird mortalities on 3 sites from joint NDIC/USFWS inspections conducted in May 2000, but doesn't include the 66 sites inspected, number of pits observed, or breakdown of oil covered pits from those inspections. Those inspections were not the 1998 POP Program and the bird mortalities should be removed from the report. Alternatively, all other data about the May 2000 inspections must be included.

Response to Comment:

The data in the “North Dakota at a Glance” table have been modified to reflect only the results of the 1998 OGEA activities. The May 2000 inspections were conducted by NDIC and FWS only. A sentence has been added to the North Dakota summary in Appendix A to clarify this.

NDIC Comment #3

Second, the conclusion in Section IV.C.2., that a shorter time period for reserve pit closure or netting if closure cannot be effected within a few days of completion will reduce bird and wildlife mortality is not supported by any data in the report. We know that none of the North Dakota bird mortalities occurred in reserve pits.

Response to Comment:

The recommendation made was general in nature and not specific to particular states. However, it is important to note that bird mortality was observed in or near reserve pits in several states during the OGEA effort. This is to be unexpected given the large size of many reserve pits and the number of reserve pits observed with oil on the surface. It is therefore reasonable to conclude that if reserve pits were closed sooner after they were no longer needed or netted, the opportunity for bird or wildlife mortality would be reduced as would the potential for liability under the Migratory Bird Treaty Act. Additionally, and as noted in the report, bird carcasses can dissolve quickly leaving no physical trace of their existence - just because there is no body, does not necessarily mean that there was no mortality.

NDIC Comment #4

Third, the conclusion in Section IV.C.4, that bonding requirements are uniformly inadequate is outside the scope of the POP program and this report. This conclusion is also not supported by any data in the report.

Response to Comment:

We stand behind our recommendation. We recognize that significant improvements have been made by some state and federal agencies in the area of bonding. Our concern - and therefore the focus of the recommendation - is that a review of bonding requirement should be made to assure that not only are P/A costs covered, but also that site remediation costs (where applicable) are covered as well. If remediation costs are not included or are not adequate to cover the cost of the action, the public is left with the bill and/or the site may not get addressed in a timely manner. We do not think that this is an acceptable situation: those who cause environmental problems should be responsible for satisfactorily addressing them.

NDIC, Comment #5

Finally, the conclusion in Section V.3., that aerial surveys and the POP program are cost effective and should be continued is not supported by data in the report.

- 1) It is estimated there are 27,680 pits in the 6 states surveyed.
- 2) A 4-year effort by multiple regulatory agencies identified less than 2% of the pits (516) from aerial surveys as having potential problems.
- 3) Less than 1.5% of the pits (411) had oil on the surface.
- 4) Bird and wildlife mortalities were observed at less than 2 tenths of 1% of the pits. A total of 142 bird and 14 wildlife mortalities were observed.

Response to Comment:

There are numerous ways to statistically evaluate the data in the report. As you know and as we state in the report, not all 27,680 pits were flown. However, a significant number were monitored and of these 516 potential problem sites were identified. (It is important to reiterate that sites often includes multiple pits.) 476 sites (92%) were inspected and of these, 185 (39%) were found to have no problems when observed during ground inspection. The remaining 291 sites (61% of those inspected) required some follow-up work. EPA believes that, in terms of potential for environmental impact, the number of possible problem sites identified was a relatively high percentage of the total number of pits observed during aerial surveys. Further, we believe that aerial surveys are a cost effective and unobtrusive way to identify sites that warrant a further look. Aerial surveys allow a team to screen in excess of 100 sites per hour. The information gathered allows a more efficient way to target resource-intensive ground inspections, which are generally limited by geographic location and proximity as well as extent of issues. Finally, using aerial surveys as a screening tool allows limited staff time and travel dollars to be directed at only those sites where real or potential problems have been observed.

SD Department of Environment and Natural Resources , Steve Pirner

SDDENR Comment #1

The report appears to contain a number of factual errors and contradictory data as follows:
In the Executive Summary portion of the report on page VI, the Interstate Oil and Gas Compact Commission (IOGCC) is referred to as an oil and gas trade group. The IOGCC is not a trade group; it is an organization of states, including South Dakota, which promotes conservation and effecting recovery of domestic oil and natural gas resources while protecting health, safety, and the environment.

Response to Comment:

A change has been made to the report to correct the reference to IOGCC as an industry trade group.

SDDENR Comment #2

In Table 1 on page 5, the estimated number of pits in South Dakota is shown as ten. This is the total number of pits, all of which were authorized under applicable state or federal requirements, we reported to EPA per EPA's request. The table also indicates ten sites were inspected. However, only one of the ten pits we reported was inspected, and it contained a very small amount of oil. The remaining sites inspected on the ground by EPA were conducted under other EPA authorities and did not involve inspections of problem oil pits. Therefore, the table is misleading because only one oil pit was inspected on the ground.

Response to Comment:

Several changes to the SD data in Table 1 (now located on page 6) and Appendix A, page 8 have been made based on recent discussions with Fred Steece and Mack McGillivray of SDDENR. Table 1 now estimates the number of pits as 25 due to an additional nine sites with pits that SDDENR recently identified. (SDDENR advocates a different number because it defines pits differently from EPA.) Additionally, the following change has been made for clarity: the definition of "pit" has been added and a footnote indicating that SDDENR uses a different definition and, thus, a different number count. With regard to the nine sites at which EPA, BLM and SDDENR conducted ground inspections (corrected from ten to nine based on SDDENR feedback), all were conducted under the same project using a multi-program inspection checklist.

SDDENR Comment #2

Table 1 on page 5 also indicated that two problem oil pit sites were identified from the air. Ground inspections only confirmed the presence of one pit. At the other site, an empty drum in a ravine was found but no pits were present. The drum was empty, sealed, and recovered by the operator. Therefore, only one potential problem oil pit should be referenced in the table.

Response to Comment:

The approach taken during the aerial surveys was generally that if a site was observed to have a condition that warranted an inspection, we "clicked" on it. Oil on the surface of pits was most typically the condition observed. However, other observed conditions (such as discharges to surface water, abandoned drums, etc.) thought to pose a risk to human health or the environment were also identified as deserving of further investigation. Note: Table 1 is now on page 6.

SDDENR Comment #4

Table 1 on page 5 also indicates that one problem oil pit problem was solved prior to inspection. This is not accurate because the one pit inspected on the ground did contain a small amount of oil, which required follow-up action.

Response to Comment:

Based on discussions between Fred Steece and Mack McGillivray of SDDNR and Corbin Darling and Randy Lamdin of EPA, the number of problems addressed prior to ground inspections in South Dakota has been changed from one to six (waypoints 71, 73, 74, 75, 77 and 78). Also, to clarify the meaning of the table, the description of this item has been changed to "Sites with no problems observed during ground inspections." Note: Table 1 is now on page 6.

SDDENR Comment #5

Table 2 on page 6 indicates that there were 19 pits observed and free of oil. We are uncertain why 19 pits are reported because, as mentioned previously, we reported only ten pits to EPA. In addition, we do not know how it could be concluded that 19 pits were free of oil when only one pit was inspected on the ground.

Response to Comment:

Based on discussions between Fred Steece and Mack McGillivray of SDDNR and Corbin Darling and Randy Lamdin of EPA, the number of pits observed (as identified in Table 2 of the report) has been changed to 16. The number of “100% oil covered pits” has been changed to one and the number of “<100% oil covered pits” has been also been changed to one. The number of pits free of oil has, consequently, been changed to 14. A footnote has been added to the table indicating that SDDENR does not agree with the pit condition data in the table since it does not agree with the definition of “pit” used throughout the report. Note: Table 2 is now on page 7.

SDDENR Comment #6

Table 2 on page 6 also lists one Spill Prevention Controls and Countermeasures (SPCC) violation. First of all, we were told this effort was supposed to deal exclusively with problem oil pits, not SPCC or other issues. In addition, we do not believe the alleged violation was valid. The EPA inspector identified it as a storage tank that was not in compliance. DENR and BLM both disagreed with this conclusion after observing that all of the piping and plugs had been removed from the tank and were obviously not in service.

Response to Comment:

While it may not have been clearly communicated in all instances, the OGEA effort was intended to be a multi-program effort since its inception. We attempted to make this clear during our initial meeting with each co-regulator. However, in some cases, this message was overshadowed by the focus on issues related to bird and wildlife mortality. Regarding the specific comment that the alleged SPCC violation at a site was not valid: there were, in fact, several alleged violations observed at the site. The violations have been addressed, and the case has been closed. We are available to discuss the applicable regulatory requirements in more detail at your convenience.

SDDENR Comment #7

In Appendix A on pages 7 and 8, some of the data for South Dakota is not consistent with the main body of the report and does not coincide with our records. For example: On page 7, the percentages indicated in the “Conditions found” section does not coincide with the data contained earlier in the report. The table on page 8 entitled “The POP Universe” indicates the estimated number of pits as nine, although ten was the number identified earlier in the report in Table 1. The table also indicated six sites had problems that were addressed prior to inspection, while Table 1 indicates there was only one such site. As mentioned above, the number of pits for this item should be zero. The “Environment Conditions Found” table on page 8 indicates one pit was 100 percent oil covered and two were less than 100 percent covered. Earlier in the report one pit was indicated as containing any oil. Our records indicate the one pit that was inspected and less than 10 percent oil coverage.

Response to Comment:

Appendix A of the report has been modified to be consistent with the changes to Tables 1 and 2 of the report as described above.

SDDENR Comment #8

Finally, the report recommends specific actions that should be taken by the states and federal land managers to deal with problem oil pits. While we appreciate the recommendations and will take them under advisement, most of them either do not apply to South Dakota or have already been implemented. As the results of the investigation bear out, our regulatory program already has the necessary elements to effectively deal with oil and gas exploration and production waste pits. Therefore, there is no need for EPA to do any follow-up work in South Dakota.

Response to Comment:

The report recommendations are not meant to apply to a specific state but, rather, to the Region as a whole. We recognize that some recommendations may not be applicable in some areas. While we would generally agree that SDDENR's regulatory program is effective, this is based on an evaluation of only half of the universe of sites in South Dakota since it was only recently that SDDENR disclosed the existence of additional sites to EPA. As a result, EPA's future oil and gas environmental assessment work may include work in South Dakota.

Utah Division of Oil, Gas and Mining , Lowell Braxton

UtDOGM Comment #1

This letter is written in response to the transmittal of the referenced draft report, sent to the Utah Division of Oil, Gas and Mining ("the Division") via e-mail November 27, 2001, by Wanda Taunton of EPA Region VIII. On December 11th, Gil Hunt of the Division sent an e-mail to your attention, providing some comments on the draft report. Those comments are included as an attachment to this letter. Other than the comments provided by Mr. Hunt, the Division acknowledges that the draft report reasonably documents the activities and observations of both the EPA and other co-regulators in the POP effort over the past several years.

Response to Comment:

We agree.

UtDOGM Comment #2

The most significant concern that the draft report raises for the Division is whether the results of the POP effort justify the expended manpower and monetary resources of both the federal government and other co-regulators over the period of time of the project. From the results listed in the draft report, out of an estimated 27,680 pits in the six states covered by the study, 516 potential POP sites were identified by aerial survey - equating to 1.9% of the total number of estimated pits. At the identified sites, ground inspection teams visited 802 pits and found nearly half of those pits (391) free of oil. The study documented a total of 156 bird and wildlife mortalities in all the states participating in the Region VIII POP effort. This seems to be a very small number compared to the 27,680 pits estimated in the study, and it also seems small compared to the many thousands of suspected wildlife mortalities originally suggested in the POP effort.

Response to Comment:

There are numerous ways to statistically evaluate the data in the report. As you know and as we state in the report, not all 27,680 pits were flown. However, a significant number were monitored and of these 516

potential problem sites were identified. (It is important to reiterate that sites often include multiple pits.) 476 sites (92%) were inspected and of these, 185 (39%) were found to have no problems requiring some follow-up work. The remaining 291 sites (61% of those inspected) required some follow-up work. EPA believes that, in terms of potential for environmental impact, the number of possible problem sites identified was a relatively high percentage of the total number of pits observed during aerial surveys. Further, we believe that aerial surveys are a cost-effective and unobtrusive way to identify sites that warrant a further look. Aerial surveys allow a team to screen in excess of 100 sites per hour. The information gathered allows a more efficient way to target resource-intensive ground inspections, which are generally limited by geographic location and proximity as well as extent of issues. Finally, using aerial surveys as a screening tool allows limited staff time and travel dollars to be directed at only those sites where real or potential problems have been observed.

UtDOGM Comment #3

While I recognize that protection is afforded to many bird and animal species under various state and federal laws, I disagree with the draft report's suggestion that future aerial surveys should be performed in Utah. The questionable ability of aerial surveying to identify oilfield problems suggests it is not cost effective, and field checking further suggests that oilfield related bird mortalities in Utah are insignificant. It is certainly disingenuous to continue funding the aerial survey effort given the results of the flyovers and subsequent field checks. The Division and likely other co-regulators learned valuable lessons from the current POP effort; however, the manpower and public funds expended in this study should not be duplicated in the future unless there is substantial, credible evidence indicating that a problem exists. Thank you for the opportunity of providing these comments.

Response to Comment:

See Response to Comment #2 above.

UtDOGM Comment #4

Part 1, C. FWS Experience (page 2). We question the accuracy of the statement that carcasses tend to dissolve or sink in four days, especially when the pit contains waxy crude with a pour point over 100 degrees.

Response to Comment:

The statement concerning the rapid decomposition of carcasses in oil is general in nature and not specific to any particular state or production area. In areas that have a waxy crude with pour points over 100 degrees (for example, northeast Utah), the threat to birds and wildlife would be different.

UtDOGM Comment #5

Table 3 (page 8). What is the definition of "Formal Enforcement Actions"? DOGM issued letters temporarily closing three disposal facilities. If this action meets the definition, then the table should be adjusted.

Response to Comment:

The Table has been corrected.

UtDOGM Comment #6

Part IV, C. Site Design and Operation Subpart 2. Prohibit exposed oil on surface of pits (page 12). The recommendation to not allow exposed oil on pit surfaces at any time is too restrictive. Emergency pits should be allowed to contain fluid from an upset for a short period of time.

Response to Comment:

We support the concept that emergency pits are designed to contain fluid from a spill for only short periods of time, usually 24 hours or less. However, our field experience showed that the 24-hour requirement was not always being followed. If it is found that emergency pits cannot be operated in this manner, EPA believes that all oil field impoundments should be maintained free of oil or, alternatively, have effective exclusionary devices installed.

UtDOGM Comment #7

Subpart 4. Improve requirements for site closure and remediation (page 13). Although we agree that in most cases, the bonding for waste disposal facilities is inadequate, the comments concerning the PA of wells are unsubstantiated and probably doesn't belong in this document. The recommendation for consistent pit closure requirements, instead should address waste disposal methods and cleanup levels.

Response to Comment:

We stand behind our recommendation. We recognize that significant improvements have been made by some state and federal agencies in the area of bonding. Our concern - and therefore the focus of the recommendation - is that a review of bonding requirements should be made to assure that not only are P/A costs covered, but also that site remediation costs (where applicable) are covered as well. If remediation costs are not included or are not adequate to cover the cost of the action, the public is left with the bill and/or the site may not get addressed in a timely manner. We do not think that this is an acceptable situation: those who cause environmental problems should be responsible for satisfactorily addressing them. The recommendation for consistent pit closure requirements is meant to include applicable requirements for waste disposal methods and cleanup levels.

UtDOGM Comment #8

Utah at a Glance (Appendix A, page 9). Depending on the definition of Formal Enforcement Actions, the follow-up table may need to be adjusted to reflect three temporary shut down orders.

Response to Comment:

The table has been changed.

UtDOGM Comment #9

Utah - Results at Commercial Facilities (Appendix C, page 1). It should be noted that considerable progress and improvement was made at all commercial facilities in Utah. Oil covered pits were cleaned at all sites, smaller netted skim pits were installed at several facilities and improvements were made to load-off equipment. Two facilities no longer in use made considerable progress toward cleanup and work is continuing toward that goal.

Response to Comment:

EPA considers UtDOGM to have been instrumental in addressing environmental compliance at the 10 commercial facilities identified through this effort. EPA and UtDOGM are still working cooperatively on four of the facilities, UtDOGM is still working alone with three facilities, UtDOGM efforts have resulted in

three facilities achieving environmental clean-up. Of the seven facilities still working on clean-up activities, three are almost completed. EPA appreciates the work of UtDOGGM in achieving these results.

Wyoming DEQ, Larry Robinson

Comments from Larry Robinson are paraphrased because they were delivered by telephone.

WDEQ Comment #1

Appendix “C” in the Wyoming Section should have the reference to the Clean Water Act changed to “Wyoming Environmental Quality Act”.

Response to Comment:

The Report has been changed.

Wyoming Oil and Gas Conservation Commission, Don Likwartz

WOGCC Comment #1

I appreciate the opportunity to provide comment on the draft report as I have a number of concerns about its content and conclusions. The Background section of the Executive Summary includes the following statement: “The “POP Team” name grew out of the belief at the onset of the effort that, based on prior FWS and EPA experience, oily waste in open pits posed a significant threat to migratory birds and other wildlife.

That this project grew out of a bias is most clearly demonstrated by the derogatory and unscientific nature of the selection of a name given what was touted as a “team” effort. The WOGCC, as well as many other regulators who reluctantly joined the effort, vainly protested use of incorrect and misleading nomenclature. We repeatedly pointed out that pits planned to be visited in Wyoming should be properly identified as reserve pits, produced water pits, and workover and completion pits.

Further, Wyoming is the fifth largest gas producer in the nation and a large number of pits in this state serve gas production. Not since the turn of the twentieth century has oil been deliberately stored in surface pits in Wyoming. Produced water pits in our state which were identified as “problems” because of residual oil on their surfaces, were caused by poor maintenance practices or mechanical failure of oil and water separation systems. They were not created in an effort to store hydrocarbons prior to transfer.

Requests by the “team” members that EPA correct titles associated with the “Problem Oil Pit Effort” or “POP Team” were consistently, completely ignored.

Response to Comment:

We recognize that some co-regulators have issues about the name of this initiative. And in an effort to correct any unintended inferences resulting from the project’s name, the name has been changed to the “Oil and Gas Environmental Assessment” (or OGEA) project. The “Problem Oil Pit” or “POP” name used for the effort stemmed from the concern that pits with oil on the surface had been observed to occur relatively frequently, presenting a threat to birds and other wildlife. However, it was never our intention to imply, or

for the readers to infer, that the focus of this effort is solely on pits full of oil. We did, in fact, consider the use of a number of names for this effort, which was intended to address environmental issues in petroleum production and processing areas - not just "pits". As you point out, we soon realized that the "pits" in question could be reserve, produced water, workover, and completion pits. Moreover, evaporation ponds and open-topped tanks were also found to present environmental problems and, occasionally, problems were identified at oil and gas production and processing facilities as well. However, by this time the phrase "Problem Oil Pit" or "POP" had taken hold within EPA and it was not easy to refer to it by another name. See also response to Comment 7b, IOGCC.

WOGCC Comment #2

Requests for reconciliation of final report numbers, or information relative to which facilities were counted in various categories [were consistently, completely ignored].

Response to Comment:

We disagree with the assertion that your data was "consistently, completely ignored". Nonetheless, as a result of conversations with WOGCC staff, it appears that the initial concerns about numbers used in the report have been clarified and resolved. EPA will make changes to the language in the report to make clearer the distinction between the terms "sites" and "pits". Both terms must be used in the report inasmuch as aerial and site visit data use both terms.

WOGCC Comment #3

Information flow has been one-way; from WOGCC to EPA.

Response to Comment:

EPA disagrees that the flow of information has been in only one direction. Despite a rocky start, we have been committed to (and have insisted upon) open and frequent communication between staff and management. And, this has happened. In fact, early in the project (June, 1997) a meeting was held with all the co-regulators in Wyoming (including WOGCC) to discuss how to conduct follow up activities on the inspections in Wyoming. One of the commitments made by the group included maintaining good communications/on-going dialogue. Numerous meetings were held throughout the project period, as well as numerous phone calls to identify and resolve issues, to provide direction to the team, to check on progress, etc. WOGCC staff participated during field visits to facilities that were identified from the aerial surveys as warranting a closer look from the ground. When concerns were raised by WOGCC about the observations made during aerial surveys, WOGCC were invited to participate and did participate on future aerial surveys. At one point, WOGCC stated a desire to continue to work together using this approach and including aerial surveys once the initial phase of the project was completed. This kind of coordination occurred on a regular basis.

WOGCC Comment #4

Numbers from the draft report which should include fly-overs made in 1997 and 1999 do not match [WOGCC] records. These will need to be reconciled or corrected prior to issuance of the report.

Response to Comment:

As a result of conversations with WOGCC staff, it appears as if the initial concerns about numbers used in the report have been clarified and the concerns expressed resolved.

WOGCC Comment #5

The Recommendations section of this document includes the following: “One of the biggest successes of the POP effort has been the strengthening of communication channels and working relationships, as well as the understanding of agency responsibilities and objectives, among the co-regulators.” [WOGCC] joined the EPA/FWS group only because the Commission directly regulates the industry being inspected.

Response to Comment:

Regardless of WOGCC’s reasons for joining the group, it was made stronger by your participation. What is most critical is not the reason why you joined, but the actual work itself to protect human health and the environment.

WOGCC Comment #6

[WOGCC] joined the EPA/USFWS group only because the Commission directly regulates the industry being inspected.

Response to Comment:

See Response to Comment #5 above.

WOGCC Comment #7

The flyover was explained to the co-regulators as having a goal of identifying pits that were oil covered. One week prior to the first ground inspections, [WOGCC was] told sites would be inspected for compliance with SPCC and OPA criteria.

Response to Comment:

The June, 1997 mission statement said “Co-regulators cooperatively working together to ensure that human health and the environment (including wildlife) are being protected and that the pits are brought into compliance with **all associated authorities** (emphasis added).” While it may not have been clearly communicated in all instances, this effort was intended to be multi-program since its inception - including SPCC and OPA.

WOGCC Comment #8

The inspection checklist was developed by EPA, without any input from [WOGCC] or the BLM.

Response to Comment:

EPA developed the check list used during site inspections to identify information related to EPA authorities. An inspection checklist that addresses the authorities and concerns of all agencies involved would not be practical. The checklist was shared with co-regulators in advance of the inspections to help shed light on the areas of interest to EPA. We note that the FWS also had its own process for information gathering relevant to its authorities. We also expected that co-regulators would bring along their own checklists to round out the effort. Some did and some didn’t.

WOGCC Comment #9

Additional confusion was generated when fields in the Big Horn Basin, which had just been inspected by the multi-media team, were subjected to an additional, unannounced visit by Washington EPA personnel who refused to properly identify themselves.

Response to Comment:

This was an unfortunate set of circumstances. The Regional Office and the Criminal Investigations Office engaged in several conversations after this incident in order to assure close contact, communication, and coordination in areas where our actions overlap. We provided this information to Governor Geringer.

WOGCC Comment #10

This agency was not treated as a member of a team in an effort to protect wildlife and the environment. EPA needs to take responsibility for these errors of omission and improve communication with the state agencies[.]

Response to Comment:

We disagree with this statement. Communication is a two-way street and requires commitment on the part of all parties if the working relationship is to be a strong and positive one.

Interstate Oil and Gas Compact Commission, Christine Hansen

IOGCC Comment #1

Thank you for the opportunity to comment on your draft report on "Problem Oil Pits" which you sent out in late November [2001]. As we have discussed by telephone, and briefly at the IOGCC Annual Meeting last month, the states are concerned about both the context and the substance of the report. The report contains statements throughout which are not substantiated, and many seem to be created from nothingness (see, for instance the whole discussion under A-1 of Part IV Recommendations).

Response to Comment:

The report and statements made in the report are based on EPA's experience during the effort as well as referenced documents. The example raised here (Recommendation A-1) advocates both continued implementation of the IOGCC Strategies and environmental protection. We assume that IOGCC remains committed to its 10 environmental guidelines and also places a high value on environmental protection.

IOGCC Comment #2

The report implies throughout that, absent the POP program, the states would not have known nor done anything about, these identified sites. Nothing is further from the truth.

In most instances, the state involved was aware of the site, when the flyovers identified legitimate problems (which was not always the case, as you well know).

Response to Comment:

From the beginning, EPA has viewed this effort as a joint one, bringing together the knowledge and resources of those who know this issue to identify and address "legitimate problems" - and that was our experience. In fact, much of the data used to identify potential problems was provided by the states. States participated in the ground surveys and some states also participated in the aerial surveys. Finally, and most importantly, states took the majority of informal and formal actions using their own authorities to address problems found. We think this is as it should be.

IOGCC Comment #3

As we have discussed, the aim of this program contains many positives. There are excellent "lessons learned" about the best way to foster state/federal cooperation. Those should be highlighted.

Response to Comment:

We agree.

IOGCC Comment #4

Aerial surveillance is a fabulous tool for enforcement, but one that is too expensive for the states. With federal resources available for aerial surveillance, a logical first step for the federal government should be complete coordination with state regulatory programs. State regulators are aware of the location of operators who do not have a good reputation. They also know where companies with sterling records operate---areas where aerial surveillance would be both a waste of taxpayer money and regulator time.

Response to Comment:

EPA believes that aerial surveys are a cost effective means of gathering information about potential problem sites and evaluating their long-term impact. Aerial surveys allow a team to screen in excess of 100 sites per hour. The information gathered allows a more efficient way to target resource-intensive ground inspections, which are generally limited by geographic location and proximity as well as extent of issues. Finally, using aerial surveys as a screening tool allows limited staff time and travel dollars to be directed at only those sites where real or potential problems have been observed. EPA also believes that it is important to utilize information from the state agencies concerning such sites and that close coordination with the states is important in this effort. As noted earlier, we did rely on information provided to us by state agencies.

IOGCC Comment #5

Federal failure to coordinate adequately with state regulatory programs led to initial state skepticism and criticism of this program. That valuable lesson should be pointed out in the report. When the federal government began to coordinate with the states, even inviting state regulators along on the aerial surveillance, there was a marked improvement in both sites identified and in the federal/state relationship.

Response to Comment:

Coordination with co-regulators was extensive from the start and unprecedented in terms of the level of effort involved. Meetings and briefings were held with the states. Some states were more eager and willing to participate than others. EPA Region 8 acknowledges, however, that there were some areas that could have benefitted from better coordination or communication. It is important to note that cooperation/communication works best when all parties share the responsibility for making it effective.

IOGCC Comment #6

Failure of the federal government to recognize state expertise and the breadth of state regulatory authority creates unnecessary tension between the branches when both have identical public interest aims. Each can learn from the other. The initial federal government approach to this project was viewed as almost adversarial by some states. While that certainly could not have been the intent of the federal agencies involved, the result was skepticism and ill feelings on the part of many state regulators.

Response to Comment:

EPA disagrees that there was a failure to recognize state expertise and regulatory authority. In fact, that recognition was critical throughout the effort, especially when conducting ground inspections and during the joint evaluations of appropriate site-specific follow-up actions. EPA's keen awareness of the importance of state expertise resulted in EPA holding initial coordination meetings with each state before any aerial or site work was begun in that state. In fact, a state co-regulator made a presentation at an early team meeting on the value of state-specific expertise to the overall effort. As noted in the Report, the majority of follow-up actions taken were taken by states using their authorities. We again note that communication, cooperation, and trust are two-way streets. From our perspective, some co-regulators did not recognize EPA's expertise or interests from the beginning - albeit not the same as theirs, but a complement to be considered in the overall picture. Our intention was not to usurp state authorities and we believe that is demonstrated by the fact that most follow-up actions were informal in nature and done by co-regulators - not EPA. Therefore, we certainly agree that we ALL have things to learn from each other and are stronger for it.

IIOGCC Comment #7 (parts a and b)

This skepticism was reinforced when promised changes were not forthcoming. The states disputed the bird mortality figure used in federal publications and at federal Web sites, and it was agreed that the figure did not have proper scientific backing. However, after repeated promises to do so, the figure was not removed from the Web site or federal publications. In addition, at your meeting with the IOGCC Council of State Regulatory Officials in Salt Lake City in December 1998, it was agreed that the program name would be changed. The state oil and gas directors pointed out, and you and Wanda Taunton, of the Region 8 EPA office in Denver, agreed that the subject of the aerial surveillance was not "oil pits" but, containments of water with an oil sheen.

Response to Comment 7a:

EPA and the FWS discontinued use of the oil pit mortality estimate (2 million birds per year) shortly after co-regulators raised their concerns and asserted that the mortality was lower due to proactive steps taken by the oil industry. As early as 1979, the FWS estimated that bird mortalities in oil pits were a significant problem (1.5 million birds per year) and also pointed out that the 1.5 million bird estimate was probably a very conservative estimate (Banks 1979). In the mid-1990's, the FWS estimated the mortality at 2 million birds per year based on bird mortality reports from oil pits in the western U.S. The FWS and the EPA recognize the need for obtaining an updated estimate of bird mortality in oil pits to determine if it has been reduced due to the proactive steps taken by the oil industry. The 2 million birds per year mortality estimate is not mentioned in any way in the draft report. Also, EPA removed the FWS bird mortality estimate from the EPA website and fact sheets several years ago. We acknowledge, however, that a FWS representative in North Dakota, who was not fully involved or familiar with this effort, did incorrectly raise this issue again several years ago. Our EPA and FWS representatives responded by immediately correcting that situation, and again had the former FWS bird mortality estimates withdrawn.

Response to Comment 7b:

Regarding the name used for the effort: it is our recollection that we agreed to *consider* a name change. The "Problem Oil Pit" or "POP" name used for the effort stemmed from the concern that pits with oil on the surface had been observed to occur relatively frequently, presenting a threat to birds and other wildlife. However, it was never our intention to imply, or for readers to infer, that the focus of this effort is solely on pits full of oil. Interestingly, the "POP" name has been thought by some on the Team to be an undesirable name for the effort, not because it inaccurately describes the problem of oil on pits, but because it fails to

capture the range of other environmental concerns and regulatory programs that are included in the scope of the effort. Initially, the team decided to keep the imperfect "POP" name because of the familiarity with it both within and outside the Agency. In an effort to lessen the concerns of some commentators about the POP name, we have removed it from the title of the report and have looked for opportunities to remove references to it within the body of the report, where appropriate. Of course, when referring to the name in the context of past activities of the effort, it wouldn't be appropriate to delete the POP name. Moreover, in an effort to correct any unintended inferences resulting from the project's name, the group recently decided to refer to this effort as the "Oil and Gas Environmental Assessment" (or, OGEA) project.

IOGCC Comment #8

The report stresses EPA regulation based on the SPCC program and notes operators' limited knowledge of this program. Before EPA is critical of others concerning the SPCC program, the agency should reexamine its own policies regarding the SPCC program and note the emphasis in the EPA materials on products storage tanks, and the lack of emphasis on production issues.

Response to Comment:

EPA has pursued numerous SPCC compliance assistance activities directed towards oil and gas producers including guidance documents, website information, workshops held in oil field areas, and other communications. However, regardless of the level of compliance assistance activities of EPA and some of its co-regulators, operators have a responsibility to be aware of and comply with applicable law and regulation.

IOGCC Comment #9

In addition, the entire report should be reviewed with consideration given the distinction between exploration and production (see, as one example, the "Site Design and Operation" discussion where closed loop drilling systems are touted, but are confused with produced water from production). This confusion considerably muddles the report.

Response to Comment:

We reviewed the report for examples of inadequate distinction between exploration and production and found only the example provided in the comment. The discussion of closed loop drilling systems has been modified slightly to clarify this distinction.

IOGCC Comment #10

Another muddle to the report are the overly broad and unsubstantiated statements throughout. These are exactly the kind of statements which will reappear for years in other EPA reports, even when countered repeatedly by the states. The state experience with this phenomenon is highlighted by our effort to get corrections made to cited bird mortality figures which EPA and FWS agreed were figures which could not be supported by fact. Despite that, the agencies continued to use the hugely inflated figures, including on their web sites, and they were picked up as fact by the well respected Audubon magazine.

Response to Comment:

We cannot respond to this statement with specifics since the comment is a general one - without specific. We do, however, believe that the report provides sufficient information to support our findings.

IOGCC Comment #11

The report holds itself out as being a national report, referencing states generally rather than Region 8 states covered by the report. In addition, references to national standards or practices are ill advised. Every statement of fact should be referenced or eliminated from the report. Statements like, "The POP Team found that significant environmental harm can result from improperly designed or operated facilities" must be either backed by documented "findings" (which are agreed to by the entire "team" including state personnel), or should be eliminated. Attention to these details will create a stronger report, worthy of respect.

Response to Comment:

The report is entitled "Report of the USEPA Region 8 Oil and Gas Environmental Assessment Effort, 1996-2001" EPA believes that the report clearly represents this to be a "Region 8" document and the study to be a Region 8 study. However, references to national practices or practices are made, where appropriate, if they are believed to have applicability to activities in Region 8. EPA believes that facilities that are designed or operated improperly can cause significant environmental harm and that this belief is substantiated by the observations and findings summarized in the report. Throughout this report, and as a general practice, EPA strives for consensus with state agencies and industries within our six state region. However, we recognize that widely diverging opinions exist among the state agencies and industries within Region 8 as well as among the co-regulators. The value of the report is to spark discussion and provide a forum for achieving consensus where possible - and where not possible to illuminate differences and enhance understanding, neither of which should impede our ability to work together as a team.

This Page Intentionally Left Blank