

FB 12/13/02

Documentation of Environmental Indicator Determination

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: United States Army Air Defense Center and Fort Bliss
Facility Address: Fort Bliss, Texas 79916
Facility EPA ID #: NM 4213720101

- 1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

YES If yes - check here and continue with #2 below. (See Attached Fort Bliss CA750 Support Table)

If no - re-evaluate existing data, or

If data are not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EIs developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EIs are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRAs). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated groundwater and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determination status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

- 2. Is groundwater known or reasonably suspected to be "contaminated" above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

NO If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): **NO GROUND WATER CONTAMINATION DETECTED AT CONCENTRATIONS THAT EXCEED NEW MEXICO'S GROUND WATER PROTECTION STANDARDS. SEE ATTACHED CA750 SUPPORT TABLE FOR REFERENCES**

Footnotes:

<sup>1</sup> "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"<sup>2</sup> as defined by the monitoring locations designated at the time of this determination)?

\_\_\_\_\_ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"<sup>2</sup>).

\_\_\_\_\_ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"<sup>2</sup>) - skip to #8 and enter "NO" status code, after providing an explanation.

\_\_\_\_\_ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): \_\_\_\_\_  
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\_\_\_\_\_

<sup>2</sup> "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

\_\_\_\_\_ If yes - continue after identifying potentially affected surface water bodies.

\_\_\_\_\_ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

\_\_\_\_\_ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): \_\_\_\_\_  
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5. Is the **discharge** of "contaminated" groundwater into surface water likely to be "**insignificant**" (i.e., the maximum concentration<sup>3</sup> of each contaminant discharging into surface water is less than 10 times the appropriate groundwater "level," and there are no other conditions (e.g., the nature or number of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments or eco-systems at these concentrations)?

\_\_\_\_\_ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration<sup>3</sup> of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the

concentrations are increasing; and 2) provide a statement of professional judgment/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments or eco-system.

\_\_\_\_\_ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration<sup>3</sup> of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations<sup>3</sup> greater than 100 times the appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

\_\_\_\_\_ If unknown - enter "IN" status code in #8.

Rationale and Reference(s): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

<sup>3</sup> As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented<sup>4</sup>)?

\_\_\_\_\_ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,<sup>5</sup> appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialist(s), including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

\_\_\_\_\_ If no - (the discharge of "contaminated" groundwater cannot be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments and/or eco-systems.

\_\_\_\_\_ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s): \_\_\_\_\_  
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<sup>4</sup> Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

<sup>5</sup> The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

\_\_\_\_\_ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

\_\_\_\_\_ If no - enter "NO" status code in #8.

\_\_\_\_\_ If unknown - enter "IN" status code in #8.

Rationale and Reference(s): \_\_\_\_\_  
\_\_\_\_\_  
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8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

YE YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **FORT BLISS** facility, EPA ID No. **NM 4213720101**, located at **DONA ANA and OTERO COUNTIES, NEW MEXICO**. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater." This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

\_\_\_\_\_ NO - Unacceptable migration of contaminated groundwater is observed or expected.

\_\_\_\_\_ IN - More information is needed to make a determination.

Completed by: Glenn von Gonten Date 12/13/2002

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Hydrologist - O  
New Mexico Environment Department  
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Supervisor: Steve Pullen Date 12/13/2002

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Locations where References may be found:

**New Mexico Environment Department - Hazardous Waste Bureau**  
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CA750 SUPPORT TABLE

Q2. Is groundwater known or reasonably suspected to be "contaminated" above appropriately protective "levels?"

No.

Q3. Has the migration of contaminated groundwater stabilized?

Q4. Does "contaminated" groundwater discharge into surface water bodies?

Q5. Is the discharge of "contaminated" groundwater into surface water likely to be "insignificant"?

Q6. Can the discharge of "contaminated" groundwater into surface water be shown to be "currently acceptable"?

Q7. Will groundwater monitoring / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

**FORT BLISS**  
**NM 4213720101**  
**CA750 SUPPORT TABLE**

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| <p><b>SWMU 17</b> Permitted Active Open Detonation Area(Demo Site 2 - FAW10). Operating permit (Subpart X) issued on June 8, 1995.<br/> <b>CA750 Q2:</b> No<br/> <b>Refs:</b> Annual Monitoring Reports</p>   |
| <p><b>SWMU 18</b> Rubble Pit/Landfill No. 13 at McGregor Range Camp. Sanitary Landfill/Rubble Pit reported to have handled petroleum, oil, and lubricants (POL), unspecified hazardous waste, and scrap metal.<br/> <b>CA750 Q2:</b> No<br/> <b>Refs:</b> 2, 4, 9</p>   |
| <p><b>SWMU 19</b> Evaporation Pond at McGregor Range Camp. Evaporation/Oxidation Pond (16.3million-gallon capacity) used for the collection and evaporation of sanitary wastewater, reported to have handled POL, volatile organic compounds (VOC), heavy metals, and pesticides.<br/> <b>CA750 Q2:</b> No<br/> <b>Refs:</b> 2, 4, 5, 7, 10, 16</p> |
| <p><b>SWMU 20</b> Open Detonation Area north of McGregor Range Camp. Inactive Unexploded ordnance (UXO) Open Detonation Area located north of McGregor Range reported to have handled UXO, and scrap metal. Unit has not been precisely located.<br/> <b>CA750 Q2:</b> No<br/> <b>Refs:</b> 2, 4, 9, 12, 14</p>                                     |
| <p><b>SWMU 21</b> Inactive Former FFTA at McGregor Range Camp. Fire Fighter Training Area reported to have handled POL.<br/> <b>CA750 Q2:</b> No<br/> <b>Refs:</b> 6, 18, 19</p>  |
| <p><b>SWMU 22</b> Inactive Waste Drum Storage Area at McGregor Range Camp- Drum Storage &amp; Accumulation Area reported to have handled POL.<br/> <b>CA750 Q2:</b> No<br/> <b>Refs:</b> 6, 18, 19</p>  |
| <p><b>SWMU 25</b> Rubble Pit/Landfill No. 14 at Orogrande Range Camp. Landfill/Rubble Pit reported to have handled POL, unspecified hazardous waste, and scrap metal.<br/> <b>CA750 Q2:</b> No<br/> <b>Refs:</b> 2, 4, 9</p>  |
| <p><b>SWMU 25b</b> Wastewater lagoon at Orogrande. Physically located on WSMR - Fort Bliss is the operator.<br/> <b>CA750 Q2:</b> No<br/> <b>Refs:</b> 2, 3, 4, 5, 7, 10, 11, 16</p>  |
| <p><b>SWMU 26</b> Open Detonation Area at Dona Ana Range 41. UXO Open Detonation Area reported to have handled UXO, and scrap metal.<br/> <b>CA750 Q2:</b> No<br/> <b>Refs:</b> 13, 15</p>  |

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| <p><b>SWMU 27</b> Rubble Pit/Landfill No. 12 at Dona Ana Range Camp. Landfill/Rubble Pit, approximately 2 acres in extent, reported to have handled POL, RDX, UXO, and scrap metal.<br/><b>CA750 Q2:</b> No<br/><b>Refs:</b> 2, 4, 9</p>           |
| <p><b>SWMU 27b</b> Evaporation Pond at Dona Ana Range Camp. Evaporation/Oxidation Pond reported to have handled POL, VOC, and heavy metals.<br/><b>CA750 Q2:</b> No<br/><b>Refs:</b> 2, 4, 5, 7, 10, 16, 19</p>                                    |
| <p><b>SWMU 29</b> Inactive Sanitary Landfill No. 11 at Dona Ana Range Camp. Inactive Sanitary Landfill/Rubble Pit reported to have handled POL, unspecified hazardous waste, and scrap metal.<br/><b>CA750 Q2:</b> No<br/><b>Refs:</b> 2, 4, 9</p> |
| <p><b>SWMU 66</b> Borrow Pit Drum Burial Site at McGregor Range Camp. Drum Dump Site reported to have handled paint and VOC.<br/><b>CA750 Q2:</b> No<br/><b>Refs:</b> 8, 19</p>  |
| <p><b>SWMU 76</b> Oxidation Pond at Meyer's Small Arms Range. Evaporation/oxidation Pond reported to have handled POL.<br/><b>CA750 Q2:</b> No<br/><b>Refs:</b> 2, 4, 5, 19</p>  |
| <p><b>SWMU 78</b> Hueco Range Camp.<br/><b>CA750 Q2:</b> No<br/><b>Refs:</b> 17, 19</p>  |
| <p><b>SWMU 81</b> Organ Mountain Station.<br/><b>CA750 Q2:</b> No<br/><b>Refs:</b> 20</p>  |

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**References:**

1. March 1989. A. T. Kearney, Inc., Chicago IL, USACOE-Dallas, RCRA Facility Assessment, PR/VSI Report, Ft Bliss, Texas.
2. September 1991. RCRA Facility Investigation Report, New Mexico Solid Waste Management Units (SWMUs: 18, 19, 20, 25, 25b, 27, 27b, 29, 76)
3. October 1992. Environmental Science & Engineering, Inc., USACOE-Kansas, Draft – Corrective Measures Study for Oro Grande Oxidation Lagoon, Ft Bliss, Texas. (SWMU: 25b)
4. July 1996. Thompson Professional Group, Inc., USACOE-Kansas, Final – RCRA Facility Investigation Work Plan for Nine Solid Waste Management Units Ft Bliss, Texas. (SWMUs: 18, 19, 20, 25, 25b, 27, 27b, 29, 76)
5. May 1997. Final RFI Report. (SWMUs: 19, 27b, 76, 25b)
6. July 1997. Subsurface Investigation of the New Mexico Oxidation Lagoons McGregor Range. (SWMUs: 21, 22)
7. July 1997. COMPA Industries, Inc. & Tetra Tech EM, Inc, USACOE-Dallas, Subsurface Investigation of the New Mexico Oxidation Lagoons, Ft Bliss, Texas. (SWMUs: 19, 25b, 27b)
8. July 1997. Golder Federal Services, Inc., USACOE-Ft Worth, Preliminary Site Investigation Draft Report (B-1116, B-2019, Rubble Dump, & McGregor Borrow Pit). (SWMU: 66)
9. July 1997. Thompson Professional Group, Inc., USACOE-Kansas, Final Report – RCRA Facility Investigation for Five Solid Waste Management Units for Ft Bliss, Texas. (SWMUs: 18, 20, 25, 27, 29)
10. November 1997. Tetra Tech, Inc., USACOE-Dallas, Field Sampling and Analysis Plan for Subsurface Investigation of Oxidation Lagoons, Ft Bliss, Texas. (SWMUs: 19, 25b, 27b)
11. December 1997. Roy F. Weston, Inc., USACOE-Tulsa, Final – RCRA Investigation Report, Ft Bliss, Texas. (SWMUs: 25b)

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12. April 1998. Thompson Professional Group, Inc., USACOE-Kansas, Draft Final Report – RCRA Facility Investigation New Mexico, Phase 2, Ft Bliss, Texas and New Mexico. (SWMU: 20)
13. April 1998. Report – Relative Risk Site Evaluation – Inactive Dona Ana Range 41/Detonation (SWMU: 26)
14. April 1998. Thompson Professional Group, Inc., USACOE-Kansas, Final Report – RCRA Facility Investigation New Mexico – Phase 2, Ft Bliss and New Mexico. (SWMU: 20)
15. April 1998. Malcolm Pirnie, Inc., USACOE-Kansas, Report – Relative Risk Site Evaluation – Inactive Dona Ana Range/Detonation, Ft Bliss, Texas. (SWMU: 26)
16. April 1998. Subsurface Investigation of the New Mexico Oxidation Lagoons. (SWMUs: 19, 25b, 27b)
17. December 1998. Roy F. Weston, Inc., USACOE-Tulsa, Hueco Range Camp RCRA Facility Assessment, Ft Bliss, New Mexico (SWMU: 78)
18. July 1999. Roy F. Weston, Inc., USACOE-Tulsa, Final - McGregor Range Solid Waste Management Units – (SWMUs) 21 and 22 - RCRA Facility Investigation Report, Ft. Bliss, Texas. (SWMUs: 21, 22)
19. September 2000. Petition for NFA. (SWMUs: 21, 22, 27b, 66, 76, 78)
20. June 2001. Site Investigation Report of the Organ Mountain Meteorological Station. (SWMU: 81)