

**SOIL REMEDIATION PHASES 2 AND 3  
COMPLETION REPORT**

**Defense Fuel Support Point Norwalk  
15306 Norwalk Boulevard  
Norwalk, CA 90650**

04-NDLA-007

Prepared For:



**Defense Logistics Agency  
8725 John J. Kingman Avenue  
Fort Belvoir, Virginia 22060-6222**

Prepared By:



1962 Freeman Avenue  
Signal Hill, California 90755

October 16, 2015

Prepared By:

A blue ink signature of Paul Parmentier.

**for:** Paul Parmentier, P.G. 3915  
Principal Hydrogeologist

Reviewed By:

A blue ink signature of Neil Irish.

Neil Irish, P.G.  
Principal Geologist

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## 1.0 INTRODUCTION

This report documents soil reuse and backfilling activities associated with shallow soil excavation and remediation at the Defense Fuel Support Point Norwalk site located at 15306 Norwalk Boulevard, in Norwalk, California 90650 (Site). This *Phases 2 and 3 Completion Report* (Completion Report) was prepared by The Source Group, Inc. (SGI), on behalf of the Defense Logistics Agency - Energy (DLA – Energy). This report is one of several completion reports resulting from site-wide excavation, soil segregation, and soil treatment conducted at the Site. The purpose of this report is to document soil reuse for the Regional Water Quality Control Board (RWQCB).

The remediation of soil and groundwater and the removal of light non-aqueous phase liquids (LNAPL) has been on-going since 1995 and has resulted in the removal of the majority of the LNAPL from the shallow aquifer and the removal and destruction of thousands of pounds of hydrocarbons present in soil and groundwater using extractive and *in situ* treatment methods. The primary sources of contamination (tanks and pipelines) associated with former DLA – Energy operations have also been removed.

To implement additional source removal, DLA proposed excavation of soil with on-site treatment. The soil removal and proposed confirmation sampling was proposed in SGI's Soil Remediation Action Plan (SGI, 2014), conditionally approved on January 7, 2015 by the RWQCB. The soil excavation is also being conducted under the South Coast Air Quality Management District (SCAQMD) site-specific soil excavation and treatment permits No. 566483 and 568793.

On June 15, 2015, SGI submitted to RWQCB a *Proposed Addendum to the Soil Cleanup Goals* (SGI, 2015a) to clarify the hydrocarbon ranges and to incorporate longer-chain hydrocarbons (with >C25 carbon chain), RWQCB approved the new cleanup goals on July 16, 2015. The revised cleanup goals are summarized in Table 1.

The soil treatment, confirmation sampling and backfilling procedures for the site were presented in SGI's June 15, 2015 *Revised Field Sampling and Analysis Plan and Sampling Strategy* (SGI, 2015b).

Table 1 presents a summary of each phase completion in progress. DLA is submitting excavation- and stockpile-specific reports of confirmation sampling results to request RWQCB's approval for soil reuse and backfilling. The first phase of excavation and remediation was completed in the northeastern part of the site, as reported on July 30, 2015 (SGI, 2015 c).

The scope of the second phase of excavation, soil testing and confirmation sampling was presented in a *Phase 2 Stockpiles and Excavations Confirmation Sampling Report* submitted on July 30, 2015 by SGI (SGI 2015d). Implementation of Phase 2 operation was approved by the RWQCB on August 13, 2015.

The scope of the third phase of soil testing and confirmation sampling was presented in a *Phase 3 Confirmation Sampling Report and Request for Soil Reuse* submitted on September 3, 2015 by SGI (SGI 2015e).

This Completion Report presents a summary of the implementation of backfilling and soil reuse described in the Phase 2 and 3 reports.

Figure 1 presents a site map with the locations of Excavations #1, #2, and #8; Phase 2 clean soil stockpiles CS-11 and CS-13; Phase 2 treated soil stockpiles Powerine-A through D; and Phase 3 treated soil stockpiles 80002-A through 80002-E and 80006-A through 80006-E.

## 2.0 SOIL REUSE AND BACKFILLING

Table 2 presents a summary of site excavations. Table 3 presents a summary of Phase 2 and Phase 3 soil reuse. The following sections describe backfilling of excavations, handling of treated soil, and status of clean soil piles.

### 2.1 Backfilling of Excavations

Figure 1 illustrates the soil handling during backfilling of three excavations and Appendix A includes photo documentation of the backfilling. Table 2 presents a summary of excavations at the site.

Excavation #1 was backfilled on September 28, 2015. Backfilling included addition of potable water to ensure compaction and the placement of soil in approximate one-foot thick lifts. Third party oversight of all compaction activities and the performance of confirmation testing to ensure a minimum of 90% of Standard Proctor were provided by Albus-Keefe & Associates of Anaheim, CA. The southern end of Excavation #1 was only partially backfilled to allow usage of that lower elevation area for temporary storm water collection. Soil used for backfilling consisted of treated soil from Powerine Basin treated soil piles.

Excavation #2 was backfilled on September 9, 2015. Backfilling included addition of potable water to ensure compaction and the placement of soil in approximate one-foot thick lifts. Third party oversight of all compaction activities and the performance of confirmation testing to ensure a minimum of 90% of Standard Proctor were provided by Albus-Keefe & Associates. Soil used for backfilling consisted of treated soil from Powerine Basin treatment soil piles.

Excavation #8 was backfilled on September 24, 2015. Backfilling included addition of potable water to ensure compaction and the placement of soil in approximate one-foot thick lifts. Third party oversight of all compaction activities and the performance of confirmation testing to ensure a minimum of 90% of Standard Proctor were provided by Albus-Keefe & Associates. Soil used for backfilling consisted of treated soil from Powerine Basin treatment soil piles. In addition, as illustrated on Figure 1, backfilling of Excavation #8 also required soil reuse from treated soil approved as part of Phase 3.

### 2.2 Treated Soil Reuse

#### 2.2.1 Treated Soil Reuse, Powerine Basin

Table 3 presents a summary of soil piles with treated soil approved for reuse.

The Phase 2 treated soil stockpiles included four stockpiles, "Powerine-A through D" which comprised 3,451 cubic yards. Soil from these four stockpiles was moved into three sub-piles, Treated-Restricted (TR; soil reuse limited to shallow backfilling), Treated-Unrestricted (TU; soil reuse for backfilling at any depth), and Retreat (Operations Pile; soil requiring retreatment or offsite

disposal). The soil for reuse was further divided into piles "Powerine-TR-01" and "Powerine-TR-02, and "Powerine-TU-01 through 03". Soil from Powerine-TR-01 and half of the soil from Powerine-TR-02 were used to backfill Excavation #2. The soil present in Powerine-TU-01 has not been used for backfill. The soil from Powerine-TU-02 was used to backfill Excavation #2, and Powerine-TU-03 soil was used to partially backfill Excavation #1.

After backfilling of Excavations #1, #2, and #8, approximately 675 cubic yards of stockpile Powerine-TU-03 remained on site for future soil reuse.

### **2.2.2 Treated Soil Reuse, Basins 80002 and 80006**

Phase 3 included segregation and reuse of soil treated in stockpiles located in former basins 80002 and 80006, each containing five stockpiles labeled 80002 A to 80002 E and 80006 A to 80006 E, respectively. The stockpiles included a total of 7,667 cubic yards available for reuse, and the soil was segregated into stockpiles labeled 80002-TR-01 and 80002 TU-01, and 80006 TR-01 to and TR-02 and 80006 TU-01 to 80006 TU-03. Soil from piles 80002 TR-01 and 80006 TU-03 were used to backfill Excavation #8,.

### **2.3 Residual Soil**

The Phase 2 stockpiles included two stockpiles of soil segregated as clean soil during excavation, CS-11 and CS-13. Neither stockpile was used for backfilling, leaving approximately 2,980 cubic yards of clean soil to be reused at the site in later phases of the project.

Soil remaining from Phase 3 treated stockpiles includes 80002 TU-01, a portion of 80002 TR-01, 80006 TR-02, 80006 TU-01 and TU-03. This soil will be used at a later date to fill other excavations. The use of this soil will be documented in forthcoming Completion Reports.

### **2.4 Photographs**

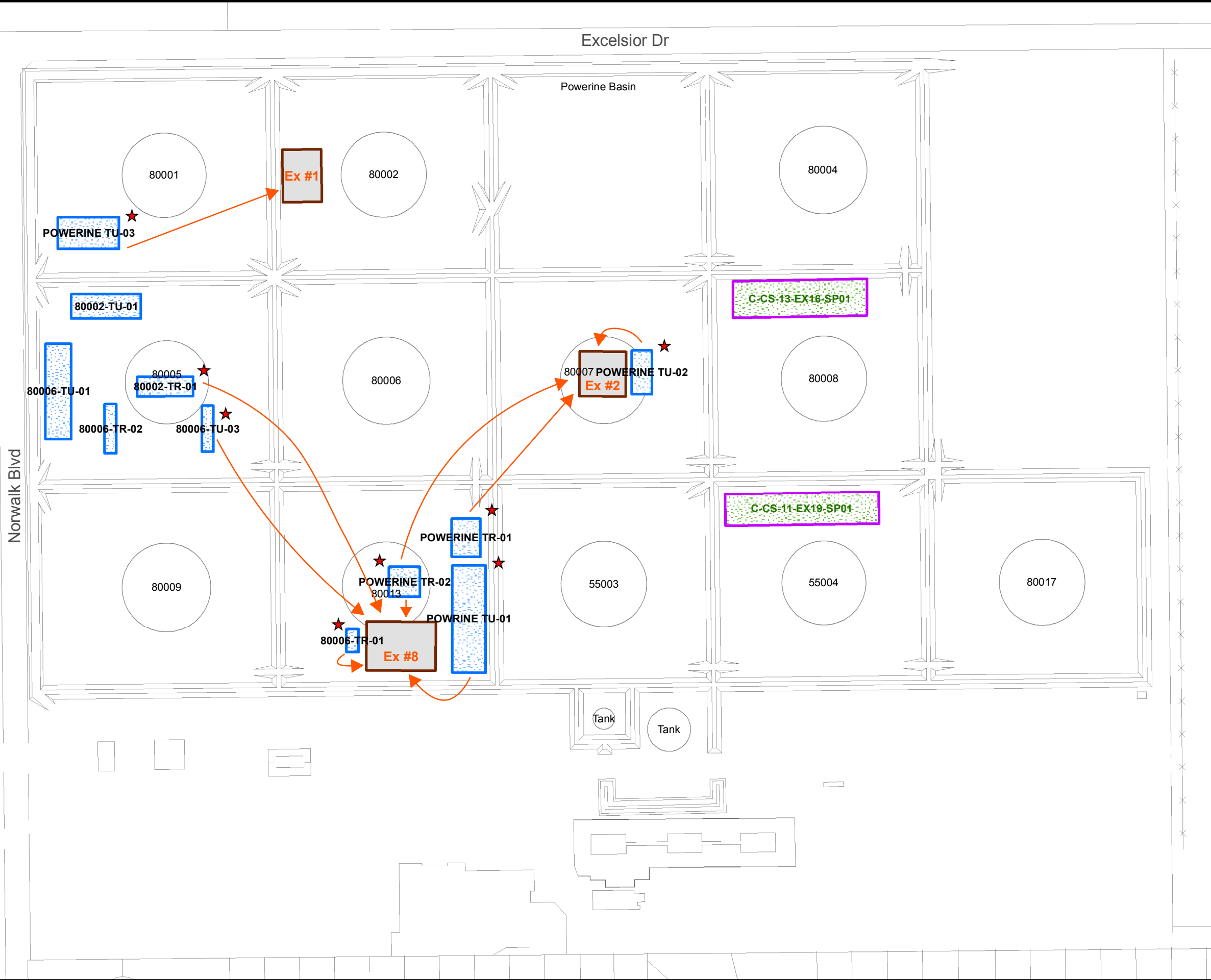
Photographs are included as Appendix A. Photographs 1 through 7 document backfilling of Excavations #1, #2, and #8 respectively. Also included in Appendix A is the topographical interpretation of aerial photographs collected on September 29, 2015. That map illustrates the backfilling of Excavation #8, the backfilling of Excavation #2 with that former excavation in the central basin being used as a staging area for soil treatment. The map illustrates the partial backfilling of Excavation #1. Residual soil piles from treated soil stockpiles are visible in the western basins, 80001 and 80005. Soil piles CS-11 and CS-13 are also visible on that aerial photograph-interpreted map in two western basins.

### 3.0 REFERENCES

- The Source Group, Inc. 2014 (SGI, 2014) *Soil Remedial Action Plan Defense Fuel Support Norwalk*. November 30.
- The Source Group, Inc. 2015 (SGI, 2015a), *Proposed Addendum to the Soil Cleanup Goals*. June 15.
- The Source Group, Inc. 2015 (SGI, 2015b), *Revised Field Sampling and Analysis Plan and Sampling Strategy*. June 15.
- The Source Group, Inc. 2015 (SGI, 2015c), *Phase 1 Excavations and Stockpiles Confirmation Sampling Report*. July 14.
- The Source Group, Inc. 2015 (SGI, 2015d), *Soil Remediation Phase 1 Completion Report*. July 14.
- The Source Group, Inc., 2015 (SGI 2015e), *Phase 2 Stockpiles and Excavations Confirmation Sampling Report and Request for Soil Reuse*. July 30.
- The Source Group, Inc., 2015 (SGI 2015f), *Phase 3 Confirmation Sampling Report and Request for Soil Reuse*. September 3.



**FIGURE**



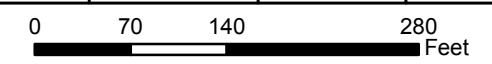
### Legend

- Backfilled Excavation Area
- Phase 2 Clean Soil Stockpile (Unused)
- Phase 2 and Phase 3 Treatment Soil Stockpile
- Soil Pile Wholly or Partially Used for Backfill
- Backfill Soil Usage



**DFSP Norwalk**  
15306 Norwalk Boulevard  
Norwalk, California

Project Number:	Date:	Drawn By:	Approved By:
04-NDLA-007	10/06/2015	P. W	P. P



### PHASE 2 COMPLETION MAP

**SGI** environmental  
**THE SOURCE GROUP, INC.**  
1962 Freeman Avenue  
Signal Hill, CA 90755  
(562) 597-1055

**Figure**  
**1**

## **TABLES**

**TABLE 1**  
**Phase Summary**  
 DFSP Norwalk

15306 Norwalk Boulevard, Norwalk, California 90650

Phase	Report Type	Report Date	Approval Date	Tasks	Status
Phase 1	Confirmation Sampling Report	07/14/15	07/22/15	Excavation #5	Backfilled
				Excavation #3, 4, and 14	Backfilled
				Clean Soil Pile CS-01	Used for backfill
				Clean Soil Pile CS-02A	Not yet used for backfill
				Clean Soil Pile CS-10	Used for backfill
				Clean Soil Pile CS-12	Partially used for backfill
	Clean Soil Pile CS-14	Not yet used for backfill			
Completion Report	07/30/15	08/30/15	--	--	
Phase 2	Confirmation Sampling Report	07/30/15	08/13/15	Excavation #1	Backfilled
				Excavation #2	Backfilled
				Excavation #8	Backfilled
				Clean Soil Pile CS-11	Not yet used for backfill
				Clean Soil Pile CS-13	Not yet used for backfill
				Treated Stockpile Powerine-A	Segregated for reuse for backfilling of Excavations 1, 2 and 8
				Treated Stockpile Powerine-B	
Treated Stockpile Powerine-C					
Treated Stockpile Powerine-D					
Phase 3	Confirmation Sampling Report	09/03/15	09/21/15	Treated Stockpile 80002-A	Segregated for reuse. Partial reuse for backfilling of Phase 2 Excavation #8.
				Treated Stockpile 80002-B	
				Treated Stockpile 80002-C	
				Treated Stockpile 80002-D	
				Treated Stockpile 80002-E	
				Treated Stockpile 80006-A	
				Treated Stockpile 80006-B	
				Treated Stockpile 80006-C	
				Treated Stockpile 80006-D	
				Treated Stockpile 80006-E	

**TABLE 2**  
**Summary of Backfilled Excavations**

DFSP Norwalk

15306 Norwalk Boulevard, Norwalk, California 90650

Excavation #	Basin	Volume	Phase	Report Date	RWQCB Backfill Approval date	Backfill Date	Backfill Soil Origin	Status
1	80002	556	2	07/30/15	08/13/15	09/28/15	POWERINE-TU-03	Partially backfilled to facilitate storm water management
2	80007	1,095	2	07/30/15	08/13/15	09/09/15	POWERINE-TR-01; POWERINE-TR-02; POWERINE-TU-02	Backfilled
3 (4, 14)	Northeast	1,042	1	07/14/15	07/29/15	July 20-27, 2015	CS-01; CS-10; CS-12	Backfilled
14 (3, 4)	Northeast	2,112	1	07/14/15	07/29/15	July 20-27, 2015	CS-01; CS-10; CS-12	Backfilled
4 (4, 14)	Northeast	1,845	1	07/14/15	07/29/15	July 20-27, 2015	CS-01; CS-10; CS-12	Backfilled
5	Northeast	340	1	07/14/15	07/29/15	July 20-27, 2015	CS-01; CS-10; CS-12	Backfilled
8	80013	1,303	2	07/30/15	08/13/15	09/24/15	80006-TR-01; 80002-TR-01; POWERINE-TU-01; POWERINE-TR-02; 80006- TU-03 (partially)	Backfilled
<b>Totals</b>		<b>8,293</b>						
<b>Totals (Phase 2 Excavations)</b>		<b>2,954</b>						

**Table 3**  
**Summary of Treated Soil Reuse**  
 DFSP Norwalk  
 15306 Norwalk Boulevard, Norwalk, California 90650

Treatment Basin	Treatment Row	Row Start/End Date	Source of Soil	Row Volume (yd <sup>3</sup> )	Phase	Reuse Approval Date	Reuse Stockpile	Excavation Reuse	Comments
Powerine	A	3-31 / 4-3-15	EX-1, EX-2, EX-5	984	2	8/6/2015	Powerine TU-01 and TR-01	Excavation #2 and #8	
	B	4-7 / 4-8-15	EX-5, EX-8	918	2	8/6/2015	Powerine TU-02, TR-01, and TR-02	Excavation #2	
	C	3-24 / 3-30-15	EX-4, EX-14	855	2	8/6/2015	Powerine TR-02	Excavation #8	
	D	3-18 / 3-20-15	EX-3, EX-14	815	2	8/6/2015	Powerine TR-02 and TU-03	Excavation #1	Powerine TU-03 remaining
	E	8-11 / 8-12-15	EX-22	830	N/A	N/A			
	F	8-12 / 8-18-15	EX-22	770	N/A	N/A			
	G	8-18 / 8-20-15	EX-22	850	N/A	N/A			
80002	A	5-12 / 5-28-15	EX-4, EX-13, EX-26	758	3	9/21/2015	Segregated into 80002 TR 1 and TU 1	Partial 80002 TR-1 used for Excavation 8 backfilling	
	B	5-7 / 5-12-15	EX-19	760	3	9/21/2015			
	C	5-6 / 5-7-15	EX-19	832	3	9/21/2015			
	D	4-23 / 5-6-15	EX-19	713	3	9/21/2015			
	E	4-20 / 4-23-15	EX-11, EX-19	815	3	9/21/2015			
80006	A	5-28 / 6-4-15	EX-13, EX-15	731	3	9/21/2015	Segregated into 80006 TR-1 and Tr-2 and 80006 TU-1 to TU-3	Partial 80006 TR 1 and 80006 TU-3 used for Excavation 8 backfilling	
	B	6-4 / 6-10-15	EX-13	761	3	9/21/2015			
	C	6-10 / 6-12-15	EX-13	731	3	9/21/2015			
	D	6-12 / 6-16-15	EX-13	791	3	9/21/2015			
	E	6-16 / 6-19-15	EX-9, EX-13, EX-17	775	3	9/21/2015			
<b>Totals</b>				<b>13,689</b>					

## APPENDICES



**Photo 1:** Excavation #1 prior to backfilling. View to the northeast.



**Photo 2:** Excavation #1 during backfilling. View to the north.





**Photo 3:** Excavation #2 prior to backfilling. View to the northwest.



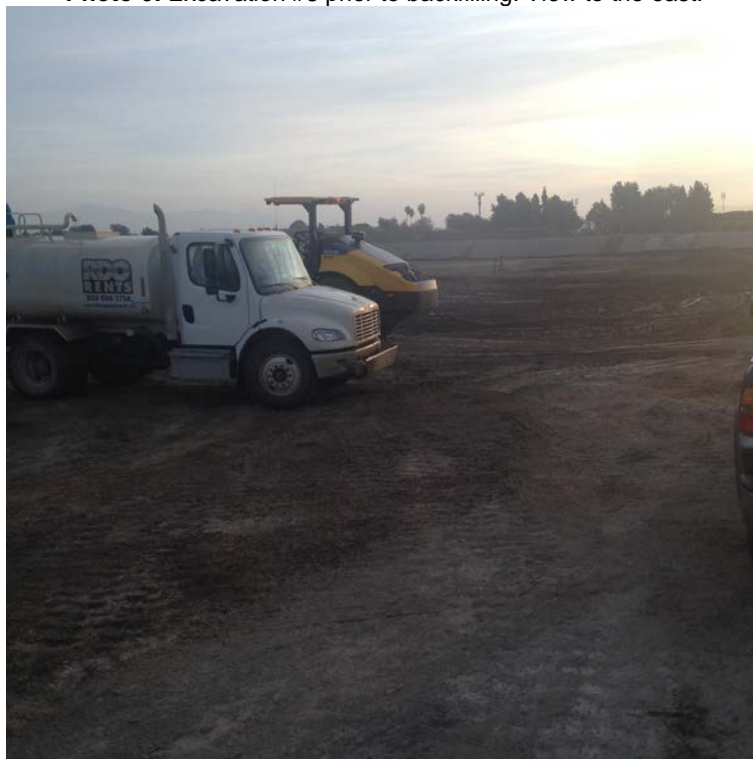
**Photo 4:** Excavation #2 during backfilling. View to the south.



**Photo 5:** Excavation #2 post backfilling. View to the east.



**Photo 6:** Excavation #8 prior to backfilling. View to the east.



**Photo 7:** Excavation #8 during backfilling. View to the east.