

OPERATIONS & MAINTENANCE SUMMARY REPORT

**BROWN & BRYANT, ARVIN FACILITY
SUPERFUND SITE, FIRST OPERABLE UNIT
REMEDIAL ACTION**

ARVIN, CALIFORNIA

Prepared for:

**CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES CONTROL**

Prepared by:

URS

**2870 Gateway Oaks Drive, Suite 150
Sacramento, California 95833**

May 2012

IDENTIFICATION/APPROVAL FORM

Document Title: Operations and Maintenance Summary Report
Brown & Bryant Superfund Site

Organization Title: URS Corporation
2870 Gateway Oaks Drive, Suite 150
Sacramento, CA 95833

This document was prepared for the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) under Contract 10-T1114. The material contained herein is not to be disclosed to, discussed with, or made available to any person or persons for any reason without prior express approval of a responsible officer of DTSC.

Approved by:

Signature:  Date: 5/18/12
Scott Rice, P.G.
Principal-in-Charge, Program Manager

Signature:  Date: 5/18/2012
Ed Tarter, P.E.
Project Manager



STATEMENT OF LIMITATIONS

This Operations and Maintenance (O&M) Summary Report was prepared for the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) under Agreement Number 10-T1114, Work Order Number 1-114-1.0-100025.

This O&M Summary Report has been prepared by URS under the review of registered professionals. Conclusions and recommendations presented are based on URS' interpretation of available information. Interpretation and conclusions drawn were governed by URS' experience and professional judgment. This report is intended for use solely by the Department of Toxic Substances Control (DTSC). The scope of service performed during this O&M Summary Report development may not be appropriate for other users, and any use or re-use of this document, or the findings, conclusions or recommendations presented herein, is of the sole risk of said users.

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ABBREVIATION AND ACRONYMS

B&B	Brown & Bryant Inc.
EPA	United States Environmental Protection Agency
DTSC	Department of Toxic Substances Control
O&M	operations and maintenance
OU	operable unit
remedial systems	OU 1 RCRA and non-RCRA caps
RCRA	Resource Conservation and Recovery Act
URS	URS Group, Inc.
UFC	Unified Facilities Criteria
USACE	United States Army Corps of Engineers

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1.0 INTRODUCTION

The former Brown & Bryant Inc., (B&B) Arvin Facility (CERLIS ID No. CAD052384021) property occupies two parcels of land totaling approximately 5-acres located at 600 Derby Road in Arvin, California. This site includes off-property areas underlain by contaminated groundwater and is located approximately 18 miles southeast of the City of Bakersfield and 2 miles west of the Tehachapi Mountains. The site includes a vacant metal-framed warehouse, and an open metal shed on concrete foundation. The structures are adjoined by asphalt pavement, which extends out to the borders of the property. The asphalt is a Resource Conservation and Recovery Act (RCRA) cap in the site's southern portion and a non-RCRA cap in the site's northern portion. The RCRA cap is a 3-foot-thick cap consisting of several layers including a Geogrid sand layer, Geosynthetic clay liner, sand filter layer, aggregate base course and 3 inches of asphaltic concrete. The non-RCRA cap consists of compacted subgrade material overlaid with 3 inches of asphaltic concrete. The site is currently vacant and secured by a chain-link fence.

The site is bordered to the east by irrigated agriculture fields, to the north and south by food packing and shipping facilities, and to the west by residential dwellings. Two schools and a park are located within 0.5 miles of the site. The Water District Supply Well 1 is approximately 1,700 feet south-southwest of the site.

The B&B facility operated as an agricultural chemical reformulator and custom applicator facility from 1960 to 1989. The agricultural chemicals formulated at this facility included pesticides, herbicides, fumigants and fertilizers. Contamination of soil and groundwater resulted from inadequate procedural control, poor housekeeping, chemical spills during operations, and leaks from a surface wastewater pond and sumps. Chemicals of concern include 1,2-dibromo-3-chloropropane, 1,2-dichloropropane, 1,3-dichloropropane, ethylene dibromide, 1,2,3-trichloropropane, and 2-sec-butyl-4,6-dinitrophenol. In October 1989, because of detected levels of contamination in soil and groundwater, the site was added to the National Priorities List.

In November 1993, a Record of Decision for operable unit (OU) 1 was adopted for surface and subsurface soils, and A-zone groundwater. This Operations and Maintenance (O&M) Summary Report describes operation and maintenance activities from the 2012 annual inspection of the OU1 implemented remedial action with the exception of the A-zone groundwater. The remedial action for OU2 is underway by United States Environmental Protection Agency (EPA) and is not included to this report.

To maintain the integrity and protectiveness of the OU1 RCRA and non-RCRA caps (remedial systems) in place at the B&B site, the caps and associated features are currently inspected annually or in the event of a natural disaster to identify signs of deterioration due to aging or weathering and signs of cap or subbase failure. Figure 1 is a site location map showing the relationship of the site to the surrounding community of Arvin, California.

Inspections include a visual examination of the caps, security fencing, signs, and warehouse exterior. Detailed inspection procedures are included in the Revised O&M Manual for the Brown and Bryant, Inc. Arvin Site (URS Group Inc. [URS], 2012). This report documents the findings of the 2012 inspection and repair recommendations. This is the first inspection conducted on behalf of Department of Toxic Substances Control (DTSC). Prior inspections were performed by EPA and the United States Army Corps of Engineers (USACE).

2.0 INSPECTION SUMMARY

Inspection of the remedial systems for 2012 was conducted on 28 March 2012 by USACE (Richard S. Lainhart) and URS (Chris Bellue).

The visual inspection consisted of walking the site and examining the entire cap and drainage system. The caps were inspected by using a systematic pattern of walking traverses longitudinally and transversely along the full dimensions of the caps and drain areas. The cap was inspected on a grid of approximately 60 feet in the north/south direction and 45 feet in the east/west direction, as shown on Figure 2.

Table 1 includes a complete list of identified areas of repair, corresponding inspection area number, and recommendation for these repairs. The basis for the repair recommendations was formulated based on guidance from Unified Facilities Criteria (UFC) Pavement Maintenance Management Guide (UFC, 2004). Attachment B includes photographs of each location. Figure 2 locates each identified repair by the inspection area number. In general, cracks that are less than 0.25 inches wide are recommended for monitoring, whereas larger cracks are typically recommended for sealing.

In addition to these specific recommendations, future site inspections should include walking the perimeter fence line to inspect for and address animal burrows under the chain-link fence and under the cap. The site checklists should also be updated under the security fence and signs section to reflect this item and ensure its review in upcoming inspections.

3.0 SCHEDULED REMEDIAL ACTION OPERATIONS

The next inspection of the remedial systems will occur in 2013; a specific date will be determined later. This inspection will be coordinated between DTSC, EPA, and USACE and their contractors, as appropriate.

4.0 REFERENCES

California Department of Transportation (Caltrans), 2010. *Standard Specifications*.

Unified Facilities Criteria (UFC). UFC-3-270-08, 2004. *Pavement Maintenance Management*. January.

URS, Group, Inc. 2012. *Brown and Bryant, Arvin Site, Arvin, California. Revised O&M Manual*. January. Final.

TABLE

Table 1. Inspection Findings and Recommendations

Finding Identifier	Description of Finding	Repair Recommendation
1	Two small holes, approximately 1-inch diameter, were identified in the fence fabric of the north access gate.	Repair chain-link fence fabric to eliminate holes.
2	Crack in asphalt cap, approximately 0.25 inch wide, extending north from previous crack repair to northern edge of non-Resource Conservation and Recovery Act (RCRA) cap (approximately 50 feet long).	Cracking is of low severity; recommend further monitoring.
3	0.5-inch-wide crack in asphalt cap, approximately 50 feet long running along the edge of a previous patch repair.	Cracks are of low to medium severity. Continue to monitor cracks less than 0.25 inch wide. For crack widths greater than 0.25 inch, recommend sealing the crack with a sealant that meets Caltrans specifications for crack treatment section 37-5 (Caltrans, 2010), or equivalent. The crack treatment material specifications from Caltrans Standard Specifications 37-5 are included in Attachment C for ease of reference.
4	Small weeds growing from existing less than 0.25-inch-wide cracks next to the patch repair.	Remove weeds and seal cracks with a sealant that meets Caltrans specifications for crack treatment section 35-7 (Caltrans, 2010), or equivalent.
5	Ponding water on cap from recent storm event.	Continue to monitor quality of asphalt where ponding is occurring. If asphalt degrades, consider re-grading to sheet water from the non-RCRA cap.
6	Weeds growing from cracks of variable widths at the concrete slab.	Remove weeds and seal crack. The concrete slab failure is a divided slab of medium severity. Seal cracks with sealant that meets Caltrans specifications for concrete repair section 41 (Caltrans, 2010), or equivalent.
7	Crack, approximately 0.5 inch wide, on both edges of a 24-inch-wide swale. Weeds growing from crack in the asphalt cap pavement. The crack becomes more pronounced as it moves to edge of asphalt cap.	Remove weeds and seal crack. The joint along the swale has separated resulting in medium severity joint cracking. Seal cracks with a sealant that meets Caltrans specifications for crack treatment section 37-5 (Caltrans, 2010), or equivalent.

Table 1. Continued

Finding Identifier	Description of Finding	Repair Recommendation
8	Location of the former tank (UN-32 Tank) on the RCRA cap. No cracks or deterioration observed.	No repair recommendation required.
9	Fencing that divides the non-RCRA cap from RCRA cap is in good condition and asphalt cap has no signs of cracking.	No repair recommendation required.
10	Fence post, fabric, and stanchions are in good shape along the exterior site fencing, except as noted in item #1 above.	No repair recommendation required.
11	Small cracks extending from recently repaired crack repairs.	Cracking is low severity; recommend further monitoring.
12	Small cracks extending from recently repaired crack repairs.	Cracking is low severity; recommend further monitoring.

FIGURES



Legend

- Project Boundary
- Parcel Boundary



L:\Projects\DTSC\Brown, Bryant\ArcMaps\Site_Location_Map.mxd RK 11.15.2011 SAC



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 2870 Gateway Oaks Dr., Ste. 150
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 TEL: (916) 679-2000
 FAX: (916) 679-2900

Site Location Map

DTSC, Brown & Bryant

Figure
1

PLOT BY: DAVID_LARSON - May 01, 2012 - 10:26:34am

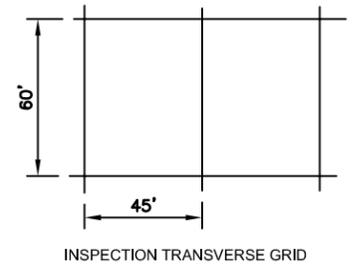


INSPECTION FINDINGS ON 28 MARCH 2012

1. 2 SMALL HOLES, ABOUT 1-INCH IN DIAMETER, WERE IDENTIFIED IN THE FENCE FABRIC OF THE NORTH ACCESS GATE.
2. CRACK IN THE AC, ABOUT 1/4-INCH WIDE EXTENDING NORTH FROM PREVIOUS CRACK REPAIR TO NORTHERN EDGE OF NON-RCRA CAP.
3. 1/2-INCH WIDE CRACK IN AC APPROXIMATELY 50 FEET LONG THAT RUNS ALONG THE EDGE OF A PREVIOUS PATCH REPAIR.
4. SMALL WEEDS COMING UP ALONG EXISTING CRACKS NEXT TO THE PATCH REPAIR.
5. PONDING WATER ON CAP FROM RECENT STORM EVENT.
6. WEEDS IN CRACKS AT THE CONCRETE SLAB.
7. CRACK, APPROXIMATELY 1/2-INCH WIDE ON BOTH EDGES OF A 24-INCH WIDE SWALE. WEEDS GROWING OUT OF THE CRACK IN THE AC PAVEMENT. THE CRACK BECOMES MORE PRONOUNCED AS IT MOVES TO THE EDGE OF THE AC.
8. LOCATION OF THE FORMER TANK (UN-32 TANK) ON THE RCRA CAP. NO CRACKS OR DETERIORATION OBSERVED.
9. THE FENCING THAT DIVIDES THE NON-RCRA CAP AND THE RCRA CAP IS IN GOOD CONDITION AND THE ASPHALT CAP HAS NO SIGNS OF CRACKING.
10. FENCE POST, FABRIC AND STANCHIONS ARE IN GOOD SHAPE ALONG THE EXTERIOR SITE FENCING EXCEPT AS NOTED IN COMMENT 1 ABOVE.
11. SMALL CRACKS EXTENDING FROM RECENTLY REPAIRED CRACK REPAIRS.
12. SMALL CRACKS EXTENDING FROM RECENTLY REPAIRED CRACK REPAIRS.

LEGEND

- 5 INSPECTION FINDINGS NUMBER
- 435.00 — TOPOGRAPHIC CONTOUR
- WATER PONDING ON CAP
- +
 GROUND WATER MONITORING WELL
- - - - - FENCE LINE SEPARATING RCRA AND NON-RCRA CAPS



SCALE= 1" = 70'-0"

<p>PLOT SCALE</p> <p>IF THIS BAR IS LESS THAN ONE INCH, IT IS A REDUCED PRINT. SCALE REDUCED SHEET ACCORDINGLY.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">NO.</th> <th style="width: 5%;">BY.</th> <th style="width: 15%;">DATE</th> <th style="width: 75%;">DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	BY.	DATE	DESCRIPTION																	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">DRAWING SCALE</th> <th style="width: 50%;">DATE</th> </tr> </thead> <tbody> <tr> <td>DESIGNED BY:</td> <td> </td> </tr> <tr> <td>DRAWN BY:</td> <td> </td> </tr> <tr> <td>CHECKED BY:</td> <td> </td> </tr> <tr> <td>APPROVED BY:</td> <td> </td> </tr> </tbody> </table>	DRAWING SCALE	DATE	DESIGNED BY:		DRAWN BY:		CHECKED BY:		APPROVED BY:		<p>BROWN & BRYANT SUPERFUND SITE</p> <p>LANDFILL CAP TOPOGRAPHIC MAP AND ADJACENT LOCATIONS</p>	<p>JOB NO.</p> <hr/> <p>TASK ORDER NO.</p> <hr/> <p style="font-size: 24pt; font-weight: bold;">FIG 2</p>
NO.	BY.	DATE	DESCRIPTION																															
DRAWING SCALE	DATE																																	
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DRAWN BY:																																		
CHECKED BY:																																		
APPROVED BY:																																		

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ATTACHMENT A
COMPLETED SITE INSPECTION FORMS AND FIELD NOTES

SITE INSPECTION FORM

Brown & Bryant, Arvin Facility Superfund Site				Arvin, Kern County, CA			
Date: 5/28/12	Weather	<input checked="" type="checkbox"/> Ovrkst	<input type="checkbox"/> Prt Cldy	<input type="checkbox"/> Clear	<input type="checkbox"/> Rain	<input type="checkbox"/> Still	<input checked="" type="checkbox"/> Calm
Time: 8:30		<input type="checkbox"/> Cold	<input checked="" type="checkbox"/> Mild	<input type="checkbox"/> Warm	<input type="checkbox"/> Hot	<input type="checkbox"/> Breeze	<input type="checkbox"/> Windy
Inspector Christian Bellve				Representing			
				Mail completed forms to: Steve Ross DTSC 10151 Croydon Way, Suite 3 Sacramento, CA 95827 (916) 255-3694			
RCRA AND NON-RCRA CAPS					Maintenance Required		
RCRA Cap					YES	NO	
Surface Cracking of asphaltic concrete						✓	
Track marks/indentation of asphaltic concrete						✓	
Exposure of subsurface cover layer materials						✓	
Damage to asphaltic concrete at fence lines						✓	
Damage to asphaltic concrete at well locations						✓	
NON-RCRA Cap					YES	NO	
Surface cracking of asphaltic concrete					✓		
Track marks/indentation of asphaltic concrete						✓	
Exposure of subgrade soil						✓	
Damage to asphaltic concrete at fence lines						✓	
Damage to asphaltic concrete at well locations						✓	
Other Observations: small cracks less than 1/8" wide note in non RCRA cap extending from previous patch work. ^{TWO} ARE AREAS in NE portion of non-RCRA cap had cracks in the 1/4"-1/2" size. See map and field notes. notes 3 & 7							

SITE INSPECTION FORM (CONTINUED)

SECURITY FENCE AND SIGNS		Maintenance Required	
Perimeter and Interior Security Fence and Signs		YES	NO
Erosion is less than 2 inches under perimeter fence fabric	yes		✓
Perimeter fence fabric is in good condition	yes		✓
Warning signs are in place and in good condition	yes		✓
* Fence fabric shows signs of damage or entry	yes	✓	
Fence posts are straight and in good repair	yes		✓
Barbed wire is tight, in place, and in good condition	yes		✓
West gate access is in good repair	yes		✓
* North gate access is in good repair	no	✓	
Berms along fence line are in good condition	yes		✓
* Other Observations: (2) small holes in fence fabric noted in north access gate ea. hole 12" or less in size			
WELLS AND BOLLARDS		Maintenance Required	
Wells		YES	NO
Is paint in good condition	yes		✓
Are locks in good condition and working	no	✓	
Do casings show signs of degradation	no		✓
Bollards		YES	NO
Is paint in good condition	yes		✓
Are bollards damaged	no		✓
Other Observations: Rick Lannhardt is replacing locks will use same combination.			

SITE INSPECTION FORM (CONTINUED)

WAREHOUSE – Exterior Only	Maintenance Required	
	YES	NO
Locks, Doors, Walls, Roof and Animal Access		
Are locks in good condition and working	yes	✓
Are doors in good condition and working	yes	✓
Are there holes in walls and roof	no	✓
Other Observations: Did not inspect roof. Did not check to see if lock were working all Doors were locked, however.		
See map, daily note and photos.		

SITE INSPECTION FORM (CONTINUED)

WATER METER AND VALVE BOX	Maintenance Required	
	YES	NO
Water Meter		
Are there signs of water usage	NO	✓
Is the meter damaged	NO	✓
Do there appear to be leaks at the meter	NO	✓
Do there appear to be leaks on site	NO	✓
Valve Box	YES	NO
Are valves in off position	YES	✓
Are there signs of vandalism or damage	NO	✓
Do there appear to be leaks	NO	✓
Other Observations: There is currently no water at site. As long as there is not water at the site, this section does not need to be completed. Provide comment here.		

Daily Field Data Sheet

Date: 3-28-12

Page 2 of 4

Time Onsite: 8:30

Time Offsite: 12 ~

Project: Brown & Bryant

Project Number: []

Address: 600 S. Derby Arvin, CA

URS Field Staff: Christian Bellue

Contractor Field Staff: USACE: Richard Reinhardt

Equipment In Use: Camera

Weather: Overcast 65° ±

Field Notes:

The Gate Lock combination is

Richard is having new locks installed because existing locks are sticking

Richard said that I can continue my inspection and to lock gate when I am done

10:00 Begin walking transects. took notes using the ECO & Associate cap repair site map.

The following are observations

see map & photographs for more details

① 2 small holes (about 1' in diameter) noted in fence fabric. north gate

② about 1/4" crack in A/C extending from previous fence repair to edge of slab A/C slab. see photo 01

Signature: []

Daily Field Data Sheet

Date: 3-28-12 cont.

Page 3 of 4

Time Onsite:

Time Offsite:

Project: Brown & Bryant

Project Number:

Address:

URS Field Staff:

Contractor Field Staff:

Equipment In Use:

Weather:

Field Notes:

- ③ 1/2" thick crack in A/C. approx 50' long located along the edge of previous A/C patch. Richard indicated this location is where the worst case cracking was located. See photos 02-03.
- ④ small weeds coming up thru A/C cap. typical in this grid area. See photo 04
- ⑤ Ponding water from recent rain see photo 05
- ⑥ Weeds in concrete slab. See photo 06
- ⑦ 1/2" crack on both edges of 24" wide A/C swale - crack is more pronounced as you get closer to edge of A/C. See photos 07 & 08
- ⑧ former tanks location on RCRA cap no cracking observed. See photo 09
- ⑨ I walked the perimeter fence and NON-RCRA divider fence. No signs of cracking noted
- ⑩ fence post & fabric in good shape except for small hole noted in photo note ①.

Signature:

Daily Field Data Sheet

Date: 3/28

Page 4 of 4

Time Onsite: 8:30

Time Offsite:

Project: Brown & Bryant

Project Number:

Address:

URS Field Staff:

Contractor Field Staff:

Equipment In Use:

Weather:

Field Notes:

(11) Typical small crack extending from a previously repaired crack. See photos 10-12

Note: each numbered comment above represents a location on the site map. See map for more.

12:00 leave site lock gate

Signature:

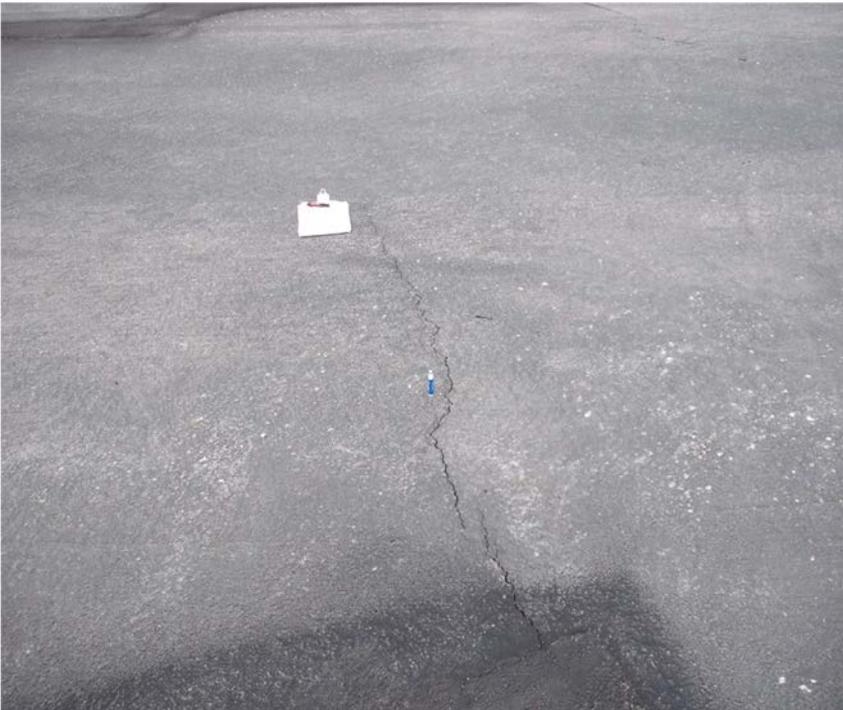
**ATTACHMENT B
PHOTOGRAPHS**

Project Name Brown & Bryant Superfund Site	Inspection Date 28 March 2012	Sheet Of 1 of 6
City Arvin	County Kern	State California
		PHOTO NO: B&B-2012-01
		LOCATION: Non-RCRA Capped Area Map Location Number: 2
		DESCRIPTION: Crack in asphalt cap, approximately 0.25-inch wide, extending north from previous crack repair to northern edge of non- Resource Conservation and Recovery Act (RCRA) cap.
		PHOTO NO: B&B-2012-02
		LOCATION: Non-RCRA Capped Area Map Location Number: 3
		DESCRIPTION: Close up of 0.5-inch-wide crack in asphalt cap, approximately 50 feet long, running along the edge of a previous patch repair; looking east in northeast area of non-RCRA cap.

Project Name Brown & Bryant Superfund Site	Inspection Date 28 March 2012	Sheet Of 2 of 6
City Arvin	County Kern	State California
		PHOTO NO: B&B-2012-03
		LOCATION: Non-RCRA Capped Area Map Location Number: 3
		DESCRIPTION: Full view of area of 0.5-inch-wide crack in asphalt cap, approximately 50 feet long, running along the edge of a previous patch repair; looking east in northeast area of non-RCRA cap.
		PHOTO NO: B&B-2012-04
		LOCATION: Non-RCRA Capped Area Map Location Number: 4
		DESCRIPTION: Small weeds growing along existing cracks next to the patch repair; looking west in northeast area of non-RCRA cap.

Project Name Brown & Bryant Superfund Site	Inspection Date 28 March 2012	Sheet Of 3 of 6
City Arvin	County Kern	State California
		PHOTO NO: B&B-2012-05 LOCATION: Non-RCRA Capped Area Map Location Number: 5 DESCRIPTION: Ponding water on cap from recent storm event; looking south on western side of non-RCRA cap.
		PHOTO NO: B&B-2012-06 LOCATION: Non-RCRA Capped Area Map Location Number: 6 DESCRIPTION: Weeds growing from cracks at the concrete slab just south of the building on the western side on non-RCRA cap.

Project Name Brown & Bryant Superfund Site	Inspection Date 28 March 2012	Sheet Of 4 of 6
City Arvin	County Kern	State California
		PHOTO NO: B&B-2012-07 LOCATION: Non-RCRA Capped Area Map Location Number: 7 DESCRIPTION: Crack, approximately 0.5 inch wide on both edges of a 24-inch-wide swale. Weeds growing from crack in the asphalt cap pavement. The crack becomes more pronounced as it moves to the edge of the asphalt cap. Located at the swale on the east side of the non-RCRA cap; looking east.
		PHOTO NO: B&B-2012-08 LOCATION: Non-RCRA Capped Area Map Location Number: 7 DESCRIPTION: Close up of the crack on the edge of the swale. Crack is approximately 0.5 inch wide on both edges of a 24-inch-wide swale. Crack becomes more pronounced as it moves to the edge of the asphalt cap, located at the swale on the east side of the non-RCRA cap.

Project Name Brown & Bryant Superfund Site	Inspection Date 28 March 2012	Sheet Of 5 of 6
City Arvin	County Kern	State California
		PHOTO NO: B&B-2012-09 LOCATION: Non-RCRA Capped Area Map Location Number: 8 DESCRIPTION: Location of the former tank (UN-32 Tank) on the RCRA cap. No cracks or deterioration observed.
		PHOTO NO: B&B-2012-10 LOCATION: Non-RCRA Capped Area Map Location Number: 11 DESCRIPTION: Small cracks extending from recently repaired cracks. Cracks are located along west side of non-RCRA cap.

Project Name Brown & Bryant Superfund Site	Inspection Date 28 March 2012	Sheet Of 5 of 6
City Arvin	County Kern	State California
		PHOTO NO: B&B-2012-11 LOCATION: Non-RCRA Capped Area. Map Location Number: 11 DESCRIPTION: Small cracks extending from recently repaired crack repairs. Cracks are located along west side of non-RCRA cap. This photo provides a larger field of view of photo B&B-2012-10 looking at the northwest corner of the non-RCRA cap.
		PHOTO NO: B&B-2012-12 LOCATION: Non-RCRA Capped Area. Map Location Number: 12 DESCRIPTION: Small cracks extending from recently repaired cracks. Cracks are located along west side of non-RCRA cap near the west side of the warehouse.

ATTACHMENT C

Caltrans specifications for various crack treatment materials, based upon the climate zone and Approved List of Crack Treatment Materials

From Caltrans Standard Specifications, 2010, Section 37-5.02 Materials

Climate Region		Deserts, Slow Moving Traffic	Desert	South Coast, Central Coast, Inland Valleys	North Coast, Low Mountain, South Mountain	High Mountain, High Desert
Quality Characteristic ¹	ASTM Test Method ²	Type 1 Material	Type 2 Material	Type 3 Material	Type 4 Material	Type 5 Material
Softening point (min.)	D 36	102 °C	96 °C	90 °C	84 ° C	84 °C
Cone penetration at 77°F (max.)	D 5329	35	40	50	70	90
Resilience at 77°F, unaged, %	D 5329	20-60	25-65	30-70	35-75	40-80
Flexibility ³	D 3111	0 °C	0 °C	0 °C	-11 °C	-28 °C
Tensile adhesion, %, (min.)	D 5329	300	400	400	500	500
Specific gravity (max.)	D 70	1.25	1.25	1.25	1.25	1.25
Asphalt compatibility	D 5329	Pass	Pass	Pass	Pass	Pass
Sieve test (percent passing)	See note 4	100	100	100	100	100

°C = degrees Celsius
 mm = millimeter

Notes:

1. Cold-applied crack treatment material residue collected under ASTM D 6943, Method B and sampled under ASTM D 140 must comply with the grade specifications.
2. Except for viscosity, cure all specimens at a temperature of 23 °C ± 2 °C and relative humidity of 50 ± 10 percent for 24 ± 2 hours before testing.
3. For flexibility test, the specimen size must be 6.4 ± 0.2 mm thick x 25 ± 0.2 mm wide x 150 ± 0.5 mm long. Test mandrel diameter must be 6.4 ± 0.2 mm. Bend arc must be 180 degrees. Bend rate must be 2 ± 1 seconds. At least four of five test specimens must pass at the specified test temperature without fracture, crazing, or cracking.
4. For hot-applied crack treatment, dilute with toluene and sieve through a No. 8 sieve. For cold-applied crack treatment, sieve the product as-received through a No. 8 sieve. If the manufacturer provides a statement that added components passed the No. 16 sieve before blending, this requirement is void.

Crack Treatment Material, MS 5
Department of Transportation
5900 Folsom Boulevard
Sacramento, CA 95819-4612

Date: January 3, 2012
Prepared By: Rupinder Dosanjh, PE, (916) 274-6078

FLEXIBLE PAVEMENT CRACK TREATMENT MATERIAL

A crack treatment material will be considered for addition to the Department's approved list if the producer of the material submits a lab size sample, along with their certified test results. Approval will depend upon compliance with the specifications, based on the certified test results submitted, together with any replicate testing the Department may elect to perform.

Submit samples and test results to the address shown above.

Manufacturers are limited to a maximum of five approved products.

MANUFACTURER	PRODUCT NAME	CALTRANS TYPE
Crafco, Inc	Deery 220 CA	1
Crafco, Inc	Polyflex CA	1 and 2
Crafco, Inc	Deery 200	2
Maxwell Products	Nuvo Spec	2
Crafco, Inc	Deery 180	3
Crafco, Inc	Polyflex CA	3
Maxwell Products	Nuvo Spec	3
RW Materials, LLC	RW306CS	3
Maxwell Products	Nuvo Spec	4
Crafco, Inc	Deery 103GL CA	4
Right Pointe Company	#1190	4
Crafco, Inc	Roadsaver 211 CA	5
Tremco, Inc	PQ6190LM	5
Crafco, Inc	102GL CA	5

The effective period for this list is indeterminate. Other products will be considered for inclusion on this list subject to evaluation and approval by the Department.

If you have questions about this site contact Rupinder Dosanjh at (916) 274-6078 or at rupinder_dosanjh@dot.ca.gov. Last revised 1/3/2012