

MEMORANDUM

SUBJECT: Addendum to the Vineland Chemical Superfund Site Focused Feasibility Study - Operable Unit Three

FROM: Hunter Young
RPM

TO: Vineland Chemical Company Superfund Site File

This addendum to the Focused Feasibility Study (FFS) that was completed in July of 2016 for the Vineland Chemical Superfund Site Operable Unit Three (exposed sediment/soil of the Blackwater Branch) is to record a change to the process of evaluating the remedial alternatives. The remedial alternatives will now be evaluated as interim remedial alternatives, and as a result will be costed out for a 10 year period rather than a 30 year period. Also, a discount rate of 7% has been deemed to be more appropriate to the site and will be applied instead of 1.9%, which was used in the original FFS. USEPA guidance "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study" directs the use of a 7% discount rate for the FFS present value analysis for non-Federal Facility sites. This change in the approach has led to the following cost estimates:

<u>Vineland FFS Cost Summary</u>	Capital Cost	Annual O&M	Performance Monitoring	10-year Present Worth
Alternative 1: No Action	\$0	\$0	-	\$0
Alternative 2: - Ongoing Hot Spot Excavation	\$1,160,646	\$4,642,584	-	\$33,768,213
Alternative 3: In-Situ Treatment, Hot Spot Excavation, and Performance Monitoring	\$9,988,488	\$745,569	\$213,438	\$14,897,663
Alternative 3: Year 1	-	\$745,569	\$213,438	-
Alternative 3: Year 2	-	\$557,670	\$135,461	-
Alternative 3: Years 3-10	-	\$557,670	\$95,663	-

After including the shorter 10 year time frame for the interim remedy and recalculating costs using the 7% discount rate, a comparative evaluation of these two alternatives was conducted for the Cost criterion:

Cost

For Alternative 2, each time sediment/soil need to be excavated it is estimated it will cost \$1,160,640. Assuming this has to be performed every 3 months, that is an annual cost of \$4,642,584. The total cost over a 10-year period is estimated to be \$47,586,486, while the total present cost assuming the 7% discount rate would be \$33,768,213.

The estimated capital cost of Alternative 3 is \$7,281,988. The annual O&M cost estimated to be \$745,569 the first year and an annual cost of \$557,670 for the following years. The 10-year total cost of this alternative is \$ 16,867,290, while the total present cost assuming the 7% discount rate would be \$14,897,663.

cc:

Stephanie Vaughn – USEPA

Michael Sivak – USEPA

Paul Speckin – USACE

Bob Pender – USACE

Present Value Costs for Vineland Chemical Superfund Site - Alternative 2: On-Going Excavation

Year	Fiscal Year	RI/FS Costs (\$)	RD Costs (\$)	RA In-Situ Costs(\$)	Annual LTM/O&M Costs (\$)	5-Year Reviews Costs (\$)	Site Close-Out Costs(\$)	Total Costs (\$)	Discount Rate at 7.00%	Total Present Value Cost at 7.00% (\$)
		\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.000	\$0
0	FY16	\$0	\$0	\$1,160,646	\$0	\$0	\$0	\$1,160,646	1.000	\$1,160,646
1	FY17	\$0	\$0	\$0	\$4,642,584	\$0	\$0	\$4,642,584	0.935	\$4,338,864
2	FY18	\$0	\$0	\$0	\$4,642,584	\$0	\$0	\$4,642,584	0.873	\$4,055,013
3	FY19	\$0	\$0	\$0	\$4,642,584	\$0	\$0	\$4,642,584	0.816	\$3,789,731
4	FY20	\$0	\$0	\$0	\$4,642,584	\$0	\$0	\$4,642,584	0.763	\$3,541,805
5	FY22	\$0	\$0	\$0	\$4,642,584	\$0	\$0	\$4,642,584	0.713	\$3,310,098
6	FY23	\$0	\$0	\$0	\$4,642,584	\$0	\$0	\$4,642,584	0.666	\$3,093,550
7	FY24	\$0	\$0	\$0	\$4,642,584	\$0	\$0	\$4,642,584	0.623	\$2,891,168
8	FY25	\$0	\$0	\$0	\$4,642,584	\$0	\$0	\$4,642,584	0.582	\$2,702,026
9	FY26	\$0	\$0	\$0	\$4,642,584	\$0	\$0	\$4,642,584	0.544	\$2,525,258
10	FY27	\$0	\$0	\$0	\$4,642,584	\$0	\$0	\$4,642,584	0.508	\$2,360,054
Total		\$0	\$0	\$1,160,646	\$46,425,840	\$0	\$0	\$47,586,486		\$33,768,213

Present Value Costs for Vineland Chemical Superfund Site - Alternative 3: Initial Excavation and In-situ Treatment

Year	Fiscal Year	RI/FS Costs (\$)	RD Costs (\$)	RA In-Situ Costs(\$)	Annual O&M Costs (\$)	Performance Monitoring	Site Close-Out Costs(\$)	Total Costs (\$)	Discount Rate at 7.00%	Total Present Value Cost at 7.00% (\$)
		\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.000	\$0
0	FY16	\$0	\$0	\$9,988,488	\$0	\$0	\$0	\$9,988,488	1.000	\$9,988,488
1	FY17	\$0	\$0	\$0	\$745,569	\$213,438	\$0	\$959,007	0.935	\$896,268
2	FY18	\$0	\$0	\$0	\$557,670	\$135,461	\$0	\$693,131	0.873	\$605,407
3	FY19	\$0	\$0	\$0	\$557,670	\$95,663	\$0	\$653,333	0.816	\$533,314
4	FY20	\$0	\$0	\$0	\$557,670	\$95,663	\$0	\$653,333	0.763	\$498,425
5	FY22	\$0	\$0	\$0	\$557,670	\$95,663	\$0	\$653,333	0.713	\$465,817
6	FY23	\$0	\$0	\$0	\$557,670	\$95,663	\$0	\$653,333	0.666	\$435,343
7	FY24	\$0	\$0	\$0	\$557,670	\$95,663	\$0	\$653,333	0.623	\$406,863
8	FY25	\$0	\$0	\$0	\$557,670	\$95,663	\$0	\$653,333	0.582	\$380,246
9	FY26	\$0	\$0	\$0	\$557,670	\$95,663	\$0	\$653,333	0.544	\$355,370
10	FY27	\$0	\$0	\$0	\$557,670	\$95,663	\$0	\$653,333	0.508	\$332,121
Total		\$0	\$0	\$9,988,488	\$5,764,599	\$1,114,203	\$0	\$16,867,290		\$14,897,663