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Environmental Health

BROWN AND CALDWEL

CONSULTING ENGINEERS

May 10, 1985

Mr. Erwin Koehler Department of Health Services Toxic Substances Control Division North Coast California Section 2151 Berkeley Way, Annex 7 Berkeley, California 94704-9980

11-39-1928-08/14

Western Forge & Flange Company Subject:

Albany Site Correction Documentation Report

Dear Mr. Koehler:

On behalf of Western Forge & Flange Company, we hereby transmit the correction documentation report for the Western Forge & Flange Company, Albany, California, facility. Please contact Mr. Brian Bracken at Brown and Caldwell or Mr. Vernon Mallinson at Western Forge & Flange Company if you have any questions regarding this report.

Very truly yours,

BROWN AND CALDWELL

ación O. Charles Brian D. Bracken

Project Manager

Hilary M. Theisen

Vice President

Principal-in-Charge

BDB:jrs

cc/enc:

Mr. William Cosden, District Attorney, Alameda County

Mr. Philip Mellen, Regional Water Quality Control Board

Mr. Vernon Mallinson, Western Forge & Flange Company

Ms. Nancy Symons, Miller, Morton, Caillat & Nevis

Mr. Peter Zaklan, Western Forge & Flange Company

Mr. Tom Kasnick, California Department of Fish and Game Mr. Mark Ransom, Southern Pacific Transportation Company

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WESTERN FORGE & FLANGE COMPANY ALBANY SITE PROJECT CORRECTION DOCUMENTATION REPORT

This report documents the cleanup of the Western Forge & Flange Company (WFF) Albany site that occurred during the period March 4, 1985, through April 30, 1985. In September 1983, the state identified a contamination problem at the site due to heavy metals and oil and grease. A field investigation was conducted in May and July 1984, and a Problem Definition Report issued July 10, 1984. Additional problem definition work occurred in August in response to agency concerns over potential groundwater contamination and to further define soil areas and depths to be excavated. Results of this post Problem Definition Report work were transmitted to the state on November 2, 1984.

A site correction plan was submitted to the state on July 10, 1984, concurrent with the Problem Definition Report. Cleanup requirements were discussed in subsequent meetings and cleanup rationale were transmitted to the state by letter on November 2, 1984. The correction plan was approved by the Department of Health Services on July 19, 1984, and by the Regional Water Quality Control Board on November 15, 1984, subject to certain conditions being met. Design of the correction plan occurred in the period December 1984 through February 1985. A summary of the problem, correction plan, design, construction activities, sampling program, monitoring program, and remaining work to be done is contained herein.

PROBLEM SUMMARY

The Albany facility contained inside and outside soil contamination by heavy metals and oil and grease resulting from the manufacture of flanges. Oily residue had accumulated in soil areas around hammers inside the building, while steam condensate from boiler steam roof discharge vents had contaminated outside soils with oil. Stormwater runoff through part of the facility and from the roof of the plant next door had spread contaminants from inside the plant onto adjoining Southern Pacific Transportation Company (SPTCo) property and into a storm drain along SPTCo railroad tracks.

The inside soils contained copper and nickel levels above total threshold limit concentrations (TTLC) (22 CAC 66699) and copper, lead, and nickel levels above 10 times soluble threshold limit concentrations (STLC) at generally shallow depths up to

- 3. Separation of clean stormwater drainage from contaminated process water and stormwater, discharge of clean stormwater off site, and treatment of contaminated water.
- 4. Collection of contaminated water into a new sump, separation of solids and oil from the water in the sump, and treatment of the sump effluent in an oil-water separator.
- 5. Installation of a steam vent discharge trap on the building roof to collect oily condensate for treatment in the oil-water separator.
- 6. New roof gutters and leaders to separate clean stormwater from contaminated stormwater and to minimize the quantity of contaminated water generated.
- 7. Installation of a sand box to receive hot flanges during manufacture.
- 8. A drum storage area for oil skimmed from the new sump and oil-water separator.
- 9. New roof gutter system for Curoco building next door to eliminate the stormwater contribution to the manufacturing area.
- 10. Miscellaneous electrical work and pumps for water collection and treatment system and backup provisions.

DESIGN

Design of the approved correction plan occurred in December 1984. Prior to construction, three revisions were made. Figure 1 is the fourth and final revision to the design. This drawing, completed after construction, is the "as-built" drawing for the Albany Site. The as-built specifications are included as Appendix A to this report. Figure 1 shows the changes to the December 20, 1984, design that were incorporated into the cleanup project due to (1) SPTCo requirements, (2) agency concerns, (3) WFF requests, (4) soil sample verification analytical results, and (5) conditions encountered during construction. Figure 1 can be considered a "record drawing" of correction work that actually occurred. Signficant changes to the December 20, 1984, design are summarized as follows:

1. A steel sump rather than concrete was used. The sump design was modified and the sump fabricated by WFF.

Major Activities

Major construction activities included contaminated soils removal, backfilling, surface drainage controls, and roof drainage controls. The major activities completed as of April 26, 1985, are described below and are shown on Figure 1.

Contaminated Soils Removal. The contaminated soils surrounding equipment inside the building, as shown on Figure 1, were excavated and disposed off site. A total of 33 cubic yards was hauled to the IT Class I Waste Management Unit in Benicia, California, on March 15, 1985. An additional 4 cubic yards were disposed of on March 25, 1985.

Contaminated soils outside the building, and on SPTCo property, were excavated from three areas shown on Revision 3 to the original plans. Additional soils were excavated from three smaller areas shown on the as-built drawing: the storm drain inlet area, an area near the southwest corner of the building observed to contain visible oil, and an area within the 6-inch excavation that was extended to a 20-inch depth due to visible oil. From March 19 until March 22, 1985, 153 cubic yards of outside contaminated soil were hauled to the IT Class I Waste Management Unit in Benicia.

Backfilling. The areas surrounding equipment inside the building were backfilled with aggregate and covered with a 6-inch concrete base. The inside areas were generally backfilled within 1 to 3 days after they were excavated. Prior to backfilling, verification samples were taken and analyzed, additional excavation was done as necessary, and excavation depths were checked by Brown and Caldwell.

The areas excavated outside the building were replaced to grade with 3/4-inch aggregate base as approved by the on-site SPTCo inspector. The clean aggregate was imported and graded March 20 through March 25, 1985.

Surface Drainage Controls. Surface drainage controls consist of an asphalt concrete dike, dispersion basin, concrete curb and gutter, and drainage sump. An asphalt-concrete dike between the plant and the adjacent Curoco building collects clean stormwater from the Curoco roof and east section of the WFF building roof and property. The dike routes clean stormwater to a rock-filled dispersion basin; stormwater then flows to the storm drain inlet grate. The asphalt-concrete dike was constructed on March 21, 1985; the dispersion basin was completed on the following day with 5 tons of drain rock.

Process water and stormwater accumulated on the plant floor flows to a concrete curb and gutter. The curb and gutter were extended an additional 30 feet to contain oily wastewater overflows

sampling was performed. Sampling consisted of collecting and analyzing soil samples inside and outside of the building after soil had been removed to the depths specified on the construction drawing. If concentrations of copper, lead, nickel, or oil and grease were detected above the established cleanup levels, additional soil was removed and vertification sampling and analysis were repeated at the lower excavated depth. The sampling methods, sample locations, and results of analyses are presented below.

Sampling Methods. Verification samples were obtained from the uppermost 6 inches of each excavation in a manual soil sampler lined with a clean brass tube. Following collection, the brass tube was removed and the ends were covered with plastic caps. Prior to use, all sampling equipment was washed with tap water and Alconox, rinsed with tap water, and dried.

Sampling Locations. Each verification sample location is shown on Figure 2. At two inside locations more than one sample number is shown. Additional excavation was required at these locations due to verification sample analytical results. Inside sampling locations were selected to provide a representative sample of an excavation area. In larger areas, more than one sampling location was selected. Additionally, sample V12 was collected from a dirt area identified during construction. The area indicated on Figure 2 was excavated to a depth of 10 inches. The five outside sampling locations were selected to represent the entire outside excavation area and to identify areas that appeared to be contaminated.

Analytical Results. The results of copper, lead, nickel, and oil and grease analyses performed on each verification sample are included in Table 1. The established cleanup level for these constituents and sample collection depths are also included.

Based on the analytical results of the initial sampling, additional excavation and sampling were required at the inside locations V5 and V11, because one or more constituents exceeded the cleanup level. At location V11, only one additional excavation event was required. At location V5, four excavation events to a final depth of 24 inches were required because oil and grease were detected above the cleanup level in the first three samples collected (V5, V8, and V9). In sample V17, nickel and oil and grease were detected at concentrations above the cleanup levels. Excavation and sampling were not repeated at this location because the soil depth sampled (up to 12 inches) was already at the top of the hammer foundation.

As shown in Table 1, none of the outside verification samples exhibited concentrations of copper, lead, nickel, or cil and grease above the cleanup levels. These areas were excavated to the depths shown on the construction drawings.

Table 1 Western Forge & Flange Albany Site Verification Sample Results,
Concentration in Milligrams per Kilogram

Sample number	Sample depth, inches	Copper	Lead	Nickel	Oil and grease
Inside soils V1 V2 V3 V4 V5 V8 V9 V13 V6 V7 V10 V11 V15 V12 V14 V16 V17	$ \begin{array}{r} 18 - 24 \\ 6 - 12 \\ 12 - 18 \\ 6 - 12 \\ 6 - 12 \\ 12 - 18 \\ 16 - 22 \\ 24 - 30 \\ 6 - 12 \\ 6 - 12 \\ 10 - 16 \\ 10 - 10$	20 66 62 75 42 470 140 	17 240 14 38 64 100 97 - 150 99 87 82 37 50 180 <13 18	15 48 95 88 51 820 350 130 560 210 2,100 460 190 250 100 1,900	<pre></pre>
Outside soils SV1 SV2 SV3 SV4 SV5 TTLCa Cleanup levelb	$ \begin{array}{r} 12 - 18 \\ 12 - 18 \\ 17 - 23 \\ 6 - 12 \\ 24 - 30 \end{array} $	8.7 22 32 29 26 2,500 1,250	13 23 22 40 15 1,000 500	32 63 210 58 62 2,000 1,000	270 94 <50 <50 133

aTotal threshold limit concentration in milligrams per kilogram 22 CAC 66699 January 11, 1985.

Note: Underline indicates concentration exceeding cleanup level.

Drum Sample

Soils excavated from around equipment foundations were temporarily stored in drums prior to off-haul to the IT site in Benicia. IT required a PCB analysis of the drummed material prior to acceptance for disposal. A composite sample was formed from three discrete samples collected from randomly selected drums. The sample was analyzed for PCBs and results showed nondetectable concentrations. The laboratoy report is included in Appendix B.

Ditch Sample

At the request of the Regional Water Quality Control Board, two soil samples were taken in the drainage ditch, within 2 feet of the storm drain behind Curoco and next to SPTCo tracks. These samples were analyzed for copper, lead, nickel, and oil and grease. Results are shown on the analytical report included in Appendix B

bApproved by State.

REMAINING ACTIVITIES

The following correction activities remain:

- 1. Removal of barrels from the site containing skimmed oil from the separator. Note that arrangements are currently being made with a recycler for haul-off of this material.
- 2. Connection of the second stream line vent to the steam trap on the roof.
- 3. Completion of excavation and removal of contaminated soil around the 14,000-pound hammer at sample WFF 12. Note that this hammer foundation is cracked. Since WFF plans to rebuild the foundation in June, soils around the hammer were not removed during the inside cleanup described in this report. Operational considerations have now allowed excavation of these soils, which is currently under way.
- 4. Transmittal of groundwater monitoring results for the May 1985 sample and collection of a second sample at the end of the dry season.

APPENDIX A SPECIFICATIONS

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APPENDIX A

REVISION NO. 2
TO
SPECIFICATIONS

WESTERN FORGE & FLANGE COMPANY ALBANY SITE CORRECTION PROJECT

Pumps, Electrical, and Mechanical

Owner will furnish and install all pumps, electrical, and mechanical (piping) equipment.

Earthwork, Base and Paving

Imported clean fill shall be dirt or aggregate with a maximum size of 2 inches in diameter any dimension.

Additional excavation of contaminated material shall be as directed by Brown and Caldwell. Such excavation shall include loading, hauling, disposal, disposal tax, and import and compaction of new clean fill. This work shall be done on an in-place yard basis with the volume of material removed jointly determined by Brown and Caldwell and Underground Construction.

Additional haul-off above 70 cubic yards of soil excavated by Owner inside building shall be paid on an in-drum yard basis. The cost shall include loading, hauling, disposal, and disposal tax. Owner shall dump drums in an area convenient for truck loading of contents by subcontractor. The volume of material in the drums shall be calculated by Brown and Caldwell based on drum capacity and degree of fullness.

Performance Bond

Underground Construction shall provide a faithful performance bond to Brown and Caldwell for 100 percent of the contract amount.

Business License

Underground Construction shall secure a business license from the City of Albany and all required permits to complete the contract work.

rod, and adjustable stops mounted on a guide stand bolted to the sump cover. Furnish a combination magnetic starter, with overload protection and under voltage release, and circuit breakers, in single enclosure, for wall mounting. Pump and motor shall be installed inside the building against the west wall just south of the doorway.

Owner shall provide a 20 A, 120 VAC, I phase circuit breaker to feed the sump pump starter. Wire and conduit shall be sized to limit voltage drop to 3 percent. Installation shall comply with 1984 National Electrical Code and any applicable state and local codes.

Provide sump cover as necessary to span opening. Pump discharge piping shall be connected to the oil/water separator with 1-1/4-inch-PVC pipe with solvent weld joints. Pipe shall run vertically up the west wall, then along the west wall to the oil/water separator, and then drop down vertically to discharge into the oil/water separator. The pipe shall be braced and supported along its length.

Rainwater Gutters and Leaders

Install a new gutter between points 1 and 2 discharging to the roof area at point 2. Install gutter 4/6 with a watertight divider at point 5 and a leader discharging water from gutter 4/5 to the inlet of the oil/water separator. Gutter 5/6 discharges to the ground through a leader at point 6. The exact location of points 1 and 5 will be determined in the field.

APPENDIX B LABORATORY REPORTS

LOG NO: E85-02-091

Received: 07 FEB 85 Reported: 04 MAR 85

Brown and Caldwell 3480 Buskirk Avenue Pleasant Hill, California 94523

ATTN: Mr. Brian Bracken CC: Mary Lucas

Project: 1928-08/

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES		DATE SAMPLED
02-091-1	WM-Composite		07 FEB 85
PARAMETER		02-091-1	
Date Extra Date Analy Aroclor 1:	yzed 016, mg/kg 221, mg/kg 232, mg/kg 242, mg/kg 248, mg/kg 254, mg/kg 260, mg/kg 262, mg/kg	02.22.85 02.22.85 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.	

James Hatffeld, Laboratory Director

BROWN AND CALDWELL

ANALYTICAL LABORATORIES

LOG NO: E85-03-247

Received: 19 MAR 85 Reported: 21 MAR 85

Brown and Caldwell 3480 Buskirk Avenue Pleasant Hill, California 94523

Requisition: 1928-08/

ATTN: Mr. Brian Bracken

CC: Ms. Mary Lucas

REPORT OF ANALYTICAL RESULTS

pper, mg/ ad, mg/kg Nickel, mg/ Nitric Acid Oil and Gre	kg Digestion, Date		8.7 13 32 03.19.85 270	22 23 63 03.19.85 94	110 18 1900 03.19.85 2470	
PARAMETER			03-247-1	03-247-2	03-247-3	
03-247-2	SV-1; 12-18" SV-2; 12-18" V-17; 6-12"					19 MAR 85 19 MAR 85 19 MAR 85
LOG NO	SAMPLE DESCRIPTION,	SOIL SAMPLES	,, _, _, _, _, _, _, _, _, _, _,		DA	TE SAMPLED

James Hatfield, Laboratory Director

E85-02-224 LOG NO:

Received: 19 FEB 85 Reported: 04 MAR 85

Brown and Caldwell 3480 Buskirk Avenue Pleasant Hill, California 94523

ATTN: Mr. Brian Bracken CC: Ms. Mary Lucas

Project: 1928-08

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION,	SOIL SAMPLES			DATE SAMPLED
	V-14 V-15				19 FEB 85 19 FEB 85
PARAMETER			02-224-2	02-224-3	
il and Gre Nitric Acid Lead, mg/kg Nickel, mg/ Copper, mg/	Digestion, Date	:		240 02.19.85 37 460 150	

James Hatfield, Laboratory Director

ANALYTICAL LABORATORIES

LOG NO: E85-02-150

Received: 12 FEB 85 Reported: 19 FEB 85

Project: 1928-08/4

Brown and Caldwell 3480 Buskirk Avenue

Pleasant Hill, California 94523

ATTN: Mr. Brian Bracken

CC: Ms. Mary Lucas

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES		·	DA	TE SAMPLED
02-150-1 02-150-2 02-150-3 02-150-4	V-9 V-10 V-11 V-12				12 FEB 85 12 FEB 85 12 FEB 85 12 FEB 85
PARAMETER		02-150-1	02-150-2	02-150-3	02-150-4
itric Acid Copper, mg/ Lead, mg/kg Nickel, mg/ Oil and Gre	kg	02.12.85 140 97 350 1290	02.12.85 320 87 210 120	02.12.85 2000 82 2100 10700	02.12.85 580 50 190 (50

James Hatrield, Laboratory Director

LOG NO: E85-01-324

Received: 28 JAN 85 Reported: 31 JAN 85

Project: 1928-08/

Brown and Caldwell 3480 Buskirk Avenue

Pleasant Hill, California 94523

ATTN: Mr. Brian Bracken

CC: Ms. Mary Lucas

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION	V, SOIL SAMPLES			DATE SAMPLED
01-324-1 01-324-2	V-5 V-6				28 JAN 85 28 JAN 85
PARAMETER			01-324-1	01-324-2	
pper, mg/ Lead, mg/kg Nickel, mg/ Oil and Gre	kg		42 64 51 2810	110 150 130 640	

James Hatrield, Laboratory Director

1928-08/4

LOG NO: E84-12-140

Received: 12 DEC 84 Reported: 04 JAN 85

Project: 1928-08 (Western Forge)

Brown and Caldwell 3480 Buskirk Avenue Pleasant Hill, California 94523

ATTN: Brian Bracken

REPORT OF ANALYTICAL RESULTS

12.13.84 12.13.84 1500 210
650 18000
0.JO
2200 200

James Hatfield, Laboratory Director

APPENDIX C ANALYTICAL METHODS

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APPENDIX C-1

Table C-l summarizes laboratory methods used in analyzing aqueous and soil samples collected during the correction phase of the investigation. Soil sample analysis for oil and grease, copper, lead, nickel, and PCBs were completed using the appropriate test methods described in "Test Methods for Evaluation of Solid Wastes," U.S. Environmental Protection Agency (EPA) publication SW-846.

Analysis of the storm drain (aqueous) sample for oil and grease, copper, lead, and nickel are described in EPA "Methods for Chemical Analysis of Water and Wastes," EPA publication 600/4-79-020.

Table C-1 Laboratory Procedures Used in Analyzing Aqueous and Soil Samples

Analysis	Analytical method
Soilsa	
Priority pollutant metals	•
Copper	Atomic absorption/direct aspiration method (7210)
Lead	Atomic absorption/direct aspiration method (7420)
Nickel	Atomic absorption/direct aspiration method (7520)
PCB 's	Florisil column chromatography (8080)
Oil and grease	Dissolution procedure (3040)
Aqueous ^b	
Oil and grease	Gravimetric, separatory funnel extraction (413.1)

au.s. Environmental Protection Agency (EPA) Test Methods for Evaluating Solid Waste. SW846, July 1982.

bMethods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020, March 1983.



