



U.S. ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF INSPECTOR GENERAL

*Catalyst for Improving the Environment*

## Evaluation Report

# EPA Should Improve Oversight of Long-term Monitoring at Bruin Lagoon Superfund Site in Pennsylvania

Report No. 10-P-0217

September 8, 2010



**Report Contributors:**

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**Abbreviations**

EPA	U.S. Environmental Protection Agency
NPL	National Priorities List
O&M	Operation and Maintenance
OIG	Office of Inspector General
OU	Operable Unit
ROD	Record of Decision
RPM	Remedial Project Manager
SSC	Superfund State Contract

**Cover photo:** A view from a resident's yard of the capped and stabilized sludge mound at the Bruin Lagoon Superfund Site, Bruin, Pennsylvania, November 2007. (EPA OIG photo)



# At a Glance

*Catalyst for Improving the Environment*

## Why We Did This Review

The Office of Inspector General (OIG) is testing long-term monitoring results at Superfund sites the U.S. Environmental Protection Agency (EPA) has deleted from the National Priorities List (NPL). Bruin Lagoon Superfund Site, located in Bruin, Pennsylvania, is one of eight sites being reviewed. The OIG obtained ground water samples from the Site and conducted a site inspection.

## Background

Bruin Lagoon was added to the Superfund NPL in 1983. The Site was contaminated with inorganic contaminants, metals, oil and grease, volatile and semivolatile organic compounds, and organic and inorganic liquid sludge. The Site was deleted from the NPL on September 18, 1997.

For further information, contact our Office of Congressional, Public Affairs and Management at (202) 566-2391.

To view the full report, click on the following link:  
[www.epa.gov/oig/reports/2010/20100908-10-P-0217.pdf](http://www.epa.gov/oig/reports/2010/20100908-10-P-0217.pdf)

## ***EPA Should Improve Oversight of Long-term Monitoring at Bruin Lagoon Superfund Site in Pennsylvania***

### What We Found

We found that Pennsylvania did not collect ground water samples from the Bruin Lagoon Superfund Site for 6 years, from 2001 to 2007. EPA Region 3 managers told us they made a deliberate, but undocumented, decision to not use oversight authority to require the State to conduct ground water sampling at the Site. Long-term monitoring of the ground water is necessary to ensure that the remedial action remains protective of human health and the environment. In June 2007, Pennsylvania resumed sampling ground water at the Site. The Region's 2009 Five-Year Review, which included these results, indicated that the Site was protective. Nonetheless, gaps in long-term monitoring may result in a failure to detect conditions that show a clean-up remedy is not protecting human health and the environment. In addition, of the 169 chemicals we analyzed, levels for 15 were different from Region 3's historical results. However, the differences were not significant enough to indicate that the remedy was not protective of human health and the environment.

We also found transcription errors in data in the Region's 2004 Five-Year Review that were also carried over into the most recent 2009 Five-Year Review. These errors occurred because the Region does not have quality assurance procedures to check summary data that are generated from laboratory reports. The data errors do not adversely impact the Region's protectiveness determination for the Site, but the Region's lack of internal controls to detect data errors can alter Site protectiveness determinations.

### What We Recommend

We recommend that Region 3 improve its oversight, correct data errors in the 2009 Five-Year Review, acknowledge the 2004 errors, and implement quality assurance procedures to ensure the accuracy of data included in Five-Year Review reports and used for Site protectiveness decisionmaking. Region 3 agreed with OIG recommendations and proposed additional acceptable corrective actions.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

September 8, 2010

**MEMORANDUM**

**SUBJECT:** EPA Should Improve Oversight of Long-Term Monitoring at  
Bruin Lagoon Superfund Site in Pennsylvania  
Report No. 10-P-0217

**FROM:** Arthur A. Elkins, Jr.  
Inspector General

A handwritten signature in black ink, appearing to read "Arthur A. Elkins, Jr.", is written over the typed name.

**TO:** Shawn M. Garvin  
Region 3 Administrator

This is our report on the subject evaluation conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains the findings from our sampling at the Bruin Lagoon Superfund Site and corrective actions the OIG recommends. EPA Region 3 concurred with and provided comments on the recommendations of the draft report. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established resolution procedures.

The estimated cost of this report – calculated by multiplying the project's staff days by the applicable daily full cost billing rates in effect at the time, then adding in the contractor costs – is \$375,007.

**Action Required**

In accordance with EPA Manual 2750, you are required to provide a written response to this report within 90 calendar days. Your response will be posted on the OIG's public Website, along with our comments on your response. Your response should be provided in an Adobe PDF file that complies with the accessibility requirements of section 508 of the Rehabilitation Act of 1973, as amended. If your response contains data that you do not want to be released to the public, you should identify the data for redaction. You should include a corrective action plan for agreed upon actions, including milestone dates. We have no objections to the further release of this report to the public. This report will be available at <http://www.epa.gov/oig>.

If you or your staff have any questions regarding this report, please contact Wade Najjum, Assistant Inspector General, at (202) 566-0832 or [najjum.wade@epa.gov](mailto:najjum.wade@epa.gov); or Carolyn Copper, Director for Program Evaluation, Hazardous Waste Issues, at (202) 566-0829 or [copper.carolyn@epa.gov](mailto:copper.carolyn@epa.gov).

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# Chapter 1 Introduction

## Purpose

The Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA) is evaluating long-term monitoring at Superfund sites deleted from the National Priorities List (NPL). The overall objective is to evaluate whether EPA has valid and reliable data on the conditions of these sites. Bruin Lagoon Superfund Site is one of eight sites being reviewed. We collected ground water samples for nine monitoring wells and conducted a site inspection. We compared our results to past results reported by EPA Region 3.

## Background

The Site is located about 45 miles north of Pittsburgh in Bruin, Pennsylvania, which is located in Butler County. The Site occupies over 4 acres along the western bank of the South Branch of Bear Creek, approximately 7 miles upstream from the creek’s merger with the Allegheny River. From 1937 to 1978, activities such as coal washing and oil refining were conducted at and around the Site. The Site was contaminated with inorganic contaminants, metals, oil and grease, volatile and semivolatile organic compounds, and organic and inorganic liquid sludge from coal washing and oil refining. Bruin Lagoon was built to contain the waste from these activities. In 1968, the lagoon’s earthen dike breached and an estimated 3,000 gallons of acidic sludge spilled into the South Branch of Bear Creek, killing over 4 million fish in the Allegheny River. Evidence of the spill was observed farther than 100 miles downstream from the Site, and many downstream communities had to temporarily shut down their water supply systems.



View of rip-rap at the capped and stabilized slide mound, used to keep the mound in place. (EPA OIG photo)

The Site was placed on the Superfund NPL in September 1983. The responsible party completed removal actions on Operable Unit (OU) 1 in 1983 and OU2 in March 1992. The 1986 Record of Decision (ROD) documented that the quality of ground water in the area of Bruin Lagoon was poor due to the local mining and oil industry in the area. This finding was evidenced by high iron, manganese, sulfate, and pH values that exceeded secondary drinking water standards in background wells. Therefore, the remedial action was a source control action designed to reduce the mobility and toxicity of Site contamination.

In addition to controlling the contamination, one of the Site clean-up goals was to decrease levels of contamination. According to the 1986 ROD for the Site, the Remedial Action Objective for the Site was to contain, reduce, and/or eliminate site contaminants identified as representing possible sources of exposure to human and other potential receptors. Therefore, the selected remedy included onsite stabilization of the sludge with a multilayer cap and postclosure monitoring of ground water to ensure the remedial action was effective in reducing the impact of the Site on the ground water. Federal and State ground water standards do not apply to this Site.

EPA deleted the Site from the NPL on September 18, 1997, signifying that clean-up goals were achieved through remedial action. To help determine whether contamination remains under control, the Site is subject to long-term monitoring and maintenance for up to 30 years or until the Superfund State Contract (SSC) expires in 2020. Roles and responsibilities for EPA and Pennsylvania are described in the SSC, including the State's responsibility to pay for and perform the long-term Operation and Maintenance (O&M) portion of the clean-up. An O&M plan that describes sampling requirements was approved in 1992. The plan is currently being revised to adjust the sampling frequency. Since July 1992, the Pennsylvania Department of Environmental Protection has been responsible for the long-term monitoring and maintenance of the Site. Site monitoring consists of quarterly sampling ground water at the Site through the use of a monitoring well network.

Using data and information obtained from the long-term monitoring program, Region 3 must evaluate the Site at least once every 5 years to determine whether it is protective of human health and the environment. Results are reported in a publicly released Five-Year Review report. In June 2001, EPA issued the *Comprehensive Five-Year Review Guidance* to assist EPA's Remedial Project Managers (RPMs) who have primary responsibility for these reviews.

## Noteworthy Achievements

EPA removed approximately 130,000 gallons of hazardous chemicals and scrap tanks during the first phase of remediation (OU1). During the second phase (OU2), EPA performed a source control action that consisted of reducing the mobility and toxicity of inorganic constituents in the waste through the following activities:

- Stabilized liquid sludge to reduce contaminant migration to ground water and to adequately support a Site cap.
- Constructed a multilayer Site cap and a ground water diversion trench to reduce impact to soils and surface water.
- Constructed dike and embankment improvements to ensure integrity under worst-case flood conditions.

- Implemented bedrock neutralization (through use of lime) to reduce contamination in the bedrock.
- Eliminated all direct exposure pathways identified in the Site ROD for the clean-up.

## Scope and Methodology

We conducted our work in accordance with generally accepted government auditing standards. Those standards require that we plan and perform audits to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our objectives.

We conducted our work in two phases. During the first phase, from October 2007 to January 2008, we conducted a site visit, took ground water samples, and performed data validation on the sample results. During the second phase, from June 2009 to May 2010, we analyzed and compared OIG's and Region 3's sampling data.

We interviewed the Region 3 RPM and the State project managers from the Pennsylvania Department of Environmental Protection. We reviewed relevant guidance and Site documents such as the ROD, Five-Year Reviews, O&M reports, and institutional control documents.

We hired a qualified contractor who collected samples from nine ground water wells and conducted a site inspection in November 2007. OIG staff members were present during the contractor's inspection and sampling to ensure that the contractor followed proper sampling and site inspection quality assurance protocols. The samples collected during the OIG review were analyzed by qualified laboratories for volatile and semivolatile organic compounds, metals, cyanide, and sulfates.

To accomplish the comparisons between the OIG's and the Region's sampling data, we compared our sampling results to the Region's historical data spanning back to 1999. OIG sampling results greater than two standard deviations above the average regional historical concentrations were considered different. The differences found between OIG's sample results and Region 3's historical sampling results are in Appendix A. Our review did not include an evaluation of the reasons for these differences. However, where we observed differences, we determined whether the OIG data indicated an adverse implication for human health or environmental protection.

A draft of this report was sent to the Region 3 Administrator for official comment. Region 3's comments on the draft report are in Appendix B.

## Chapter 2

### Oversight Gaps and Undetected Errors

Pennsylvania did not collect ground water samples from the Bruin Lagoon Superfund Site for 6 years – from April 2001 to May 2007. Region 3 managers said that based on 9 years of monitoring data, the Region used its enforcement discretion to not use its oversight authority to require Pennsylvania to conduct ground water sampling. The Region’s decision to use its enforcement discretion was undocumented. Long-term monitoring of the ground water is required to ensure that the remedial action has been effective. Pennsylvania resumed sampling in June 2007 and sampling results showed the Site remains safe for humans and the environment. Our independent sampling results differed from Region 3’s historical results for 15 chemicals. However, the differences do not indicate that the remedy does not protect human health and the environment. We also found transcription errors in the data summary tables in Region 3’s 2004 and 2009 Five-Year Reviews. The data errors do not adversely impact the Region’s protectiveness determination for the Site, but the Region’s lack of internal controls to detect data errors could result in improperly supported or incorrect Site protectiveness determinations going undetected.

#### **Region 3 Did Not Ensure Site Sampling Requirements Were Met**

From April 2001 to May 2007, Pennsylvania did not collect onsite ground water samples. Although the State monitored residential wells, it did not conduct onsite ground water sampling established by the Site O&M plan and a contract between the State and EPA. According to Region 3 managers, the Region decided to use its enforcement discretion and not take action against the State for not adhering to the sampling requirements at Bruin. The managers said this decision was based on 9 years of monitoring data that showed no problems at the Site. However, the Region did not document this use of its enforcement discretion.

Pennsylvania conducted quarterly onsite ground water sampling for the first 9 years of long-term O&M, from February 1992 to April 2001. According to Pennsylvania Site project managers, the State stopped its quarterly onsite ground water sampling because of management turnover and funding shortages. RODs provided for an evaluation of the feasibility of a different sampling frequency at the Site, but these procedures were not followed. Therefore, quarterly onsite ground water sampling is the current requirement, as defined in the O&M plan and the State contract. In 2009, Region 3 and Pennsylvania discussed the sampling frequency. The results of this assessment have not been finalized and the current sampling frequency remains quarterly.

The Region 3 Site RPM said he was aware that Pennsylvania had stopped sampling. He said that in 2003 he contacted managers in Pennsylvania to remind them they had a responsibility to sample. The Region 3 RPM was aware that Pennsylvania was having management turnover and budget issues. In the 2004 Five-Year Review, Region 3 identified the lack of ground water sampling data as an issue and included a recommendation for Pennsylvania to resume sampling.<sup>1</sup> In March 2006, the RPM again contacted Pennsylvania to have sampling resumed. At that time, Pennsylvania managers assured the RPM that funding was available and they were planning to resume sampling per the SSC, but did not specify when. When sampling had still not resumed by May 2007, the RPM informed Pennsylvania that he was very concerned about not having enough monitoring data and not being in compliance with the recommendations in the 2004 Five-Year Review. Pennsylvania resumed sampling the following month, in June 2007.

Region 3 is responsible for oversight at the Site to ensure that O&M is being performed adequately and to determine when ground water monitoring can be reduced or terminated. Roles and responsibilities for Region 3 and Pennsylvania are described in the State contract, which specifies that the State is required to pay for and perform the long-term O&M portion of the clean-up at the Site. Other than several contacts made by the Site RPM with the State project manager, Region 3 did not use its oversight authority to ensure Pennsylvania conducted sampling as required by the State contract. The State contract establishes that Pennsylvania will perform the O&M at the Site for up to 30 years. The contract also includes a dispute resolution clause that authorizes, but does not require, EPA to take action against Pennsylvania for noncompliance. During 2009, Region 3 and Pennsylvania agreed to suspend quarterly ground water monitoring at the Site until the two established an appropriate monitoring frequency for targeted contaminants and updated the current O&M plan. Although these actions were estimated for completion by September 2009, a revised O&M plan has not been finalized. However, Region 3 and Pennsylvania have agreed to annual ground water sampling. According to the Region, a revised O&M plan is expected to be finalized by August 30, 2010.

As part of our review, we conducted our own sampling and compared our results to Region 3's historical sample results. Because EPA did not do sampling from April 2001 to May 2007, we only made our comparison to results before and after that time period. Details are in Appendix A. OIG sampling results that were greater than two standard deviations above the average Region 3 historical concentrations were considered different. Of the 169 different chemicals, the OIG results for 15 chemicals differed from the Region's historical results. The compounds with which we found differences were acetone, aluminum, barium,

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<sup>1</sup> Region 3 had less than half of the data needed for the 2004 review. However, the Region maintains that the sampling data from the first eight quarters were sufficient to make a protectiveness determination at that time. The scope of our work did not include an independent evaluation of that position.

cadmium, calcium, cobalt, magnesium, manganese, nickel, potassium, selenium, sodium, sulfate, vanadium, and zinc.

The differences between our data and the Region's do not adversely impact the Region's 2009 determination that the Site is protective of human health and the environment. The ROD requires that the downgradient wells have less contamination than the upgradient wells to demonstrate that contamination is not leaving the Site. With the exception of barium, potassium, and sodium, for which OIG's data were different from the Region's data, the downgradient well contained less contamination than the upgradient wells. We do not view potassium and sodium as a cause for concern, because EPA has issued only a drinking water advisory limit for potassium and sodium and the water at the Site is not designated as drinking water. Barium is also not a concern as the level does not exceed the federal drinking water or ground water standards.

## **Transcription Errors in Five-Year Review Data**

We found several errors in the data summary tables that were included in the Region's 2004 Five-Year Review report. The summary tables were generated from laboratory sampling reports, but some of the results in the laboratory reports were not accurately transposed to the summary tables. We found two categories of errors:

- There were six transcription errors in the tables – four errors in the 1991 data, one in the 1993 data, and one in the 2000 data. In five of the instances, the lab reports showed reportable levels of contaminants in the well, but the table in the 2004 Five-Year Review reported them as not detected or not seen by the lab's instrument. The sixth instance involved the table in the review having a reportable value of the contaminant while the lab report indicated the contaminant was not detected.
- The December 2000 data for one well were transposed with the December 2000 data from another well. This affected the accuracy of the concentration amounts reported for five contaminants.

In February 2009, we informed the Region of these errors. However, the errors had not been corrected by the time the Region issued its September 2009 Five-Year Review report and were carried over to the 2009 Review. In response to this final report, the Region agreed to correct the errors. The data errors in the 2004 and 2009 review reports are a result of the Region not verifying the accuracy of data included in the summary tables. While the review report undergoes several internal reviews, those reviews do not include a check for the type of data errors we identified.

## Conclusion

When Pennsylvania did not adhere to ground water sampling requirements, Region 3 said it used its enforcement discretion to not require sampling or conduct sampling of its own. However, Region 3 did not document that its actions in this case reflected the use of enforcement discretion, nor did it document criteria used in the decision, until this OIG report. While Region 3 has enforcement discretion at Bruin, it has not established the criteria that should be used in making decisions about the use of enforcement discretion. A failure to enforce Superfund Site sampling requirements can place the public and the environment at risk of exposure to chemical hazards and contamination. Although Region 3's use of enforcement discretion in this instance does not have adverse implications for human health and environmental protection, the Region does not have controls in place to ensure that this will be the typical outcome. Because the Site continues to pose risks and requires monitoring, the Region should improve its oversight controls for enforcing long-term monitoring requirements to provide assurance that the Site remains protective of human health and the environment. The Region also does not have sufficient oversight and controls for ensuring some data quality.

## Recommendations

We recommend that the Region 3 Regional Administrator:

- 2-1 Establish and communicate actions Region 3 would take to enforce the provisions in the SSC for the Bruin Lagoon Superfund Site that pertain to State O&M performance requirements.
- 2-2 Finalize the ongoing revisions and updates to the Site O&M plan that address ground water sampling frequency.
- 2-3 Correct the data errors in the 2009 Five-Year Review and issue a publicly available addendum to that review that identifies the corrected data and acknowledges the same error in the 2004 Five-Year Review.
- 2-4 Establish management controls to assure that any data produced from laboratory reports used in Five-Year Review evaluations of a site are accurate.

## EPA Region 3 Response and OIG Evaluation

Region 3 agreed with OIG Recommendations 2-2, 2-3, and 2-4. The Region agreed, in part, with Recommendation 2-1 and offered a modified recommendation and proposed corrective action that was acceptable. We made changes to the report based on Region 3's comments where appropriate.

For Recommendation 2-1, the Region expressed concern about establishing criteria for when to enforce the provisions in the SSC (original recommendation), stating that this may be enforcement confidential information. However, the Region agreed that any noncompliance with the SSC should be documented. OIG revised Recommendation 2-1 to state, "Establish and communicate actions Region 3 would take to enforce the provisions in the SSC for the Bruin Lagoon Superfund Site that pertain to State O&M performance requirements." The Region proposed actions to document noncompliance, including steps when noncompliance has not been addressed. The Region estimates that it will document and communicate the new enforcement procedures by November 30, 2010. This recommendation is open with agreed-to actions pending. In its 90-day response to this report, the Region should confirm the completion of this recommendation or update OIG on the status.

The Region agreed with Recommendation 2-2 and approved the updated O&M plan on August 30, 2010. This recommendation is closed.

The Region agreed with Recommendation 2-3 and stated that it has drafted an addendum to the 2009 Five-Year Review that is estimated to be issued by August 30, 2010. This recommendation is open with agreed-to actions pending. In its 90-day response to this report, the Region should confirm the completion of this recommendation or update OIG on the status. Although the milestone for Recommendation 2-3 has passed, Region 3 has not informed OIG that the corrective actions for this recommendation are completed or provided an updated milestone.

For Recommendation 2-4, the Region is currently considering management controls to ensure data produced from laboratory reports and summarized in the Five-Year Review are accurate. The Region expects to have a procedure in place by November 30, 2010. This recommendation is open with agreed-to actions pending. In its 90-day response to this report, the Region should confirm the completion of this recommendation or update OIG on the status.

Appendix B provides the full text of the Region's comments and the OIG's evaluation.

## **Status of Recommendations and Potential Monetary Benefits**

RECOMMENDATIONS						POTENTIAL MONETARY BENEFITS (in \$000s)	
Rec. No.	Page No.	Subject	Status <sup>1</sup>	Action Official	Planned Completion Date	Claimed Amount	Agreed To Amount
2-1	7	Establish and communicate actions Region 3 would take to enforce the provisions in the SSC for the Bruin Lagoon Superfund Site that pertain to State O&M performance requirements.	O	Regional Administrator, Region 3	11/30/10		
2-2	7	Finalize the ongoing revisions and updates to the Site O&M plan that address ground water sampling frequency.	C	Regional Administrator, Region 3	8/30/10		
2-3	7	Correct the data errors in the 2009 Five-Year Review and issue a publicly available addendum to that review that identifies the corrected data and acknowledges the same error in the 2004 Five-Year Review.	O	Regional Administrator, Region 3	8/30/10*		
2-4	7	Establish management controls to assure that any data produced from laboratory reports used in Five-Year Review evaluations of a site are accurate.	O	Regional Administrator, Region 3	11/30/10		

<sup>1</sup> O = recommendation is open with agreed-to corrective actions pending  
 C = recommendation is closed with all agreed-to actions completed  
 U = recommendation is undecided with resolution efforts in progress

\* Although the milestone for Recommendation 2-3 has passed, Region 3 has not informed OIG that the corrective actions for this recommendation are completed or provided an updated milestone.

## Appendix A

## **OIG Sample Results Compared to Region 3 Historical Sampling Results**

The table below shows only the differences found between OIG's sample results and Region 3's historical sampling results. Of the 169 different compounds or compound types there were 15 compounds in the OIG results that were different from the Region's historical results. The compounds are acetone, aluminum, barium, cadmium, calcium, cobalt, magnesium, manganese, nickel, potassium, selenium, sodium, sulfate, vanadium, and zinc.

### All results in mg/L (milligrams per liter)

Sampling Location (Monitoring Well)	Analysis Type	Analyte	Region 3 Historical Sampling Results							OIG Sample Results November 2007
			Oct-1999	Mar-2000	Dec-2000	Apr-2001	Jun-2007	Dec-2007	Mar-2008	
2A	dissolved	Barium	-	-	-	-	0.0124	0.0141 B	0.0125 B	0.015
	dissolved	Nickel	-	-	-	-	0.325	0.299	0.310	0.34
	dissolved	Potassium	-	-	-	-	4.58	4.55 B	4.68 B	7.3
	dissolved	Selenium	-	-	-	-	<0.0043	<0.005	<0.005	0.0183
	total	Selenium	<0.007	-	<0.014	-	<0.0043	<0.005	<0.005	0.0177
	dissolved	Sodium	-	-	-	-	34.3	37.4	40.1	47.3
2B	dissolved	Barium	-	-	-	-	0.0155	0.014 B	0.0144 B	0.018
	dissolved	Calcium	-	-	-	-	159	149	151 J	180
	dissolved	Magnesium	-	-	-	-	45.2	40.5	43.2 J	51
	dissolved	Manganese	-	-	-	-	15.4	13.4	14.8	18
	dissolved	Potassium	-	-	-	-	3.41	2.53 B	2.69 B	4.7
	total	Potassium	2.22	3.09	2.31	3.19	3.43	2.48 B	2.58 B	3.86
	dissolved	Selenium	-	-	-	-	<0.0043	<0.005	<0.005	0.0204
	total	Selenium	<0.007	<0.007	<0.007	<0.007	<0.0043	<0.005	<0.005	0.0213
	dissolved	Sodium	-	-	-	-	32.9	33.6	35.2	43.5
	inorganic	Sulfate	-	-	-	-	702	629	712 J	893
dissolved	Zinc	-	-	-	-	0.88	0.834	0.952 J	1.1	
3B	VOC	Acetone	<0.05	0.0033 B	<0.0025	<0.0025	-	<0.005	<0.005	0.065
	dissolved	Aluminum	-	-	-	-	0.0641	0.0957 J	0.142 BJ	0.24
	dissolved	Cobalt	-	-	-	-	0.0058	0.0133 B	0.0116 BJ	0.034
	dissolved	Magnesium	-	-	-	-	5.05	3.84 B	4.2 BJ	6
	dissolved	Manganese	-	-	-	-	0.287	0.587 B	0.485	1.5
	dissolved	Nickel	-	-	-	-	0.0113	0.0141	0.0134 B	0.029
	dissolved	Potassium	-	-	-	-	1.48	1.45	1.45 B	2.7
	dissolved	Sodium	-	-	-	-	15.9	15	15.5	17
	inorganic	Sulfate	-	-	-	-	35.2	30.7	27.1	57.9
	dissolved	Zinc	-	-	-	-	0.0581	0.0688 J	0.0513 J	0.0973

Sampling Location (Monitoring Well)	Analysis Type	Analyte	Region 3 Historical Sampling Results							OIG Sample Results November 2007
			Oct-1999	Mar-2000	Dec-2000	Apr-2001	Jun-2007	Dec-2007	Mar-2008	
4B	dissolved	Aluminum	-	-	-	-	0.116	0.0556 B	0.0883 BJ	0.18
	dissolved	Barium	-	-	-	-	0.0391	0.039 B	0.0391 B	0.041
	dissolved	Cadmium	-	-	-	-	0.00051	0.00063 B	0.00074 B	0.001
	dissolved	Cobalt	-	-	-	-	0.0161	0.0183 B	0.0152 BJ	0.023
	dissolved	Manganese	-	-	-	-	0.62	0.823	0.543	1.1
	dissolved	Potassium	-	-	-	-	3.01	2.98 B	3.21 B	3.8
	dissolved	Selenium	-	-	-	-	<0.0043	<0.005	<0.005	0.01
	inorganic	Sulfate	-	-	-	-	43.4	44.4	42.8	48.5
5A	dissolved	Aluminum	-	-	-	-	3.47	3.29	3.34 J	4.03
	dissolved	Barium	-	-	-	-	0.02	0.0214 B	0.0218 B	0.025
	dissolved	Calcium	-	-	-	-	45.2	48.1	48.0 J	56
	dissolved	Magnesium	-	-	-	-	9.85	10.6	10.5 J	12
	dissolved	Manganese	-	-	-	-	12.1	12	12.5	14
	dissolved	Potassium	-	-	-	-	4.07	4.36 B	4.19 B	5.7
	dissolved	Selenium	-	-	-	-	<0.0043	<0.005	<0.005	0.0134
	dissolved	Sodium	-	-	-	-	21.1	27.2	26.1	33.2
5B	dissolved	Barium	-	-	-	-	0.0215	0.0212 B	0.0224 B	0.023
	dissolved	Calcium	-	-	-	-	114	112	113 J	120
	dissolved	Magnesium	-	-	-	-	26.9	26.2	27.0 J	28
	dissolved	Potassium	-	-	-	-	6.28	6.18	6.37	7.9
	dissolved	Selenium	-	-	-	-	<0.0043	<0.005	<0.005	0.0205
	dissolved	Sodium	-	-	-	-	51	57.5	59	68.8
6A	dissolved	Calcium	-	-	-	-	640	650	624 J	710
	dissolved	Potassium	-	-	-	-	59.8	58.4	73.2	100
	total	Potassium	65.9	70	67.3	69.7	61.2	64	71.9	97
	dissolved	Sodium	-	-	-	-	266	287	296	340
	total	Sodium	235	256	223	283	266	298	293	340
	dissolved	Vanadium	-	-	-	-	0.0384	0.0447 B	0.0426 B	0.051
7A	dissolved	Calcium	-	-	-	-	23.6	23.5	27.4 J	31
	dissolved	Cobalt	-	-	-	-	0.0367	0.0529	0.0443 BJ	0.072
	dissolved	Manganese	-	-	-	-	3.94	4.99	4.62	5.9
	dissolved	Potassium	-	-	-	-	3.07	2.78 B	3.27 B	3.6
8B	dissolved	Potassium	-	-	-	-	4.26	4.33 B	4.34 B	5.9
	total	Selenium	<0.007	<0.007	<0.007	<0.007	<0.0043	<0.005	<0.005	0.0108
	dissolved	Sodium	-	-	-	-	56.2	49.8	54.7	63

Source: OIG and Region 3 sampling data.

J – The method blank is contaminated with this chemical.

B – Estimated result. Result is less than the laboratory reporting limit.

< – Indicates that the contaminant was not found in the sample above the value after the less than sign.

## Appendix B

***EPA Region 3 Response to Draft Report and OIG Evaluation***

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029**

**MEMORANDUM**

July 13, 2010

**TO:** Carolyn Copper  
Director of Program Evaluation  
Hazardous Site Issues  
Office of Inspector General

**FROM:** Shawn Garvin, Regional Administrator /s/  
Office of the Regional Administrator (3RA00)

**SUBJECT:** Response to the Draft Evaluation Report: *EPA Should Improve Oversight of Long-Term Monitoring at Bruin Lagoon Superfund Site in Pennsylvania, Project No. 2008-545*

Thank you for the opportunity to review and comment on the draft OIG evaluation report, the Office of Inspector General's ("OIG") Draft Evaluation Report dated June 15, 2010, *EPA Should Improve Oversight of Long-Term Monitoring at Bruin Lagoon Superfund Site in Pennsylvania*. Outlined below are the responses to the Office of Inspector General's ("OIG") Draft Evaluation Report dated June 15, 2010.

**General Comments on the Draft Report****Chapter 1: Background**

1. Paragraph 2, 3<sup>rd</sup> Sentence: The sentence beginning "Due to background ...." The region proposes to delete this sentence and replace with the following:

***The 1986 Record of Decision (ROD) documented that the quality of groundwater in the area of Bruin Lagoon was poor due to the local mining and oil industry in the area. This finding was evidenced by high iron, manganese, sulfate, and pH values which exceeded secondary drinking water standards in background wells.***

**OIG Response 1:** We have made the requested change to reflect the description used in the September 1986 ROD.

2. Paragraph 2, 6<sup>th</sup> Sentence: The sentence beginning “According to the Region ...”. The region proposes to replace with the following:

*According to the 1986 ROD for the Site, the Remedial Action Objective for the Site was to “contain, reduce, and/or eliminate site contaminants identified as representing possible sources of exposure to human and other potential receptors.” Therefore, the selected remedy included onsite stabilization of the sludge with a multilayer cap and post closure monitoring of groundwater to ensure the remedial action was effective in reducing the impact of the Site on the groundwater.*

**OIG Response 2:** We have made the requested change to reflect the description used in the September 1986 ROD.

## Chapter 2: Oversight Gaps and Undetected Errors

1. 1<sup>st</sup> Paragraph, 2<sup>nd</sup> Sentence: Modify the sentence beginning “Region 3 managers .....

*Region 3 managers said that based on approximately 10 years of monitoring data, the region used its enforcement discretion to not use its oversight authority to require Pennsylvania to conduct the groundwater sampling.*

**OIG Response 3:** We have incorporated the change into the report. However, OIG has kept the wording that the decision was undocumented and OIG records support 9 years of monitoring data.

2. 2<sup>nd</sup> Paragraph, Page 5: Recommend modifying “Other than sporadic evidence of contact with the State project manager..” to read:

*As stated above, the RPM made several contacts with the State project manager regarding the groundwater monitoring, however, Region 3 used its enforcement discretion and did not enforce the SSC.*

**OIG Response 4:** We revised the wording to reference OIG evidence obtained during this review. It is consistent with 'several contacts.'

3. 2<sup>nd</sup> Paragraph, 2<sup>nd</sup> to last sentence: “Although these.....April 2010”

*A revised O&M Plan is expected to be finalized by August 30, 2010.*

**OIG Response 5:** OIG has added text to reflect the Region's statement that a revised and final O&M plan is expected by August 30, 2010.

4. Transcription Errors, last paragraph: “In February 2009 we ...”

*The OIG provided the region with emails informing the region that there were discrepancies in the tables from the 2004 Five Year Review. The region was still in the process of verifying whether the OIG’s findings were correct and these issues were still in the discussion phase. Also, the discrepancies did not have any impact on the protectiveness determination which is the main purpose of the Five Year Review. The 2009 Five Year Review was issued on September 17, 2009, and the OIG provided the final conclusions regarding the discrepancies on September 29, 2009. Therefore, it is the region’s opinion that this sentence should be removed from the Draft because it implies the region was purposely ignoring the errors which was not the case.*

**OIG Response 6:** We informed the Region of the errors in February 2009. On September 24, 2009, we sent a memo to the Region updating it on the OIG’s progress on the project. The memo included a second notification of the errors in the 2004 Five-Year Review. When first informed of the errors, the Region acknowledged the errors and cited transcription errors as the cause. Although OIG did not formally recommend regional action to address the errors until the draft report was issued, we believed the Region would take prudent and reasonable actions to fix the errors prior to the release of the 2009 Review. OIG has not determined that the Region purposely ignored the errors and we have modified report references to address that possible perception.

### **Recommendations**

- 2-1 Establish criteria for when Region 3 would enforce the provisions in the SSC for the Bruin Lagoon Superfund Site that pertain to the O&M performance requirements.
- 2-2 Finalize the ongoing revisions and updates to the Site O&M Plan that address ground water sampling frequency.
- 2-3 Correct the data errors in the 2009 Five Year Review and issue a publicly available addendum to that review that identifies the corrected data and acknowledges the same error in the 2004 Five Year Review.
- 2-4 Establish management controls to assure that any data produced from laboratory reports used in the Five Year Review evaluations of a site are accurate.

### **Corrective Actions**

- 2-1 The Region has worked with PADEP to update the Operation and Maintenance Plan for the Site which among other things includes an annual monitoring requirement. PADEP currently has an O&M Contractor to implement the O&M Plan. To establish criteria for when to enforce the SSC would be difficult to predict and would likely be considered enforcement confidential. Therefore, the Region does not concur that criteria can be established for when to enforce an SSC. However, as an alternative, the region concurs that any non-compliance should be clearly documented so that if necessary, an

enforcement action can be considered. Therefore, the following is proposed as a corrective action:

In the event that PADEP is not complying with the SSC, the RPM will consult with Office of Regional Counsel and document the non-compliance in a letter for signature by the Director, Office of Superfund Site Remediation to PADEP. If the non-compliance is not addressed, the region will send a follow-up letter from the Director, Hazardous Sites Cleanup Division to PADEP's Environmental Program Manager. If compliance is still not addressed, the program will consult with the Office of Regional counsel to determine the necessary actions to ensure that PADEP is in compliance with the SSC for the Bruin Lagoon Site.

**OIG Response 7:** OIG accepts the Region's explanation and proposed corrective action. OIG has revised Recommendation 2-1 to state: "Establish and communicate actions Region 3 would take to enforce the provisions in the SSC for the Bruin Lagoon Superfund Site that pertain to State O&M performance requirements." In a follow-up communication on 08/23/10, the Region provided an estimated completion milestone date of November 30, 2010 for documenting the new enforcement procedures and communicating them to the State and other relevant parties. This recommendation is open with agreed-to actions pending. In its 90-day response to this report, the Region should provide OIG an update on the status of its corrective actions for Recommendation 2-1.

- 2-2 The Region concurs and the final revisions are currently being implemented. It is anticipated the O&M plan will be approved by August 30, 2010.

**OIG Response 8:** Region 3's proposed corrective action for Recommendation 2-2 meets the intent of the recommendation. This recommendation is open with agreed-to actions pending. In its 90-day response to OIG's final report, the Region should provide OIG an update on the status of its corrective actions for Recommendation 2-2.

- 2-3 The Region concurs. An Addendum to the 2009 FYR is drafted and will be issued by August 30, 2010. Once finalized the FYR Addendum will be available to the public through the internet.

**OIG Response 9:** Region 3's corrective action for Recommendation 2-3 meets the intent of the recommendation. This recommendation is open with agreed-to actions pending. In its 90-day response to OIG's final report, the Region should provide OIG an update on the status of its corrective actions for Recommendation 2-3.

- 2-4 The Region concurs. Management controls are being considered to ensure data produced from laboratory reports and summarized in the Five Year Review are accurate. The Region anticipates having a procedure in place by November 30, 2010.

**OIG Response 10:** Region 3's corrective action for Recommendation 2-4 meets the intent of the recommendation. This recommendation is open with agreed-to actions pending. In its 90-day response to OIG's final report, the Region should provide OIG an update on the status of its corrective actions for Recommendation 2-4.

**Appendix C**

***Distribution***

Office of the Administrator  
Assistant Administrator, Office of Solid Waste and Emergency Response  
Regional Administrator, Region 3  
Principal Deputy Assistant Administrator, Office of Solid Waste and Emergency Response  
Director, Office of Superfund Remediation and Technology Innovation, Office of Solid Waste  
and Emergency Response  
Agency Follow-up Official (the CFO)  
Agency Follow-up Coordinator  
General Counsel  
Associate Administrator for Congressional and Intergovernmental Relations  
Associate Administrator for External Affairs and Environmental Education  
Audit Follow-up Coordinator, Office of Solid Waste and Emergency Response  
Audit Follow-up Coordinator, Region 3  
Inspector General