Restoration Advisory Board Meeting Minutes

Crane Division, Naval Surface Warfare Center (NSWC Crane) conducted a Restoration Advisory Board (RAB) Meeting, Tuesday, April 22, 2003. The meeting was held on Center at the Crane Café, Building 121 Conference Room. From 1000 to 1215 hours an informal meeting was called to order. NSWC Crane Environmental Protection Department (EPD) Environmental Protection Specialist (EPS), opened the meeting and welcomed those attending.

NSWC Crane EPD EPS introduced another EPD EPS, who gave a presentation concerning ongoing projects at NSWC Crane conducted by TetraTech, NUS (TtNUS). Presentations included the following Solid Waste Management Units (SWMUs): Mustard Gas Burial Ground (SWMU 01), Dye Burial Ground (SWMU 02), McComish Gorge (SWMU 04), Old Burn Pit (SWMU 05), Old Rifle Range (SWMU 07), Pesticide Control/R-150 Tank Area (SWMU 09), Rockeye (SWMU 10), Mine Fill B (SWMU 13), and Cast High Explosives Fill/Incinerator Complex (SWMU 16).

SWMU 01 - Fieldwork was completed at SWMU 1 with no material found, but concern over VOCs in ground water and possible residual contamination of mustard gas and radioactive materials. Five additional ground water wells were installed to determine ground water flow; ground water contours are radial (site on ridge top), but contaminants appear to be following in a West-Northwest route. A Draft Report was submitted to U.S. Environmental Protection Agency (U.S.EPA) for comment in January 2003 by the Navy.

SWMU 02 – Final Report and response to U.S.EPA comments submitted on April 03, 2003. Major issue for the report involved high metals content in the ground water. This was resolved by concluding that the metals are naturally occurring – acidic water from pyritic coals leaching metals from formation. Water flowing through coal seams with high pyrite (FeS) content can lower the pH, which is then able to leach metals from sandstones and shales. Corrective Measures Study (CMS) already awarded to develop cap maintenance strategy and land use control recommendations.

SWMU 04, 05, 09, & 10 – Field work conducted in November ’00 – February ’01. The Draft report submitted to U.S.EPA in May ’02 and the Final report and response to comments submitted April 08, 2003. Length of review due to several rounds of responses to comments and numerous conference calls. At the 4 SWMUs of concern, ground water was identified as risk driver; human health risk assessments are required to evaluate current and potential future uses of all media, as such, potable use of ground water resulted in non-carcinogenic risks for all 4 sites. CMS already awarded for SWMUs 05, 09, & 10, but not 04 (not deemed high risk).

SWMU 07 – Following the initial field work in February 2001, high levels of TNT were found in a small ditch. We agreed w/U.S.EPA & the Indiana Department of Environmental Management to collect additional samples to further delineate. The CMS has already been awarded to TtNUS.

SWMU 13 – Field work underway. Proposed samples are 16 surface and subsurface soil borings (=32) and 26 new ground water wells installed and sampled. Used a Rotosonic drilling system (high frequency vibration while turning to drill). Additionally, 13 surface water/sediment samples were taken.

SWMU 16 – Field Work underway. Proposed samples are 41 surface and subsurface soil borings (=82) and 5 new ground water wells installed and sampled. Additionally, 7 surface water/sediment samples were taken.

The Southern Division Naval Facilities Engineering Command Remedial Project Manager (RPM) presented details on the Environmental Restoration, Navy Funding Program. The RPM discussed the funding process, currently funded projects, projects funded for Fiscal Years (FY) 2003 and 2004. Projects awarded for

FY03 are CMS for SWMU 01 and the Ammunition Burning Grounds (SWMU 03), SWMU 03 ground water monitoring, SWMU 07 Voluntary Interim Measure, Fieldwork and Report for 13 and 16. Funded projects for FY04 include SWMU 03 ground water monitoring, Remedial design for SWMUs 05, 07, 09, and 10, and RFI for SWMUs 08 and 15. See presentation handouts for RPM to view FY04 projects not funded.

The EPD EPS gave another presentation concerning RDX in Surface Water at SWMU 03. He provided a brief regulatory overview that included Resource Conservation and Recovery Act (RCRA) Corrective Action (CA), which mandates CA by our permit to conduct hazardous waste operations. CA activities include investigation of soils, surface water, sediments, and ground water at SWMUs. Additional regulatory requirements for ongoing ground water monitoring provisions for the site come from the Subpart X permit, which is the Open Burning/Open Detonation Permit. The Old Jeep Trail (OJT) is a sub-unit identified as part of SWMU 03 and lies SE of SWMU 03 proper along Jeep Trail-25. Part of classification of SWMU 03 as a SWMU involves ground water contaminants which include chlorinated solvents, explosives, and metals from historical operations. Obviously, these were originally soil contaminants. The site is complicated by karst topography, which can be defined as movement of ground water through soluble (water formed) cavities in limestone. The regional ground water flow turns south along Little Sulphur Creek (LSC). Dr. Noel Krothe of the Indiana University Geology Department conducted two dye trace studies of SWMU 03. Dye injected in Well 03-24 (in OJT area) was detected in Spring C, which is approximately 0.3 miles distance, in 28 m/hr = 93 ft/hr. Spring C trace was not designed as a quantitative trace due to short preparation time frame. Dye injected in Well 03C02P2 (in a karst conduit on East side of SWMU 03) was detected in Spring A, which is approximately 1.24 miles distance, in less than 7 hours or roughly 286 m/hr = 938 ft/hr and had an approximate 100 percent dye recovery rate.

The EPD EPS reiterated that soil contamination at SWMU 03 migrates to the ground water, contaminates the ground water, which then discharges as springs to the southwest. The samples at the boundary and Creek at Spring A were taken quarterly in 11/98 through 09/01. The average RDX concentration for the creek boundary pool was 8.7 µg/l from 11 samples with fluctuations based loosely on various factors such as flow, water temperature, and general analytical quality (Max = 20/Min = 0.97). The 10 samples representing Creek at Spring A were taken where Spring A enters LSC had an average RDX concentration of 16.4 µg/l (Max = 23/Min = 1.1; 1 quarter dry). The 16 samples at both Springs A and C were taken quarterly from 11/98 to 9/02. The averages for Spring A and Spring C were 35.1 µg/l (Max = 140/Min = 1.5) and 2.6 µg/l (Max = 4.9/Min = 0.6u), respectively. However, the Risk Based Target Level is to 0.61 µg/l. RDX was not detected in shallow sediments. In deep sediment, RDX was detected at 0.45 mg/kg in only 2 locations found between Creek A and B. The distance from Creek A to the boundary is approximately 1,400 feet. The distance to the three closest residences to the boundary following LSC are 2,765, 2,970, and 5,724 feet. A plat map was not used to determine ownership because 2000 map has inaccuracies and residences cannot be determined.

The current status of ABG CA activities:

–1998 Phase II Surface Water and Phase III Ground Water Reports approved by U.S.EPA

–2002 Draft OJT/LSC Report at U.S.EPA

–2002 Draft Monitored Natural Attenuation Report at U.S.EPA

The term “monitored natural attenuation”, as used in this Directive, refers to the reliance on natural attenuation processes (within the context of a carefully controlled and monitored site cleanup

approach) to achieve site-specific remediation objectives within a time frame that is reasonable compared to that offered by other more active methods. The "natural attenuation processes" that are at work in such a remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or ground water (U.S.EPA OSWER Directive 9200.4-17P, April 1999). Another study done by Corps of Engineers (COE). Submitted 8/23/02. A feasibility study. Also included a phytoremediation study that would use wetland plants for further uptake and breakdown of the organic contaminants. Comments received from U.S.EPA on both Draft reports: March 19, 2003.

–Indiana Bat Risk Evaluation

In 1996, as part of a risk assessment for the Subpart X permit, a bat was captured. This was followed by insect studies in 2000. NSWC Crane collected the insects, COE provided analyses, NSWC Crane wrote a report summarizing analytical findings, and then TtNUS prepared a risk evaluation using a food chain model. Comments from U.S.EPA & U.S. Fish and Wildlife Service are being incorporated into the risk evaluation.

After lunch, the Environmental Liaison for Crane Army Ammunition Activity (CAAA), provided an overview of the Army's role in the NSWC Crane CA Program. The CAAA Environmental Liaison's presentation touched on CAAA History, Mission, and Functions as well as CAAA occupied SWMU sites, and the CAAA/Navy CA Program interaction. CAAA occupies twelve SWMUs: 03, Demolition Range (06), Building 106 Pond (08), 10, Old Storage B-225 (11), Mine Fill A (12), 13, 16, Load and Fill Area (18), CAAA QA/QC Test Area (20), Lead Azide (22), and Illuminant Building 126 (27). CAAA interacts with the Navy CA program by providing a portion of ground water monitoring funding, attending RAB meetings, membership on various planning teams. CAAA also interacts with the Navy CA program on a day to day operations basis by coordinating site access, site surveys, tours, historical knowledge, and control/prevent pollution from operations. See handouts for further detail on the presentation for the Environmental Liaison.

The U.S. EPA, Region V Corrective Action Representative (CAR) presented information on the Environmental Indicators (EI) Initiative. The CAR explained that the EIs are used to summarized and report on the environmental conditions at the RCRA CA Program's highest priority sites. There are 1,714 national high priority sites and 284 for Region V, of which Crane is one. A location map for the priority sites can be found in the presentation handouts for the CAR. The focus of the EI is to ensure that human exposures and contaminated ground water migration are controlled early in the cleanup process. These two EI categories, current human exposure under control and migration of contaminated ground water under control, can be answered with a "yes", "no", or "insufficient information". These determinations are made by analyzing all the known data collected for the site and comparing that knowledge to a checklist. The goal of the EI is to control human exposures at 95% of baseline sites and control contaminated ground water migration at 70% of baseline sites by 2005. An EI fact sheet is also provided in the handout material for the CAR.

The EPD EPS then led an open discussion session. Time was then taken to schedule the next RAB. The next official RAB meeting is tentatively scheduled for Tuesday, October 21, 2003 at 1100. No additional topics were discussed during the open session. The RAB meeting was adjourned at 1215.

NSWC Crane

"Harnessing the Power of Technology for the Warfighter"

Presentation for
Restoration Advisory Board

PUBLIC WORKS DIRECTORATE
ENVIRONMENTAL
PROTECTION
DEPARTMENT

January 2003

Installation Restoration
Project Updates
NSWC Crane
April 2003

Mustard Gas Burial Grounds

- Former Mustard gas burial area w/exhumations completed in 1974 & 1980.
- Additional well installed. (GW1) (GW2)
- Main concern is volatile organics in ground water.
- Draft report submitted January 14, 2003.

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Harnessing the Power of Technology for the Warfighter

Old Rifle Range

- Field Work completed in February 2001 and March 2002.
- TNT Hot Spot identified. ORR TNT
- Interim Measures removal planned for early summer 2003.
- Response to EPA comments submitted April 2003.
- Next Step: Corrective Measures Study

Harnessing the Power of Technology for the Warfighter

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Harnessing the Power of Technology for the Warfighter

SWMUS 4, 5, 9, & 10

- McComish Gorge, Old Burn Pit, Pest Control Area and 150 Tank, and Rockeye.
- Field Work: November '00 – February '01.
- Draft submitted to EPA May '02.
- Final report and response to comments submitted April 08, 2003.
- Ground water identified as risk driver.
- Next step: Corrective Measures

Harnessing the Power of Technology for the Warfighter

Dye Burial Grounds

- Final Report and response to EPA comments submitted on April 03, 2003.
- Issue surrounding high metals content in ground water resolved.
- Corrective Measures Study already awarded to develop cap maintenance strategy and land use control recommendations.

Harnessing the Power of Technology for the Warfighter

Mine Fill B and B146

- Field Work underway. Proposed samples:
  - Mine Fill B
    - 16 surface and subsurface soil borings (=32)
    - 26 ground water samples Rig
    - 13 surface water/sediment samples
  - B146
    - 41 surface and subsurface soil borings (=82)
    - 10 ground water samples
    - 7 surface water/sediment samples

Harnessing the Power of Technology for the Warfighter

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Harnessing the Power of Technology for the Warfighter

NSWC Crane

"Harnessing the Power of Technology for the Warfighter"

Presentation by:
Public Works Directorate
Environmental Protection Department

Harnessing the Power of Technology for the Warfighter

ENVIRONMENTAL RESTORATION, NAVY(ERN) FUNDING PROGRAM
for
NSWC CRANE

April 2003

Funding Program

- Funding Process
- FY 03 Projects
- FY 04 Projects

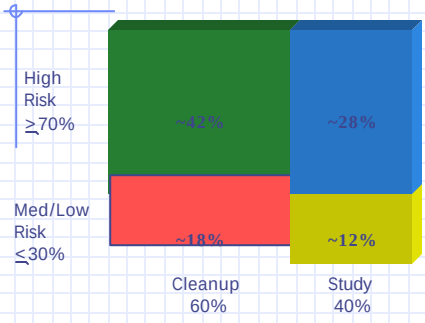
Funding Process

- NAVFACENGCOM manages ERN funds for the Navy
- SOUTHDIV manages ERN funds for naval activities within its 26 state area of responsibility.
- Crane project team (Crane, SOUTHDIV, EPA, IDEM) develops a prioritized list of ERN projects each fiscal year.

Funding Process continued

- SOUTHDIV ERN Project Validation Team scores each project using eleven criteria jointly prepared by Navy and stakeholders.
- All projects are ranked by score. Highest scoring projects receive funding first.
- HQ approves and forwards funds after Congress authorizes budget.

ERN BUDGET



FY 03 Projects

- SWMU 1 MGBG – Corrective Measures Study (CMS)
- SWMU 3 ABG – CMS
- SWMU 3 ABG – GW Monitoring (ERN portion)
- SWMU 7 ORR – Voluntary Interim Measure

Corrective Measures Study

- RFI determines contamination present at levels requiring corrective action
- CMS identifies and evaluates potential remedial alternatives
- Facility recommends a preferred remedy
- Lead regulator approves or not
- Public notice
- Final decision

FY 03 Projects

- SWMU 1 MGBG – Corrective Measures Study (CMS)
- SWMU 3 ABG – CMS
- SWMU 3 ABG – GW Monitoring (ERN portion)
- SWMU 7 ORR – Voluntary Interim Measure

Voluntary Interim Measure (VIM)

- SWMU 7 Old Rifle Range Draft RFI report has been reviewed.
- TNT was found in soil at one sample point. Additional sampling determined TNT is limited to this one sample area.
- TNT is the risk driver for this site.
- VIM will remediate the contaminated soil and all excess risk. Goal is to complete the VIM before the RFI is final.

FY 03 Projects continued

- SWMU 13 MFB – RFI Fieldwork and Report
- SWMU 16 B146 – RFI Fieldwork and Report

SWMU 3 Treatability Study

- SWMU 3 was accepted as a demonstration site for a treatability study for the permanent stabilization of metals contaminated soil.
- Objective is to refine emulsion designs, evaluate application methods, conduct post-application monitoring.
- Small quantity of soil from the site was used for bench scale testing. Explosives were spiked in the soil.

Treatability Study continued

- Bench scale was successful so a pilot scale remediation will be implemented.
- Currently the contractor's work plan is being reviewed by the Navy.
- No additional funding is required.
- If successful this remediation method will be included for evaluation in the CMS.

FY 04 Projects - Funded

- SWMU 3 ABG – GW Monitoring
- SWMU 5 OBP – Remedial Design (RD)
- SWMU 7 ORR – RD
- SWMU 8 B106P – RFI (includes SWMUs 18 and 20 Preliminary Assessment)
- SWMU 9 PCA – RD
- SWMU 10 RKI – RD
- SWMU 15 R&GA - RFI

FY 04 Projects – Not Funded

- SWMU 13 MFB - CMS
- SWMU 16 B146 - CMS
- SWMU 17 PCB-PY – RFI
- SWMU 19 PTA - RFI
- SWMU 30 LF - CMS

ENVIRONMENTAL RESTORATION, NAVY(ERN) FUNDING PROGRAM

for

NSWC CRANE

April 2003

NSWC Crane

"Harnessing the Power of Technology for the Warfighter"

Presentation for
Restoration Advisory Board

PUBLIC WORKS DIRECTORATE
ENVIRONMENTAL
PROTECTION
DEPARTMENT

April 2003

RDX in Surface Water at the Ammunition Burning Grounds NSWC Crane

April 2003

Ammunition Burning Grounds

- RCRA Corrective Action
- Subpart X Permit
- Old Jeep Trail

Ammunition Burning Grounds

- Ground Water Contaminants include
  - Chlorinated solvents
  - Explosives
  - Metals
- Karst Topography

Ammunition Burning Grounds

- Dye Traces
  - Spring C/Well 03-24
    - Recovery not calculated
    - 28 $^{m}/_{hr}$
  - Spring A/Well 03C02P2
    - Calculated ~100+% dye recovered
    - 286 $^{m}/_{hr}$

Ammunition Burning Grounds

Location	Avg. [RDX]
Creek at boundary	8.7 µg/l
Creek at Spring A	16.4 µg/l
Spring C	2.6 µg/l
Spring A	35.1 µg/l

•Risk Based Target Level = 0.61 µg/l

Ammunition Burning Grounds

- Status:
  - 1998 Ground Water Report Approved by EPA
  - 1998 Surface Water Report Approved by EPA
  - Draft Old Jeep Trail/Little Sulphur Creek Report at EPA
  - Draft Monitored Natural Attenuation Report at EPA
  - Indiana Bat Risk Evaluation

NSWC Crane

"Harnessing the Power of Technology for the Warfighter"

Presentation by:
Public Works Directorate
Environmental Protection Department

The Army's Role in the Crane Installation Restoration Program

Crane Army Ammunition Activity

Topics

- CAAA History, Mission, and Functions
- Army-occupied SWMU sites
- Army/Navy Installation Restoration Program (IRP) Interaction

HISTORY

- **1940** CONGRESS APPROPRIATED $3 MILLION DOLLARS FOR THE CONSTRUCTION OF THE DEPOT.
- **1941** THE NAVAL AMMUNITION DEPOT (NAD) WAS COMMISSIONED.
- **1975** THE U.S. ARMY WAS TASKED BY DOD AS THE SINGLE MANAGER FOR PROCUREMENT, SUPPLY, MAINTENANCE, AND RENOVATION FOR CONVENTIONAL AMMUNITION.
- **1977** (1 OCTOBER) THE CRANE ARMY AMMUNITION ACTIVITY WAS ACTIVATED AND ASSUMED THE AMMUNITION PRODUCTION FUNCTIONS AS A TENANT ACTIVITY AT NSWC CRANE DIVISION.

CAAA/NSWC INTERSERVICE SUPPORT AGREEMENT

DATA PROCESSING	DISASTER PREPAREDNESS
PUBLIC WORKS	VEHICLES
LEGAL	MATERIAL HANDLING
FIRE PROTECTION	PROPERTY DISPOSAL
POLICE PROTECTION	HEALTH SERVICES
UTILITIES	TRAFFIC MANAGEMENT

ENVIRONMENTAL PROTECTION

ADMINISTRATIVE SERVICES

Environmental ISA

- Naval Surface Warfare Center, Crane, is the facility owner and holds all of the environmental permits
- Environmental Protection Department (Host):
  - 13 employees covering different environmental media
  - Provides support to CAAA through ISA
  - Administers the Installation Restoration Program
  - Point of contact for State and Federal regulatory agencies

ASSETS

- TOTAL LAND AREA 62,473 ACRES (100 SQ MILES)
  - LICENSED BY ARMY 51,200 ACRES (82%)
  - ROADS 407 MILES
  - RAILWAYS 168 MILES
- BUILDINGS 1,989 (OVER 4.8 MILLION SQ FEET)
  - ADMIN AND PRODUCTION 209
  - INERT WAREHOUSES 177
  - EXPLOSIVE MAGAZINES 1600
- EXPLOSIVE STORAGE CAPACITY 650,000 TONS
- 4 MILITARY/ 650 CIVILIAN EMPLOYEES

CAAA'S MISSION STATEMENT

TO RECEIVE, STORE, SHIP, PRODUCE, RENOVATE, AND DEMILITARIZE CONVENTIONAL AMMUNITION AND RELATED COMPONENTS TO MEET TIER I POWER PROJECTION REQUIREMENTS AT CRANE AND TIER II REQUIREMENTS AT LETTERKENNY MUNITIONS CENTER IN SUPPORT OF THE JOINT WARFIGHTER

TIER ONE ACTIVITIES

CRANE ARMY AMMUNITION ACTIVITY

PLANT #1ORDNANCE RENOVATION FACILITY
BLDGS 2724,25,28,31,34,35,36,37&39
PLANT #2 40MM AREA
BLDGS 145,146,2708
PLANT #3 PYRO AREA
BLDGS 126,127,133,1885,1886,2697&2698
PLANT #4EXPLOSIVE ACTUATING DEVICE AREA
BLD GS 136,138,2520 & 2706
PLANT #5 MINE FILL (A)
BLDGS 151,152,155,156,160 & 2531
PLANT #6 MINE FILL (B)
BLDGS 165,169,174 & 2532
PLANT #7 PRESSLOADINGFACILITY
BLDGS 104,189 & 2781
PLANT #8 PBXIRFLARE FACILITY
BLDGS 200 S 2504
PLANT #9 INERT AREA
BLDGS 106,107,119,226,227 & 2722
PLANT #10 QUALITY ASSURANCE TEST FACILITY
BLDG 2167
PLANT #11 PROPELLANT LOADING AREA
BLDG 101,102,103 & 3214
PLANT #12 BOMB PROOF AREA
BLDGS 2920,72 &73
PLANT #13 WARHEAD FACILITY
BLDG 105
PLANT #14 WHITE PHOSPHOROUS PLANT
BLDG 69
PLANT #15 DEMOLITION RANGE
PLANT #16 RIFLE RANGE
PLANT #17 AMMUNITION BURNING GROUND

CAAA-Operated Solid Waste Management Units

- SWMU 03/10 Ammunition Burning Grounds
- SWMU 06/09 Demolition Area
- SWMU 08/17 Load and Fill Area, B106 Area
- SWMU 10/15 Rockeye Area
- SWMU 11/00 Old Storage, B-225
- SWMU 12/14 Mine Fill A
- SWMU 13/14 Mine Fill B
- SWMU 16/16 Cast High Explosives Fill/B146 Incinerator
- SWMU 18/13 Load & Fill Area Buildings
- SWMU 20/00 CAAA QA/QC Test Area
- SWMU 22/00 Lead Azide
- SWMU 27/00 Illuminant Building B-126

CAAA/Navy IRP Interaction

- Navy base, Navy program
  - Funded through ER,N
- Navy 2, CAAA 0
- CAAA funds portions of monitoring activities
  - Ground Water

CAAA/Navy IRP Interaction

- Restoration Advisory Board
- Installation Restoration/Subpart X Core Team
- Environmental Integration Team
- Day-to-day operations
  - Site access and coordination
  - Site surveys
  - Tours
  - Control/Prevent Pollution from operations

U.S. EPA RCRA Corrective Action Environmental Indicators (EI)

What are the EIs and what are they used for?

- Milestones that EPA uses to track cleanup progress for the Government Performance and Results Act (GPRA) passed in 1993.
- The EIs are used to summarize and report on the environmental conditions at the RCRA Corrective Action program's highest priority sites.

National High-Priority Sites: 1,714

U.S. EPA Region 5 Sites: 284

How many Environmental Indicators are there?

- Current Human Exposures Under Control (Yes/No/Insufficient Information)
- Migration of Contaminated Groundwater Under Control (Yes/No/Insufficient Information)

What are the goals of the EIs?

- Focus work on ensuring that human exposures and contaminated groundwater migration is controlled early in the cleanup process.
- By 2005:
  - Control Human Exposures at 95% of baseline sites.
  - Control Contaminated Groundwater Migration at 70% of baseline sites.

EI FACT SHEET

RCRA Corrective Action -Environmental Indicators (EI)

(Draft 1/7/00)

1. What are the RCRA Corrective Action (CA) Environmental Indicators (EI)?

The RCRA Corrective Action Environmental Indicators (EI) are:

A means of evaluating and reporting on the acceptability of current site conditions (i.e., they are interim milestones and not final remedy or site closure goals).

An opportunity for facilities and regulators to show meaningful progress that is achievable in the near future.

A high priority within EPA and the #1 priority for the RCRA program.

Adopted by ECOS and equivalent to ASTSWMO cleanup measures

2. How many RCRA CA EI are there?

There are two.

Current Human Exposures Under Control (a.k.a. "Human Exposure EI")

Migration of Contaminated Groundwater Under Control (a.k.a. "Groundwater EI")

3. What are the possible results (determinations) for the EI?

YES, conditions are "Under Control"

NO, conditions are NOT "Under Control"

IN, Insufficient information is available to determine if conditions are "Under Control"

4. What are the RCRA CA EI used for?

These EI are used to summarize and report on the site-wide environmental conditions at the RCRA CA Program's highest priority sites (i.e., those on RCRA CA Cleanup (GPRA) Baseline, 135 DOD facilities).

These EI are being used to track the RCRA program's progress on getting our highest priority contaminated sites under control and report to the Office of Management and Budget (OMB), U.S.

Congress, and the public (via a public web site).

5. How are sites evaluated to see if they meet the RCRA CA EI?

Known and suspected site (-wide) conditions are evaluated using a series of simple (as possible) questions and flow-chart logic to arrive at a reasonably defensible determination (YE, NO, or IN). These questions (EI forms) were issued as Interim Final Guidance for the RCRA CA EI on Feb. 5, 1999 and are available on the Internet at the OSW web site "www.epa.gov/osw/cleanup/."

6. Who makes the EI determinations (and fills out the EI forms)?

The lead regulators for the site (Authorized State or EPA) make the EI determination. However, facilities or their consultants may assist EPA in the evaluation by providing information on the current environmental conditions (and may even assist by filling out the EI forms and making recommendations for the determination).

7. How does the Human Exposures EI relate to traditional Risk Assessments?

The Human Exposure EI is an assessment of (actual current) human risks and, would typically take the form of a qualitative assessment of the completeness of exposure pathways, but necessary, may include a traditional Quantitative Risk Assessment.

8. How does the Groundwater EI differ from the Human Exposures EI?

The Groundwater EI is strictly a resource protection measure and not a direct measure of human risk, and may include the assessment of the impacts of groundwater discharges to surface waters and surface water ecosystems.

9. Will EI require additional investigations (beyond that typically required for CA)?

No, since the EI are small components of typical site corrective action final remedies, the EI should not require any additional investigations to be conducted. Although, the timing of when investigations, or stabilization actions, occur may be altered in order to demonstrate that site conditions are "Under Control" as soon a possible.

10. Is it necessary to complete an entire site investigation to show that human exposures are under control?

No, human exposures can be considered "under control" if adequately protective controls are in place to prevent unacceptable exposures (i.e., cut pathways between humans and contamination) for the reasonably-expected worst-case conditions (in the un-investigated areas).

11. Are EI determinations a point-in-time determination, or do they have to be maintained to

ensure they remain true through time?

Yes, they are made in a point in time, and Yes, we are responsible (together) to ensure that the EI determinations accurately report site conditions through time.