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08/31/2016

EPA Superfund
Explanation of Significant Differences:

PHOENIX-GOODYEAR AIRPORT
AREA EPA ID: 0919
OU 01
GOODYEAR,
AZ
08/31/2016

PHOENIX GOODYEAR AIRPORT SUPERFUND SITE
Goodyear, Arizona

EXPLANATION OF SIGNIFICANT DIFFERENCES

Explanation of Significant Differences to the September 1989 Record of Decision, the 1993 Chromium Sludge Bed Non-Time Critical Removal Action and the 1991 Administrative Order on Consent.

August 2016

I. INTRODUCTION

This Explanation of Significant Differences (ESD) covers the status of the stabilized fill in the vicinity of the excavated chromium sludge drying beds at Phoenix-Goodyear Airport South Area (PGAS) that was placed on the land following a removal action conducted by the Environmental Protection Agency in 1993. Due to current Site conditions, this ESD, and supporting data and testing conducted at the site, verifies that Land Disposal Requirements (LDR) for the material have been met, the material no longer contains a hazardous substance, and institutional controls are not necessary to prevent disturbance of the material. Monitoring of levels of contaminants in the stabilized material and surrounding soil in the former chromium sludge drying beds at PGA South, conducted utilizing the Toxicity Characteristic Leaching Procedure (TCLP), show no results above LDR standards for the listed or characteristic wastes. In addition, in December 2015 the delegated RCRA program at the Arizona Department of Environmental Quality (ADEQ) made a "Contained Out Determination," finding that the stabilized material and surrounding soil does not contain a listed or characteristic hazardous waste above Applicable or Relevant and Appropriate Requirements. As a result of the testing that has demonstrated that LDR standards have been met and the material no longer contains a

listed or characteristic hazardous substance, EPA has determined that Institutional Controls with regard to the former chromium drying beds or the stabilized fill at PGAS are not necessary.

II. PURPOSE

Section 117 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendment and Reauthorization Act of 1986 and to 40 C.F.R 300.435(c)(2)(i)-(ii) (Fed. Reg. 8666, 8852 March 9, 1990), requires EPA to publish an ESD where new information necessitates a significant but not fundamental change to a site remedy.

The purpose of this ESD is to confirm that LDR standards have been met for the solid materials from the former chromium sludge drying beds, the material no longer contains a listed or hazardous substance and institutional controls are not necessary to manage the material. This ESD and supporting documentation will become part of the PGA Administrative Record. Copies of the Administrative Record for the PGA site, including this ESD, have been placed at the following locations:

Goodyear Public Library
14455 W. Van Buren St., C-101
Goodyear, AZ 85338
(602) 652-3000

EPA Region 9 Superfund Records Center
95 Hawthorne Street, Suite 403S
San Francisco, California 94105
(415) 536-2000

If additional information becomes available, EPA will revise the Administrative Record to reflect such material.

Additionally, EPA will be presenting the results of the analysis in this ESD at the public meeting in Goodyear, Arizona on November 3, 2016, 2016. EPA will publish a notice in the

Arizona Republic, the West Valley View, and Prensa Hispana that briefly summarizes this ESD and announces its availability for review. In accordance with 40 C.F.R. Section 300.515(h)(3), EPA has provided a fifteen-day comment period for the State of Arizona. The State's comments on this ESD are summarized in Section IV of this document and are also included in the Administrative Record.

III. BACKGROUND

A. Site Background and Description

The PGA Site is located in Goodyear, Arizona, approximately seventeen miles west of Phoenix in the western part of the Salt River Valley. The PGA Site was divided into a northern and southern portion when Site investigation determined that there were separate contaminant source areas.

Attachment 1 to this ESD provides a map indicating the approximate boundaries for the PGA South Superfund site. Current land uses on and near the Site are agricultural, industrial, and residential.

Solvent contamination was first discovered in certain areas of the Site by the Arizona Department of Health Services (ADHS) in 1981. During the following two years, EPA and ADHS sampled area wells, revealing trichloroethylene (TCE) contamination in 18 agricultural, private and City supply wells in the Goodyear area. Other hazardous substances found at PGA-North during initial investigation include acetone, methylethyl ketone (MEK), 1,1,1-trichloroethane (TCA), tetrachloroethylene (PCE), and other VOCs. EPA added the PGA site to the National Priorities List ("NPL") on September 8, 1983. [Federal Register, Vol. 48, No. 175, p. 40671 (originally listed as A Litchfield Airport Area Superfund Site)]. A single Record of Decision (ROD) was produced for both the northern and southern portions of the PGA site and

was signed by the EPA Regional Administrator on September 26, 1989. The ROD provides that the identified target areas may be expanded or reduced, as necessary, in order to remove 99 percent of the contaminants from the soil.

B. Historical Background Information on PGAS and the Chromium Sludge Drying Beds

In 1981, ADHS determined that groundwater in the PGA area was contaminated by TCE. In a letter dated July 23, 1982, under the authority of the Resource Conservation and Recovery Act (RCRA), Section 3007, and CERCLA, Section 104, EPA requested historic and current operating information on waste generation and disposal practices from Goodyear Aerospace Corporation (GAC). On August 27, 1982, GAC submitted a response to EPA's request for information detailing the use, generation, treatment, storage, and disposal of hazardous substances and wastes at their facility.

GAC reported that the company disposed of chromium-bearing sludge generated by the chromium (Cr) waste treatment plant to two on-site sludge drying beds (Sludge Bed No.1 [SB-1] and SB-2). The Cr beds were located northwest of the intersection of Litchfield Road and Airport Road. The larger Cr bed (SB-1) reportedly was used from the early 1970s until 1980, with SB-2 (consisting of two smaller beds) used during an estimated time frame from the mid-1960s until the mid-1970s.

The reported dimensions of SB-1 were 75 feet by 100 feet by 3 feet deep. SB-2 consisted of two small drying beds located adjacent to each other, with each bed 20 feet by 100 feet by 3 feet deep. A substance reportedly was sprayed on the ground to form the lining of the Cr beds. Both hazardous and non-hazardous wastes were disposed in the Cr beds; in addition, the wastes were both characteristic ("D waste" (D007) due to its EP Test exceedances for chromium) and listed (F006 – Wastewater Treatment Sludge from Electroplating Operations). In October and

November of 1980, an estimated volume of the wastes in the Cr beds was removed, along with 275,000 pounds of rubberized fabric and soil, and transported to an off-site facility for disposal. The off-site facility location was not disclosed, and analyses of the waste material being disposed were not performed.

In 1987, soil samples were collected for chromium analysis from various locations at the Phoenix-Goodyear Municipal Airport and the GAC facility. Six backhoe test pits were excavated to a depth of approximately 10 feet at each Cr bed, and then soil samples were collected below the bottoms of the excavations at depths of 0 to 4 inches, 4 to 8 inches, 8 to 15 inches, 15 to 30 inches, 30 to 45 inches, 45 to 60 inches, 60 to 90 inches, and 90 to 120 inches. In addition to chromium, soil samples collected from selected excavations at depths of 0 to 4 inches, 4 to 8 inches, and 8 to 15 inches were analyzed for aluminum, arsenic, barium, cadmium, copper, mercury, manganese, nickel, lead, and zinc.

The analysis of these samples showed continued chromium contamination in the soils in the area of the former chromium drying beds. Only soil samples from SB-2 contained total chromium concentrations in excess of the ADEQ soil action limit of 1,500 milligrams per kilogram (mg/kg), which was the applicable standard in effect in Arizona in 1993. The chromium concentration results are listed in **Table 1**. Chromium concentrations exceeding the ADEQ soil action limit of 1,500 mg/kg were typically present at depths of 8 to 15 inches, 15 to 30 inches, and/or 30 to 45 inches, with the exceptions of Test Pits 0705 and 0706 and the soil sample from Test Pit 0707 at 0 to 4 inches.

Table 1
Chromium Concentrations in Soil Samples from Excavated Test Pits at Chromium Sludge Drying Bed Number 2

Sample Depth[2] (Inches)	Total Chromium Concentration (mg/kg)[1]						
Test Pit[3]	0701	0702[4]	0703	0704	0705	0706	0707
0 – 4	478	615	184	133	398	131	2,184
4 – 8	461	513	83	515	17	25	62
8 – 15	23,290	13,847	134	2,861	16	22	1,311
15 – 30	26,072	13,847	134	2,861	16	22	1,311
15 – 30	26,072	32,243	3,642	7,134	56	18	8,159
30 – 45	3,194	7,022	27,843	30	17	15	29,461
45 – 60	44	44	38	45	17	17	63
60 – 90	62	74	36	32	16	20	55
90 – 120	46	60	30	49	17	23	39

Notes: [1] Concentrations (in mg/kg) were reported on a dry weight basis.
[2] Listed sample depths are measured in inches from the bottom of the test pit (an approximate depth of 10 feet).
[3] Locations of the test pits are shown on Figure 6.
[4] Field duplicates of Test Pit 0701.

C. Non-Time Critical Removal Action in the 1990s at Chromium Sludge Drying Bed No. 2

Following the soil testing performed in 1987, EPA determined in 1991 that Cr and cadmium concentrations in soil at SB-2 justified a removal response. The clean-up levels for this removal action were based on ADEQ 1991 draft guidance for contaminants in soil, which established [human] health-based guidance levels (HBGLs) of 2,000 parts per million (ppm) for chromium and 100 ppm for cadmium. Previous investigations had determined that chromium and cadmium soil concentrations at SB-2 exceeded the ADEQ HBGLs. The residual chromium and cadmium concentrations also posed a threat to underlying groundwater quality.

In 1992, EPA, Loral Defense Systems (property owner of the site of the removal action), and Goodyear Tire & Rubber Company (GTRC) agreed to Consent Order 92-05. This Consent Order required Loral Defense Systems and GTRC to implement a non-time-critical removal action, consisting of the excavation and stabilization of contaminated soils in the area of SB-2

having chromium and/or cadmium concentrations exceeding the ADEQ HBGLs. Contaminated soils were to be mixed with concrete and redeposited back in the area from which they were excavated. As this constituted ex-situ treatment of soils contaminated with listed and characteristic wastes, LDR requirements attached and the removal action was designed to meet LDR standards.

GTRC performed the removal action pursuant to Consent Order 92-05 between June 1992 and January 1993. The removal action consisted of remediating soils in and near SB-2 by excavating soils contaminated with chromium and/or cadmium above HGBLs and stabilizing the contaminated soils by a cementation process. The stabilized soil mass was re-deposited in the excavation area and covered with a clean soil and gravel cover.

During the removal action the volumes listed in **Table 2** were excavated, added for the stabilization process, and/or disposed off-site.

Table 2
Volumes Associated with Performing the Removal Action at Chromium Sludge Drying Bed Number 2

Soil, Waste, or Additive	Volume (cubic yards)
Excavated Volumes	
Chromium and/or Cadmium Contaminated Soil[1, 2]	1028.80
Soil below ADEQ HGBLs	1894.68
Hexavalent Chromium-Contaminated Soil[3]	502.14
Asbestos Building Trash Soil[4]	164.65
Stabilization Additive Volume	
Cement and Lime Additive	281.52
Off-site Disposal Volumes	
Hexavalent Chromium Contaminated Soil[5]	387.10
Asbestos Building Waste[6]	40.00
Plastic Liner Waste[4]	20.00

Notes: [1] Chromium and/or cadmium concentrations exceeded the ADEQ HBGLs.
[2] Material was re-deposited in the excavation area.
[3] Of the 502.14 cubic yards of hexavalent chromium-contaminated soil, only an estimated 115.04 cubic yards were stabilized and re-deposited in the excavation area. See Note 6 for details regarding the remaining volume of hexavalent chromium-contaminated soil that was excavated.
[4] Of the 164.65 cubic yards of asbestos-contaminated soil, only an estimated 124.65 cubic yards were stabilized (i.e., made non-friable) and re-deposited in the excavation area. See Note 6 for details regarding the remaining volume of asbestos-contaminated soil that was excavated.

[5] Hexavalent chromium concentrations were too high to be stabilized effectively. Therefore, this soil was transported for disposal at the EnviroSave disposal facility in Boise, Idaho.
[6] Waste material was hauled to the Butterfield Stage landfill in Mobile, Arizona.

D. 2008 Investigation at Chromium Sludge Bed No. 2

In 2007, ADEQ reviewed the remediation documentation for the Cr beds to determine if the information was sufficient for determining if a Declaration of Environmental Use Restriction (DEUR) was appropriate, and/or necessary. Joey Pace of ADEQ recommended further investigation for the presence of hexavalent chromium in soil adjacent to and below the area of the former Cr beds.

To address ADEQ's recommendations, 11 soil borings were advanced at the former SB-2 and subsurface samples were collected. Eight soil borings were installed within 10 feet of the outside western edge of the original solidification area. Three soil borings were installed within the footprint of the solidified material in SB-2. Samples included stabilized soil (typically 3 to 4 feet below ground surface [bgs]); soil directly beneath the stabilized material at the interface of the stabilized soil and native soil (typically 6 to 7 feet bgs); and native soil at a depth of 2 feet below the interface (typically 8 to 10 feet bgs). Soil samples were analyzed for total chromium, hexavalent chromium, and cadmium. In addition, the soil extract from the TCLP was analyzed for total chromium and cadmium. Soil samples with high TCLP results were analyzed using the Synthetic Precipitation Leaching Procedure (SPLP) to further understand the potential for precipitation to leach chromium or cadmium from the soil.

IV. TESTING RESULTS

For the 2007 investigation, analytical results were compared to Arizona non-residential soil remediation limits (SRLs) and TCLP limits for characteristic hazardous waste under RCRA. A summary of the results is provided below as reported by Los Alamos Technical Associates (LATA).

Total Soil Concentrations:

- Cadmium – All cadmium concentrations were below the SRL of 850 mg/kg. The highest cadmium concentration of 44 mg/kg was from a soil sample collected beneath the stabilized soil at a depth of 7 feet bgs.
- Total Chromium – All total chromium concentrations were below the 1997 AZ non-residential SRL of 4,500 mg/kg. The highest total chromium concentration of 1,200 mg/kg was from a soil sample collected within the stabilized soil at a depth of 2.5 feet bgs.
- Hexavalent Chromium – All hexavalent chromium concentrations were below the SRL of 64 mg/kg. The highest hexavalent chromium concentration of 15 mg/kg was from a soil sample collected west of the former sludge drying bed at a depth of 0.5 to 2.0 feet bgs. For stabilized soil, the highest hexavalent chromium concentration was 7.4 mg/kg.

TCLP and SPLP Extract Concentrations:

- Cadmium – All TCLP cadmium concentrations were below the RCRA limit of 1.0 mg/L. The highest TCLP result was 0.059 mg/L for a soil sample collected below the stabilized soil. For the soil sample subject to both TCLP and SPLP extraction, the TCLP extract had a cadmium concentration of 0.0034 mg/L (estimated as below the reporting limit), while cadmium was not detected (less than 0.005 mg/L) in the SPLP extract.
- Chromium – All TCLP chromium concentrations were below the RCRA limit of 5.0 mg/L. The highest chromium TCLP chromium result was 0.75 mg/L detected in two soil samples, one collected from stabilized soil, and the other from non-stabilized soil collected west of former SB-2. For the two soil samples subject to both TCLP and SPLP extraction, the TCLP and SPLP extract concentrations were similar. This indicates that

although the chromium concentrations were well below the SRL for both total and hexavalent chromium, the detected chromium in the TCLP and SPLP extractions was most likely present in the hexavalent state.

Based on the results for the TCLP and SPLP extractions, LATA concluded that leaching of chromium from soils in the stabilized area is not likely to impact groundwater adversely as ongoing GW monitoring establishes.

Based only on the TCLP results, the stabilized soil would not be characterized as hazardous waste under RCRA. LATA also concluded that the 2008 investigations confirmed that the objectives of the non-time-critical removal action had been met, and continue to be effective more than 10 years after the completion of the removal action.

As a follow-up to the first five-year review for PGA, additional groundwater monitoring in the vicinity of the former sludge drying beds was performed over a four-quarter period from September 2007 to August 2008. This monitoring focused on the concentrations of inorganic compounds identified as constituents of concern in the 1989 ROD. The groundwater samples were analyzed for total and dissolved arsenic, cadmium, chromium, hexavalent chromium, copper, lead, nickel, and zinc. Dissolved arsenic, cadmium, copper, lead, and zinc were not detected above their respective maximum contaminant levels (MCLs). The distribution of nickel was attributed to background variations, not historic site activities.

Hexavalent chromium and total chromium concentrations were similar, indicating that historic releases were the source of chromium in groundwater. Groundwater concentrations of chromium and cadmium in the vicinity of the former sludge drying beds indicate that the removal action completed in the 1990s was successful in removing the Cr beds as a source area for impacting groundwater quality.

V. SUPPORT AGENCY COMMENTS

As required by 40 C.F.R. 300.515(h)(3), EPA has provided ADEQ an opportunity to review and comment on these changes to the 1989 ROD. ADEQ supports EPA issuing this ESD. Furthermore, EPA has provided the City of Goodyear with an opportunity to review and comment on the changes, and the City supports the changes as well.

VI. STATUTORY DETERMINATIONS

Where a remedial action is being taken that differs significantly from that determined in a ROD, but does not fundamentally alter the chosen remedy in scope, performance or cost, the lead agency must consult with support agencies and produce and publicize an ESD explaining the changes.

This remedy is protective of human health and the environment. This ESD does not fundamentally alter the overall remedy selected in the ROD with respect to scope, performance or cost.

VII. SUMMARY

In 2007, ADEQ reviewed the remediation documentation for the Cr beds to determine if a DEUR was appropriate, and/or necessary. To address ADEQ's recommendations, 11 soil borings were advanced at the former SB-2 and subsurface samples were collected. The results of this investigation found that all TCLP cadmium concentrations were below the RCRA toxicity characteristic regulatory limit of 1.0 mg/L (40 C.F.R. 261.24) with the highest TCLP result being 0.059 mg/L. It is important to note that the maximum TCLP result for cadmium is also below the current LDR treatment standard for cadmium (non-wastewater) of 0.11 mg/L TCLP (40 C.F.R. 268.40 for D006). In addition, all TCLP chromium concentrations were below the RCRA toxicity characteristic regulatory limit of 5.0 mg/L TCLP (40 C.F.R. 261.24). The highest

chromium result was 0.75 mg/L in two soil samples, which satisfied the treatment standard at the time of placement. However, the current LDR treatment standard for chromium for a non-wastewater is 0.60 mg/L TCLP unless the Alternative LDR treatment standards for contaminated soils (40 C.F.R. 268.49(c)) is used. The Alternative LDR treatment standard soil allows the concentration of the treated soil to be 10 times the Universal Treatment Standard of 0.60 mg/L TCLP (which would be 6.0 mg/L TCLP for chromium) to be placed into a RCRA land based unit. However, selection of the appropriate disposal facility must consider if the treated soil still exhibits a RCRA characteristic, which may require it to go to a RCRA subtitle C facility. For example, chromium treated to 6.0 mg/L TCLP to satisfy LDR treatment standards would still be a D007 hazardous waste and although eligible for land disposal would need to be placed into a Subtitle C facility.

EPA requested ADEQ to examine the historical and analytical information on the former Sludge Bed No. 2 site. EPA requested that ADEQ consider a "contained-out" determination for the environmental media (stabilized soil) that had been re-deposited in the SB-2 area. ADEQ utilized their HGBLs and codified Soil Remediation Levels (SRLs) under their contained-in policy for environmental media that contains a characteristic or listed hazardous waste. After reviewing the analytical and historical information provided by EPA, the ADEQ issued a memorandum dated December 21, 2015, that concluded that the media does not contain a listed hazardous waste (F006) at a level above regulatory thresholds, including Arizona's HBGL and SRLs health standards.

VIII. REGULATORY CONSIDERATION FOR THE MANAGEMENT OF THE MATERIAL

Excavation of the SB-2 stabilized soil would be considered a new point of generation of a solid waste. The generation of this stabilized material would require that the material be tested as required by 40 C.F.R. 262.11. There are no exemptions under 40 C.F.R. Part 261 that would exempt this material from characterization. Although the stabilized material has already been granted a "contained-out" determination for a listed waste (F006) by ADEQ, the excavated soil will be still be tested to confirm that there are no RCRA characteristics exhibited by the excavated soil. This excavated soil would be considered a solid waste because it has previously been stabilized with a cementation process. If the excavated soil does not exhibit a characteristic hazardous waste code, the LDRs under 40 C.F.R. 268 are not applicable, allowing this solid waste to be sent offsite for disposal. The assumption is that the excavated soil will closely match the analytical results from the 2007 soil borings and will not be a hazardous waste and will not be considered a restricted waste that must meet LDRs.

Because the stabilized soil is nonetheless a solid waste, it must be sent to a non-hazardous waste landfill if it is evacuated and sent offsite. Prior to sending this material offsite, a notification will be made to the EPA Offsite Coordinator to confirm that the disposal facility is eligible to receive the material.

IX. PUBLIC PARTICIPATION ACTIVITIES

Pursuant to 40 C.F.R. 300.435(c)(2)(i), a formal public comment period is not required for an ESD to a ROD when the difference does not fundamentally alter the remedy selected in the ROD with respect to scope, performance or cost. This ESD does not propose a fundamental change to the remedy in the ROD with respect to scope, performance or cost, and therefore, no

formal public comment period is required. EPA has made this ESD and supporting information available to the public through the Administrative Record and information repository for the PGA Site. Additionally, due to public interest, EPA has participated in Community Advisory Group meetings and published several fact sheets intended for the public to learn about the changes set forth in this ESD. EPA is publishing a notice in the Arizona Republic, the West Valley View, and the Prensa Hispana that briefly summarizes the ESD, including the reasons for such differences, and that announces its availability for review.

August 31, 2016

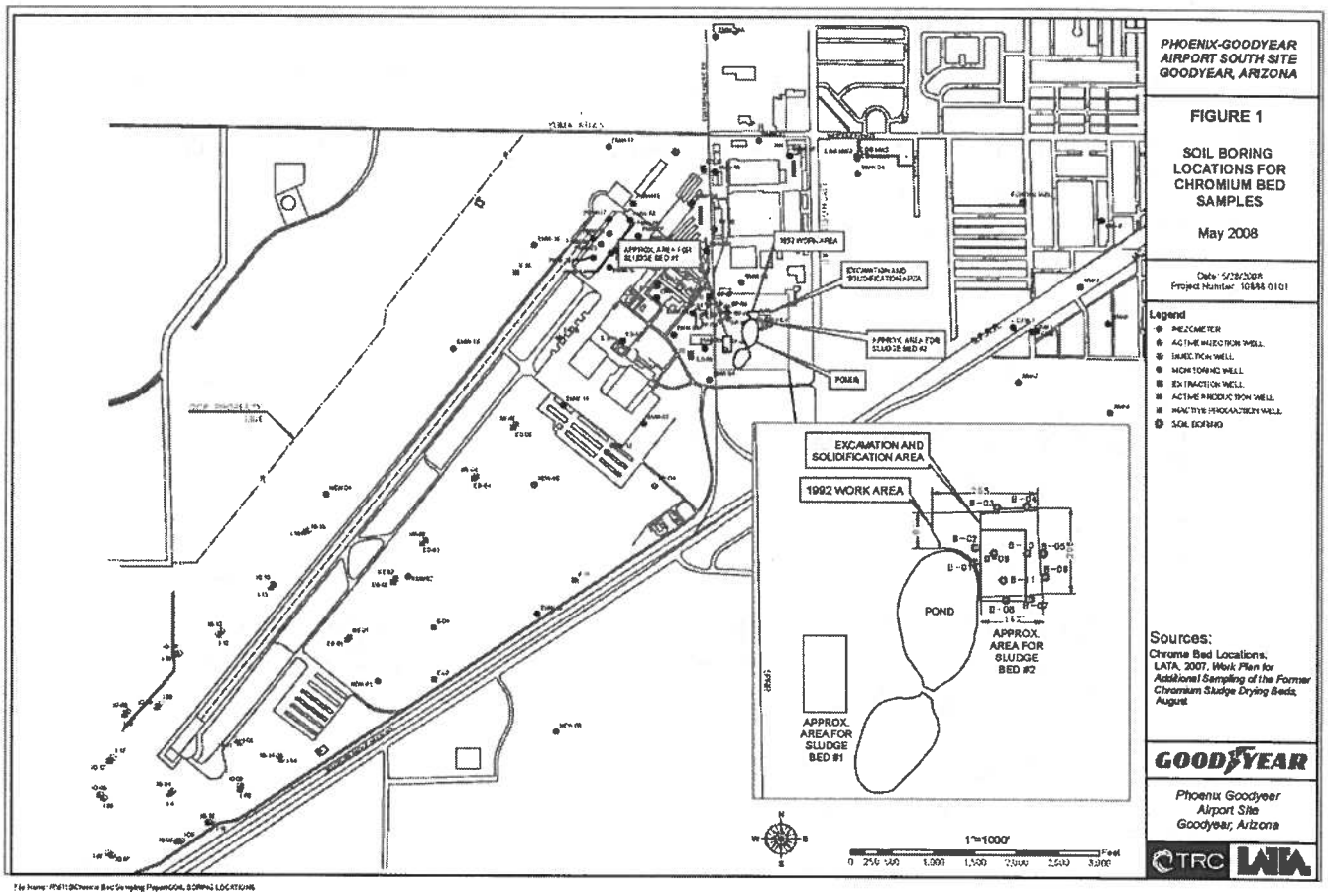
Angeles Herrera
Assistant Director, Federal Facilities and Site Cleanup Branch
Superfund Division
EPA Region 9

Date

Attachments:

Attachment 1 – Map Showing Location of PGA South Superfund Site
Attachment 2 – PGAS Subunits A & C Metals Sampling Results, September 2007 through August 2008

Attachment 1 – Map Showing Location of PGA South Superfund Site



Attachment 2 – PGAS Subunits A & C Metals Sampling Results, September 2007 through August 2008

Table 1: Metals Sampling Results, Subunit A Aquifer, Phoenix Goodyear Airport (PGA) South Superfund Site, September 2007 - August 2008

Well ID (Upgradient/ Cross-gradient)	Date	Arsenic, Dissolved (mg/L)	Arsenic, Total (mg/L)	Cadmium, Dissolved (mg/L)	Cadmium, Total (mg/L)	Chromium VI (mg/L)	Chromium, Dissolved (mg/L)	Chromium, Total (mg/L)	Copper, Dissolved (mg/L)	Copper, Total (mg/L)	Lead, Dissolved (mg/L)	Lead, Total (mg/L)	Nickel, Dissolved (mg/L)	Nickel, Total (mg/L)	Zinc, Dissolved (mg/L)	Zinc, Total (mg/L)
GMW-04	09/18/07	<0.020 E8	<0.020 E8	<0.0010	<0.0010	<0.010	0.019	0.012	<0.010	<0.010	<0.015	<0.015	<0.010	<0.010	<0.050	0.096
GMW-04	03/26/08	0.0044 E4	0.0063	<0.0050	0.00063 E4	<0.010 H4	0.0046 E4	0.008 E4	0.0041 E4	0.022	<0.0030	<0.0030	0.026	0.024	0.12	0.15
GMW-04	06/17/08	0.012	0.015	<0.005	<0.005	<0.01 H3	0.0027 E4	0.0051	0.0037 E4B1	0.0061	<0.003	<0.003	<0.005	0.0011E4	0.09	0.13 J
GMW-04 (F. Dup.)	06/17/08	0.011	0.011	<0.005	<0.005	<0.01 H3	0.0025 E4	0.0038 E4	<0.005 E4	<0.005 E4	<0.003	<0.003	<0.005	0.0011E4	0.11	0.079 J
GMW-04	08/05/08	0.0022 E4	<0.005	<0.005	<0.005	<0.01 H3	<0.005 E4	0.004 E4	<0.005	<0.005 E4	<0.003	<0.003	0.0026 E4	0.00057 E4	0.07	0.082
GMW-05	09/18/07	<0.020 E8	<0.020 E8	<0.0010	<0.0010	<0.010	0.014	0.029	<0.010	<0.010	<0.015	<0.015	0.014	0.015	0.25	0.26
GMW-05	03/26/08	0.005 E4	0.012	<0.0050	<0.005	<0.010 H4	0.0041 E4	0.052	0.0055	0.014	<0.0030	<0.0030	0.15	0.0061	0.17	0.15
GMW-05	06/16/08	0.013	0.0069	<0.005	<0.005	<0.01	0.0015 E4	0.0095	0.0045 E4B1	0.0026 E4	<0.003	<0.003	0.00058 E4	0.0029E4	0.057	0.065
GMW-05	07/28/08	<0.005	0.053	<0.005	<0.005	<0.01	0.0022 E4	0.058	<0.005 E4	0.017	<0.003	0.0094	<0.005 E4	0.0027 E4	0.06	0.24

Well ID (Vicinity of Former Sludge Drying Beds)	Date	Arsenic, Dissolved (mg/L)	Arsenic, Total (mg/L)	Cadmium, Dissolved (mg/L)	Cadmium, Total (mg/L)	Chromium VI (mg/L)	Chromium, Dissolved (mg/L)	Chromium, Total (mg/L)	Copper, Dissolved (mg/L)	Copper, Total (mg/L)	Lead, Dissolved (mg/L)	Lead, Total (mg/L)	Nickel, Dissolved (mg/L)	Nickel, Total (mg/L)	Zinc, Dissolved (mg/L)	Zinc, Total (mg/L)
EMW-03	09/18/07	<0.020 E8	<0.020 E8	<0.0010	<0.0010	0.058	0.11	0.082	0.013	0.011	<0.015	<0.015	<0.010	<0.010	0.20	0.17
EMW-03	01/22/08	0.011	0.011	<0.0050	<0.005	0.070	0.069	0.075	0.0062 B7	0.0041 E4,B1	<0.0030	<0.0030	0.00087	0.0013	0.22	0.26
EMW-03	06/17/08	0.014	0.013	<0.005	<0.005	0.08 H3	0.067	0.089	0.004 E4B1	0.0045 E4	<0.003	<0.003	0.005	<0.005	0.17	0.34
EMW-03	07/31/08	<0.005 E4	0.0065	<0.005	<0.005	0.08 H3	0.086	0.071	<0.005	<0.005	0.0018 E4	0.0036	0.0034 E4	<0.005	0.16	0.19
EMW-05	07/28/08	<0.005	0.017	<0.005	<0.005	<0.01 H3	0.0073	0.008	<0.005 E4	<0.005	<0.003	0.0037	<0.005	<0.005	0.7	0.67
EMW-06	09/18/07	<0.020 E8	<0.020 E8	<0.0010	<0.0010	<0.010	0.037	0.027	0.014	0.023	<0.015	<0.015	<0.010	<0.010	0.50	0.47
EMW-06	07/31/08	<0.005	0.008	<0.005	<0.005	<0.01	0.0043 E4	0.005	<0.005	<0.005	0.0025 E4	0.0029 E4	0.0091	<0.005	0.62	0.57
EMW-10	09/20/07	<0.020 E8	<0.020 E8	<0.0010	0.0018	<0.010	0.037	0.39	0.015	0.091	<0.015	0.086	0.017	0.46	0.32	7.8
EMW-10	01/23/08	<0.005	<0.005	<0.0050	0.0064	<0.010	0.0051	0.0073	0.0025 E4	0.0044 E4	<0.0034	<0.0030	0.0066	0.0088	0.04	0.078
EMW-10	06/16/08	0.011	<0.005	<0.005	<0.005	<0.01 H1	0.0021 E4	0.003 E4	0.0043 E4B1	<0.005	<0.003	<0.003	0.0058	0.0064	0.1	0.22
EMW-10	07/28/08	<0.005	0.015	<0.005	<0.005	<0.01 H3	0.0012 E4	0.005 E4	0.0051	0.0019 E4	<0.003	0.0038	0.014	0.013	0.18	0.18
GMW-06	09/18/07	<0.020 E8	<0.020 E8	<0.0010	<0.0010	<0.010	0.024	0.015	<0.010	<0.010	<0.015	<0.015	<0.010	<0.010	0.53	0.52
GMW-06	03/26/08	0.0041 E4	0.0036 E4	<0.0050	<0.005	<0.010 H4	0.0051	0.0055	0.0050 E4	0.0055	<0.0030	<0.0030	0.013	0.0056	0.11	0.11
GMW-06	06/17/08	0.012	0.012	<0.005	<0.005	<0.01 H3	0.004 E4	0.0038 E4	0.0065	0.0044 E4	<0.003	<0.003	0.0046 E4	<0.005	0.11	0.065
GMW-06	07/29/08	<0.005	<0.005	<0.005	<0.005	<0.01 H3	<0.005 E4	0.006	<0.005 E4	<0.017	<0.003	<0.003	<0.005 E4	<0.005 E4	0.1	<0.096
GP-01	09/20/07	<0.020 E8	0.053	<0.0010	<0.0010	0.044	0.065	0.21	<0.010	0.086	<0.015	0.076	<0.010	0.080	0.74	8.3
GP-01	01/23/08	0.0035 E4	0.014	0.00042 E4	0.0037 E4	0.070	0.030	0.036	0.0036 E4	0.014	0.0034	0.02	0.005	0.0086	0.76	17
GP-01	06/17/08	0.014	0.015	<0.005	<0.005	0.05	0.048	0.047	0.0033 E4B1	0.0033 E4B1	<0.003	<0.003	<0.005	<0.005	0.48	0.54
GP-01	07/29/08	0.0029 E4	0.0076	<0.005	<0.005	0.05 H1	0.052	0.051	<0.005 E4	<0.017	<0.003	0.0027 E4	<0.005	<0.005 E4	0.31 J	2.6 J
GP-01 (F. Dup.)	07/29/08	<0.005	0.0089	<0.005	<0.005	0.05 H1	0.049	0.061	<0.005 E4	<0.017	<0.003	0.0064	<0.005	<0.005 E4	0.41 J	4.2 J
GP-02	09/20/07	<0.020 E8	<0.020 E8	<0.0010	<0.0010	0.051	0.069	0.19	<0.010	0.14	<0.015	0.046	<0.010	0.16	<0.050	4.7
GP-02	01/23/08	0.0023 E4	0.028	0.00086 E4	0.0041	0.23	0.040	0.054	0.0032 E4	0.022	0.0034	0.0025 E4	0.005	0.021	0.52	6.9
GP-02	06/17/08	0.015	0.014	<0.005	<0.005	0.02	0.026	0.029	0.0039 E4B1	0.0039 E4B1	<0.003	<0.003	<0.005	<0.005	0.51	0.64
GP-02	07/30/08	<0.005	0.0036 E4	<0.005	<0.005	0.04 H3	0.029	0.032	0.0025 E4	0.0047 E4	<0.003	0.0028 E4	<0.005	0.0027 E4	0.36	2.7

Table 1: Metals Sampling Results, Subunit A Aquifer, Phoenix Goodyear Airport (PGA) South Superfund Site, September 2007 - August 2008

Well ID (Vicinity of Former Sludge Drying Beds)	Date	Arsenic, Dissolved (mg/L)	Arsenic, Total (mg/L)	Cadmium, Dissolved (mg/L)	Cadmium, Total (mg/L)	Chromium VI (mg/L)	Chromium, Dissolved (mg/L)	Chromium, Total (mg/L)	Copper, Dissolved (mg/L)	Copper, Total (mg/L)	Lead, Dissolved (mg/L)	Lead, Total (mg/L)	Nickel, Dissolved (mg/L)	Nickel, Total (mg/L)	Zinc, Dissolved (mg/L)	Zinc, Total (mg/L)
GP-07	09/20/07	<0.020 E8	<0.020 E8	<0.0010	<0.0050	0.013	0.040	0.89	0.013	0.72	<0.015	0.33	<0.010	0.92	<0.050	3.7 D2
GP-07	01/23/08	0.016	0.018	<0.0050	0.0058	<0.010	0.015	0.028	0.0065	0.019	0.0053	0.027	0.0047 E4	0.019	1.6	3.2
GP-07	06/17/08	0.016	0.014	<0.005	<0.005	<0.01 H3	0.0076	0.0077	0.0035 E4B1	0.0032 E4	<0.003	<0.003	<0.005	<0.005	0.72	0.91
GP-07	07/29/08	0.0027 E4	0.007	<0.005	<0.005	<0.01 H3	0.0076	0.008	<0.005 E4	<0.005 E4	<0.003	<0.003	<0.005	<0.005 E4	0.057	0.39
GP-09	09/20/07	<0.020 E8	<0.020 E8	<0.0010	<0.0010	0.024	0.047	0.21	0.013	0.15	<0.015	0.052	<0.010	0.14	<0.050	2.0
GP-09	01/23/08	0.0036 E4	0.0076	<0.0050	<0.005	0.090	0.020	0.023	0.0040 E4	0.0076	0.0034	0.061	0.005	0.0027 E4	0.41	5.4
GP-09	06/17/08	0.014	0.017	<0.005	<0.005	0.02 H3	0.018	0.018	0.0037 E4B1	0.0034 E4B1	<0.003	<0.003	<0.005	<0.005	0.08	0.052
GP-09	07/29/08	0.0022 E4	0.002 E4	<0.005	<0.005	0.02 H3	0.018	0.019	<0.005 E4	<0.005 E4	<0.003	<0.003	<0.005	<0.005 E4	0.12	0.35
Well ID (Hot Spot)	**Date**	**Arsenic, Dissolved (mg/L)**	**Arsenic, Total (mg/L)**	**Cadmium, Dissolved (mg/L)**	**Cadmium, Total (mg/L)**	**Chromium VI (mg/L)**	**Chromium, Dissolved (mg/L)**	**Chromium, Total (mg/L)**	**Copper, Dissolved (mg/L)**	**Copper, Total (mg/L)**	**Lead, Dissolved (mg/L)**	**Lead, Total (mg/L)**	**Nickel, Dissolved (mg/L)**	**Nickel, Total (mg/L)**	**Zinc, Dissolved (mg/L)**	**Zinc, Total (mg/L)**
E-07R	09/20/07	<0.020 E8	<0.020 E8	<0.0010	<0.0010	0.15	**0.17**	0.16	0.025	0.019	<0.015	<0.015	0.022	<0.010	<0.050	<0.050
E-07R	01/23/08	<0.005	0.005	<0.0050	0.0056	0.130	**0.13**	0.12	0.011	0.11	<0.0034	0.0021	0.0052	0.011	0.0075 E4	0.027
E-07R	06/16/08	0.013	<0.005	<0.005	<0.005	0.11 H1	**0.1**	0.095	0.0061	0.0022 E4	<0.003	<0.003	0.0037 E4	0.006	0.0053 E4	<0.02
E-07R	08/20/08	<0.005 E4	<0.005	<0.005	<0.005	0.12	**0.1**	0.100	0.009	0.027	<0.003	<0.003	0.019	0.02	<0.02 E4	<0.02 E4
Well ID (Downgradient)	**Date**	**Arsenic, Dissolved (mg/L)**	**Arsenic, Total (mg/L)**	**Cadmium, Dissolved (mg/L)**	**Cadmium, Total (mg/L)**	**Chromium VI (mg/L)**	**Chromium, Dissolved (mg/L)**	**Chromium, Total (mg/L)**	**Copper, Dissolved (mg/L)**	**Copper, Total (mg/L)**	**Lead, Dissolved (mg/L)**	**Lead, Total (mg/L)**	**Nickel, Dissolved (mg/L)**	**Nickel, Total (mg/L)**	**Zinc, Dissolved (mg/L)**	**Zinc, Total (mg/L)**
EMW-14	09/20/07	<0.020 E8	2.2 D2	<0.0010	<0.0050	<0.010	0.046	7.3 D2	0.023	0.24	<0.015	1.8 D2	<0.010	0.091	4.4	210 D2
EMW-14	06/18/08	<0.005	0.028	<0.005	<0.005	<0.01 H3	0.018	0.078	<0.005	0.0056	<0.003	0.002 E4	<0.005	<0.005	0.19	0.76
Maximum Contaminant Levels		**0.05**	-	**0.005**	-	-	**0.100**	-	**1.3**	-	**0.015**	-	**0.100**	-	**5.0**	-

Notes
Bolded - Result above MCL
NS - Not sampled
Total - Unfiltered Sample
Dissolved - Filtered Sample
B1 - Blank contained analyte: result below reporting limit
B7 - Blank contained analyte: result above reporting limit
D2 =Sample required dilution due to high concentration of target analyte
E4 = Estimated concentration Analyte was detected below laboratory minimum reporting level (MRL)
E8 = Analyte results reported to the method detection limit as requested
M1 = Sample matrix spike was high, associated blank spike was acceptable.
H1 - Hexavalent Chromium samples were extracted and analyzed out of hold time
H3 - Hexavalent Chromium samples were received, extracted and analyzed out of hold time.
H4 - Hexavalent Chromium samples were received, extracted and analyzed out of hold time.
J = Relative percent difference for the field duplicate results were high.

Table 2: Metals Sampling Results, Subunit C Aquifer, Phoenix Goodyear Airport (PGA) South Superfund Site, September 2007 - August 2008

Well ID	Date	Arsenic, Dissolved (mg/L)	Arsenic, Total (mg/L)	Cadmium, Dissolved (mg/L)	Cadmium, Total (mg/L)	Chromium VI (mg/L)	Chromium, Dissolved (mg/L)	Chromium, Total (mg/L)	Copper, Dissolved (mg/L)	Copper, Total (mg/L)	Lead, Dissolved (mg/L)	Lead, Total (mg/L)	Nickel, Dissolved (mg/L)	Nickel, Total (mg/L)	Zinc, Dissolved (mg/L)	Zinc, Total (mg/L)
GMW-09MC	09/19/07	<0.020	<0.020	<0.0010	<0.0010	0.013	0.018	0.23	<0.010	<0.010	<0.015	<0.015	0.072	0.090	0.43	0.660
GMW-09MC	01/08/08	0.0037	0.0059	<0.0050	<0.005	<0.010	0.0045	0.1	0.0042	0.077	<0.0030	0.002	0.074	0.097	0.65	1.5
GMW-09MC	06/18/08	<0.005	0.013	<0.005	<0.005	<0.01	0.00083 E4	0.085	0.0064	0.0079	<0.003	<0.003	0.074	0.1	0.74 J	2.0 J
GMW-09MC (F. Dup.)	06/18/08	<0.005	0.012	<0.005	<0.005	<0.01	0.00089 E4	0.095	<0.005	0.0083	<0.003	<0.003	0.064	0.096	0.56 J	0.72 J
GMW-09MC	07/28/08	<0.005	0.0079	<0.005	<0.005	<0.01	0.0024	0.071	<0.005	0.0017	<0.003	0.0062	0.082	0.091	0.38	0.55
GMW-11UC	09/19/07	<0.020	<0.020	<0.0010	<0.0010	<0.010	0.014	0.037	<0.010	<0.010	<0.015	<0.015	**0.20**	0.20	0.82	0.84
GMW-11UC	01/22/08	0.0050	0.0059	<0.0050	<0.005	<0.010	0.0052	0.031	0.0042	0.0061	<0.0030	<0.0030	**0.14**	0.14	0.75	0.98
GMW-11UC	06/18/08	0.0100	0.005	<0.005	<0.005	<0.01	0.0032	0.037	0.0054	0.026	<0.003	<0.003	**0.14**	0.14	0.7	1.2
GMW-11UC	07/28/08	<0.005	0.0057	<0.005	<0.005	<0.01	0.0036	0.015	<0.005	0.0018	<0.003	0.014	**0.14**	0.14	0.59	0.78
GMW-13UC	09/19/07	<0.020	<0.020	<0.0010	<0.0010	0.82	**0.55**	0.50	<0.010	<0.010	<0.015	<0.015	<0.010	<0.010	<0.050	<0.050
GMW-13UC	01/23/08	0.0050	0.005	0.0015	0.0051	0.24	**0.24**	0.22	0.0047	0.0049	0.0034	0.0003	0.005	0.005	0.11	0.38
GMW-13UC	06/17/08	0.0110	0.01	<0.005	<0.005	0.48	**0.42**	0.42	0.0046	0.0055	<0.003	<0.003	<0.005	<0.005	0.086	0.14
GMW-13UC	08/05/08	<0.005	<0.005	<0.005	<0.005	0.5	**0.42**	0.480	<0.005	<0.005	0.0011	<0.003	<0.005	<0.005	0.029	0.047
EMW-28LC	09/19/07	NS	NS	NS	NS	0.10	NS	0.022	NS	NS	NS	NS	NS	NS	0.75	1.0
EMW-28LC	01/22/08	0.0042	0.0046	<0.0050	<0.005	<0.010	0.007	0.0077	0.0042	0.0044	<0.0030	<0.0030	0.00046	0.00065	0.74	2.7
EMW-28LC	06/16/08	0.0110	0.005	<0.005	<0.005	<0.01	0.0063	0.0054	0.0043	0.0012	<0.003	<0.003	<0.005	<0.005	0.66	1.5
EMW-28LC	07/31/08	<0.005	<0.005	<0.005	<0.005	<0.01	0.0049	0.006	<0.005	<0.005	0.0028	0.019	<0.005	<0.005	0.61	3.3
Maximum Contaminant Levels		**0.05**	**-**	**0.005**	**-**	**-**	**0.100**	**-**	**1.3**	**-**	**0.015**	**-**	**0.100**	**-**	**5.0**	**-**