Impact Area Review Team
Bourne Best Western
August 28, 2007
6:00 – 9:00 p.m.

Meeting Minutes

Members:	**Organization:**
Hap Gonser	IAGWSP
Ben Gregson	IAGWSP
Lynne Jennings	US EPA
Len Pinaud	MassDEP
Ellie Grillo	MassDEP
Peter Schlesinger	IART/Sandwich
Bob Mullennix	IART/Bourne
Dick Conron	IART/Bourne
Tom Cambareri	IART/CCC
Facilitator:	**Organization:**
Jim Murphy	US EPA

Attendees:	**Organization**:
John McDonagh	IAGWSP
Pam Richardson	IAGWSP
Lori Boghdan	IAGWSP
Kris Curley	IAGWSP
Paul Nixon	IAGWSP
Dave Hill	IAGWSP
COL Bill FitzPatrick	E&RC
Bill Sullivan	E&RC
Desiree Moyer	US EPA
Mark Panni	MassDEP
Kevin Hood	UCONN/TOSC
Jane Shea Moran	Innovar Environmental

Agenda Item #1. Welcome, Agenda Review, Approval of 5/22/07 IART Meeting Minutes

Mr. Murphy convened the meeting at 6:05 p.m., asked the Impact Area Review Team (IART) members to introduce themselves, and reviewed the agenda. Mr. Murphy also asked if there were any changes to the May 22, 2007 IART meeting minutes. No changes were offered and the minutes were approved as written.

Agenda Item #2. Late-Breaking News

Mr. Schlesinger announced that this is his last IART meeting, as he will be relocating and therefore is resigning from the team.

Agenda Item #3. Remediation & Investigation Update

Demolition Area 1 Startup

Mr. Gregson showed a map of the Demolition Area 1 (Demo 1) RDX and perchlorate plume and noted that the system there is now treating about 700,000 gallons of contaminated groundwater per day. He also explained that the comprehensive system added to the Rapid Response Action (RRA) system, which had treated about 450 million gallons of groundwater and reduced the perchlorate mass by 50% and the RDX mass by 21%. He further noted that the Demo 1 plume map would be updated in November as part of system performance monitoring, and that recent sampling shows that the plume is decreasing in width and the perchlorate portion is detaching from the source area.

Mr. Gregson stated that the comprehensive system involves five extraction wells, four reinjection wells, and ion exchange and granular activated carbon (GAC) as the treatment media. The new facility at Frank Perkins Road, which was designed to treat 800 gallons per minute (gpm), is currently treating about 450 gpm while a damaged reinjection well is being replaced, after which it will again operate at 800 gpm or 1.3 million gallons per day. The Pew Road facility, which now includes an additional reinjection well, will treat about 100 gpm. Mr. Gregson noted that once the system is completely operational it will be treating about 474 million gallons per year, with cleanup expected to be achieved in about 11 years.

J-1 South Rapid Response Action

Mr. Gregson showed a map of the J-1 Range South RDX plume, located along the base boundary with Sandwich, and pointed out the Forestdale School, the Grand Oaks neighborhood, the monitoring wells along Little Acorn Lane (which had tested nondetect for RDX), and the monitoring wells on Windsong Road, which had RDX detections ranging from 0.3 parts per billion (ppb) to 22 ppb. He also noted that RDX concentrations as high as 120 ppb have been detected at the base boundary, and the idea behind the RRA system is to begin treatment there as soon as possible while continuing the feasibility study process for the remainder of the plume.

Mr. Gregson noted that construction of the RRA system is under way. He also mentioned that the system, which will treat about 75 gpm, will utilize one of the modular treatment units no longer needed at Demo 1. He further noted that, working closely with the Town of Sandwich and with NStar, the problem of getting power to the treatment plant has been resolved sooner than expected. Mr. Gregson then showed several photographs of the ongoing construction of the RRA system and noted that system startup is expected to occur in late September/early October.

Mr. Cambareri asked if the modular unit Mr. Gregson mentioned came from the Pew Road facility. Mr. Gregson clarified that it had come from the Frank Perkins Road part of the Demo 1 system, where three modular units had been replaced by a large treatment plant. He also noted that the unit will contain only GAC to treat RDX, as the plume doesn't have perchlorate.

J-2 Groundwater Remedy Update

Mr. Gregson stated that after reviewing the six J-2 Range plume feasibility study alternatives presented to the IART in January, the Impact Area Groundwater Study Program (IAGWSP) worked with the regulatory agencies and decided that a hybrid alternative that combined elements of Alternatives 5 and 6 would be a better long-term remedy for the J-2 East plume. Mr. Gregson noted that under the proposed alternative (Alternative 6 Try 6), J-2 East would consist of three extraction wells, two injection trenches, and a pumping rate of 425 gpm, while J-2 North would consist of the existing RRA system (three extraction wells and four reinjection wells.) He also noted that GAC and ion exchange resin would be the treatment media as both perchlorate and RDX contamination are present. He further noted that the alternative could achieve risk-based concentrations in 11 years and background concentrations in about 19 years. Mr. Gregson also showed a figure depicting the system layout and pointed out the locations of the extraction wells, reinjection wells, and injection trenches.

Mr. Schlesinger asked if the extraction systems would create noise that could be heard in the nearby neighborhood. Mr. Gregson replied that the systems are really very quiet because any pumps and motors are located below ground, not in the plants themselves. He also mentioned two other alternatives that had been considered: one that involved additional extraction at J-2 North and only two extraction wells at J-2 East, and another that involved two additional extraction wells at J-2 North and five extraction wells at J-2 East and would clean up the plume in less than 10 years, but was dropped from further analysis because the additional cost wasn't thought to justify the accelerated cleanup time.

Mr. Gregson then displayed a table entitled "J-2 Range Groundwater Alternatives – Mass Capture." He pointed out that under Alternative 6 Try 6, the estimated system shutoff year for J-2 North is 2020, with nearly 27 kilograms (kg) of perchlorate mass removed and 0.68 kg of RDX mass removed; the estimated system shutoff year for J-2 East is also 2020, with 7.1 kg of perchlorate mass removed and 3.6 kg of RDX mass removed.

Mr. Gregson also displayed a table entitled "J-2 Range Groundwater Alternatives – Performance." He pointed out that under Alternative 6 Try 6, J-2 North has four extraction wells pumping at 460 gpm, a cleanup year of 2022 for perchlorate, and a cleanup year of 2011 for

RDX; J-2 East has three extraction wells pumping at 425 gpm, a cleanup year of 2020 for perchlorate and a cleanup year of 2022 for RDX. He noted that overall it would take about 14 years to reach 2 ppb for both RDX and perchlorate.

Southeast Ranges Anomaly Investigation/Innovative Technology Update

Mr. Gregson reported that based on aerial photographs, the IAGWSP has been looking at areas along the edges of the Southeast Ranges to ensure that the extent of anomalies there are understood. In addition, the IAGWSP has been conducting quality-control (QC) work at grids where munitions/metal-removal actions were previously conducted.

Mr. Gregson then showed a figure entitled "J-1 North QC Survey Grids" and another entitled "J-1 South QC Survey Grids," noting that the survey work there is focused on the southern part of the range, which is the likely source area for the J-1 South plume. He also noted that the EM-61 magnetometer survey of the J-2 Range QC grids has been completed, as has an intrusive investigation of geophysical anomalies there. Mr. Gregson stated that in general the QC work indicates that the munitions clearance efforts have been fairly successful. He also said that the IAGWSP is going back to areas where any signal response is being seen, and has cleanup targets for some of the other anomalies that might be found. The IAGWSP is also investigating further surveys that the U.S. Environmental Protection Agency (EPA) had requested.

Mr. Schlesinger asked if the grids on the figure that don't appear to be part of the QC survey had come up clean. Mr. Gregson explained that those grids had been surveyed previously but they were not included in the QC check because no digging had occurred there or because there was no other reason to look at them again.

Mr. Gregson then showed a 1966 aerial photograph of what's known as the J-2 extension area, a portion of the J-2 Range that goes off into the Impact Area, and appears to have been clear-cut in the mid-1950s. He noted that initially the plan was to do spot geophysical surveys of this area, but it was later determined that it would be better to just clear-cut again and conduct an EM-61 survey over the entire area to ensure that nothing was missed.

Mr. Gregson reported that the IAGWSP has been using explosive-detection dogs from the 67th Engineer Detachment (Canine) from Fort Leonard Wood, Missouri to try to locate explosives at the Southeast Ranges. He noted that a test area was set up with buried items at the old High-Use Target Area (HUTA) site in the Central Impact Area, where the dogs calibrated their noses and the handlers could be sure that the dogs were having a good day and were eager to work. Mr. Gregson then reported that the dogs had keyed in on 138 detections at the J-2 extension area, which will be compared to the magnetometer survey, after which some intrusive investigation will be conducted.

Mr. Cambareri asked whose idea it was to bring the dogs to Camp Edwards. Mr. Gregson noted that there had been several discussions about the idea over the years, and Mr. Gonser added that the colonel who is the commander for the New England District Corps of Engineers, and who had successfully used explosive-detection dogs in Afghanistan, was the real advocate for using the dogs at the base. Mr. Gregson then noted that a significant benefit of using the dogs is that they are able to detect explosives whether or not they are associated with metal. He also said that there is a plan to use the dogs at the gun positions to look for buried propellant bags there.

Mr. Mullennix asked for the cost estimate associated with J-2 Range Alternative 6 Try 6. Mr. Gregson replied that he did not have that information offhand, but could provide it by email.

Agenda Item #4. Small Arms Ranges Update

Tango Range

COL FitzPatrick reported that on July 23, 2007 both EPA and the Environmental Management Commission (EMC) gave conditional approval for the Massachusetts Army National Guard (the Guard) to move forward with firing lead ammunition at Tango Range on Camp Edwards. On July 27, 2007 the National Guard Bureau (NGB) concurred with the approval and on August 4, 2007 The Adjutant General gave formal permission for Camp Edwards to allow Tango Range to "go hot."

COL Fitzpatrick noted that IART members were provided with copies of the EPA and EMC approval letters. He then reviewed the slide outlining the details of EPA's conditional approval: the Guard must finalize the documents associated with Tango Range, including nitroglycerin-sampling results; the interim action levels (for soil, pore water, and nitroglycerin) in the Tango Range Operational, Maintenance, Management & Monitoring Plan (OMM) Plan must be revised; the conditional approval time period runs from August 2007 to December 2008, during which the Guard must provide updates and data results; the Guard must comply with EMC approval conditions; and at the end of the trial period the Guard must submit a formal request for the permanent use of Tango Range.

COL FitzPatrick also reviewed the slide outlining the details of EMC's conditional approval: all firing must be in accordance with the Environmental Performance Standards (EPSs); a report on the use and installation of lysimeters must be submitted; a plan on how x-ray fluorescent (XRF, a $25,000 device that provides immediate soil sampling results) sampling of metals is incorporated into the Tango Range management plan must be submitted; quarterly updates on Tango Range use must be submitted; a mass balance calculation must be conducted and reported by November 15, 2008; and, again, the interim action levels in the Tango Range management plan must be revised.

COL FitzPatrick then showed a cross-section diagram of Tango Range and pointed out the old machinegun firing line, the pistol and rifle firing line, the target line, the STAPP bullet-catcher system and berm, the locations of lysimeters installed by the Guard and by the IAGWSP, and the monitoring well locations. He also discussed the lysimeter background sampling effort that occurred on July 12, 2007, noting that the two outer lysimeters had tested nondetect for lead, while the center one had shown a lead value of 28.6 ppb, triggering the second action level (15 ppb), which calls for investigation/re-sampling, and coming close to the third action level (30 ppb), which calls for the range to be shut down. COL FitzPatrick reported that the re-sampling resulted in a lead value of 19.8 ppb, which still exceeds the second action level, and consequently the Guard is reviewing its lysimeter installation and sampling procedures and has added three additional lysimeters around the center point, at 3-, 5-, and 8-foot depths.

COL FitzPatrick noted that the Guard is also looking at re-assessing the interim action levels, which might be too ultraconservative. He explained that EPA's contention is that lead in the several-thousand ppb range would have to be present in soil in order to make it into the groundwater at a value of 15 ppb, and the Guard is working with an interim action level of 30 ppb in soil. He also noted that the bentonite, which is part of a lysimeter system, may contain some lead – and although it's soaked in deionized water to get rid of the lead, it could be that the soaking time of two hours isn't long enough. In addition, the slurry solution associated with the lysimeter system may contain some lead as well. COL FitzPatrick assured the group that the Guard will be reviewing every step before making any changes to the soil pore water interim action levels.

COL FitzPatrick then stated before firing at Tango Range, STAPP representatives re-inspected the system and looked into how and why water was entering into it, despite the upper membrane that is supposed to prevent that. It was found that some of the gluing had come apart at the seams and that water may have been entering from the top of the system as well, rather than sheeting off the apex of it. COL FitzPatrick noted that the entire system was essentially rebuilt in order to remove any probable causes of the water. He then displayed a series of photographs chronicling the tear-down and rebuild of the system, and noted that as part of the process it was discovered that the overlap at the seams was less than half an inch, rather than three to four inches, as expected. He also noted that as part of the rebuild a fabric liner was emplaced in order to help prevent any protruding rocks from coming through. Another change was that the valve associated with the drainage tube that's designed for removing any condensation that collects within the system was relocated to the right corner, rather than the left corner, in order to be at the low point. COL FitzPatrick also reported that the XRF readings taken during the reconstruction work showed a maximum lead value of 20 ppb, which was not necessarily indicative of the lead concentration detected in the lysimeter. He also mentioned that as part of the reconstruction, the top of the rubber liner was actually wrapped around the back of the system's frame, rather than allowed to just lie down next to it.

COL FitzPatrick showed a photograph of the STAPP system on July 23, 2007, before the rebuild, and another on July 20, 2007, after the rebuild. He also reported that on August 4, 2007, approximately 3,900 rounds were fired, a couple of which hit the target frames and subsequently did not go directly through the STAPP membrane but instead tumbled and went sideways through the membrane, causing it to rip. He noted that this type of occurrence is not unexpected and is included in the management plan, which calls for repairing such damage in a manner similar to repairing a bicycle tire. However, it was not expected that three of the seams would be coming apart, and when this was discovered, the STAPP representatives were called back to repair the seams.

COL FitzPatrick explained that it's thought that the glue might be part of the seam problem; therefore, the Guard is testing different glues in order to determine which one will work best at the Massachusetts Military Reservation (MMR). He noted that the glue type that was originally used worked effectively at a STAPP system located in Virginia, but for some reason it didn't work well here.

Mr. Mullennix asked for assurance that all the revisions to the system are being documented by the Army Corps of Engineers so that a full STAPP package (as-built drawings and specifications) can be duplicated. COL FitzPatrick clarified that the Army Corps of Engineers is helping in terms of some of the background work, but the STAPP representatives have been documenting all the changes that have been happening. He noted that the all of the steps will be identified for the Tango Range OMM plan, and the lessons learned will be documented as part of the Juliet and Kilo Ranges' plans.

Mr. Schlesinger asked why a single piece of rubber membrane isn't used, such that there would be no seams in the system. COL FitzPatrick replied that the membrane, which is manufactured and shipped from Sweden, comes in six-foot wide strips, which may have to do with shipping or with the manageability of installing the material, which is very heavy. Mr. Gonser added it might have something to do with the fact that the width of the strips is just about equivalent to the width of one firing lane.

Mr. Conron said that he had hoped that the STAPP system would already have been debugged by now, and he finds it discouraging that that is not the case. He added that it seems that the technology is "far from proven," given the repairs that have had to be made. He then inquired

about the role of the EPA and the Massachusetts Department of Environmental Protection (MassDEP) in the process.

Ms. Jennings stated that the Guard is reporting out on the issues being encountered. She also noted that while EPA has not visited the site, the state has done so. Ms. Jennings also said that she is not that discouraged because the need for adjustments to structures is not unusual, some adjustments require having to take the structure apart and put it back together again, and she hasn't seen anything that she would consider to be total system failure. She also acknowledged the different conditions at MMR (such as the climate), and that the system had sat unused for a long period of time. She added that she's interested in seeing how much maintenance is required and how the system holds up over the course of a year.

Mr. Pinaud said that MassDEP is very happy that the cause of the water getting into the system has been identified and repaired. He also said that he agrees with Ms. Jennings that a "shakedown period" is expected when a system such as this is installed – and as long as the problems are being resolved he thinks it makes sense to move forward. He also noted, however, that he is a bit concerned about the problem with the glue, although the Guard is working to address the issue. Mr. Conron remarked that he thinks that is a huge issue. Mr. Pinaud said that he thinks it's a good thing that the Guard is conducting inspections and finding the problems, and has been able to fix them.

Mr. Conron also inquired about the role of the regulators in terms of the monitoring procedures at Tango Range. Ms. Jennings noted that she would be addressing this question after the next agenda topic.

Juliet & Kilo Range

COL FitzPatrick stated that initially the Guard had planned to return to firing lead ammunition first at Tango Range and next at Echo Range, which is a pop-up target range. Over the course of a year, however, the Department of Army and NGB have changed the way soldiers are being deployed overseas by limiting the deployment timeframe to about 13 months, thereby forcing each of the states to conduct a great deal of in-house training. Because of this, the Guard's leadership wanted to shift away from Echo Range to Juliet and Kilo Ranges – the primary reason being that every soldier has a rifle, but not every soldier had a pistol, and Echo Range is strictly a pistol range. In addition, the state has Congressional funds to build containment systems (STAPP), those funds need to be obligated by this fiscal year, and the plan is to install STAPP systems at Juliet and Kilo Ranges in March 2008 and seek agency approval to begin using the ranges in April 2008.

COL FitzPatrick referred to a map and pointed out where Juliet, Kilo, and Tango Ranges are located. He also noted that in order to be able to safely use both ranges at the same time, the plan is to relocate the current berm at Kilo Range and "just parallel Juliet all the way down." He further noted that in conjunction with the regulatory agencies, the IAGWSP will be developing the appropriate site investigation plan and determining what, if any, remediation is needed before the berms are constructed. COL FitzPatrick also said that the Guard is continuing to work on Echo Range, which is key to being able to get to Sierra Range, a rifle pop-up target range that is most critical for training.

Mr. Mullennix asked COL FitzPatrick to point out Echo Range on the map, which he did.

EPA's Tango Range Monitoring Plan

Ms. Jennings stated that IART members had been provided with an EPA handout entitled "EPA Audits of Tango Range," which was written in response to comments submitted by Mr. Conron and others on the Guard's petition to EPA to initiate training at Tango Range. She then noted that

EPA has organized its auditing activities in the same manner as the Guard organized its activities in Section 6 of the Tango Range OMM plan: range operations, range monitoring, and range maintenance.

Ms. Jennings pointed out, for example, that under range operations it's noted that EPA will perform unannounced on-range audits to ensure that the units are training properly. In addition, EPA will review the Guard's inspection reports in order to verify that the necessary actions listed there are being taken. Under range monitoring, EPA will perform its own visual inspections of the range, will also occasionally accompany Range Control during its periodic inspections to determine how those inspections are done and what is documented, will employ an EPA checklist, and will take split samples from lysimeters and monitoring wells, and perhaps from soil samples as well. In the range maintenance category, Ms. Jennings noted that EPA will review the Guard's inspection forms, do its own independent inspections, and do cross comparisons of the findings to confirm that everything that should be reported is being reported.

Ms. Jennings also said that she really doesn't expect there to be any issues, as the Guard had been doing "a very decent job" even before the STAPP system at Tango Range started to be used. She also said that EPA plans to implement its auditing activities at least quarterly over the next year, plans to brief the IART periodically, and will probably do a summary at the end of the year that will be part of EPA's overall decision on whether to make the pilot approval a permanent approval. Ms. Jennings also suggested that IART members could compare EPA's draft document to Section 6 of the OMM plan and make requests for any additional measures to be taken.

Mr. Cambareri asked how EPA's monitoring efforts would relate to those being undertaken by the EMC. Ms. Jennings replied that EPA and the EMC will coordinate with each other and keep each other informed. She also noted that one of EPA's conditions for approval was that the Guard must submit to EPA the same information that it submits to Mark Begley, executive director of the EMC, who spends a great deal of time on the base. Ms. Jennings acknowledged that there would be some overlap, but explained that in this way both state and federal authorities are providing oversight and EPA will have the information it needs to make its own decision at the end of the year.

Mr. Conron said that he would find it helpful to have some kind of matrix document that outlines the monitoring responsibilities, who will be performing them, and the frequency that they'll be performed. He also asked if MassDEP has a role in the monitoring process.

Mr. Pinaud replied that it absolutely does, and noted that MassDEP is part of the Small Arms Range (SAR) Working Group and in that way advises the Executive Office of Energy and Environmental Affairs (EOEEA) and the MassDEP Commissioner on the overall process. He also noted that MassDEP will be reviewing all the reports generated by the EMC, the Guard, and EPA, and making comparisons to the state regulations, which pertain to ensuring the protection of human health.

Mr. Conron said that although he also does not anticipate problems, he thinks that a best practices monitoring plan should include a page that defines the roles of all the different organizations. Ms. Jennings replied that the difficulty in being responsive to Mr. Conron's request has to do with the amount of overlap associated with the monitoring of the ranges – which is why the team has been shown "concentric circle" type figures in the past. She said that this is why EPA put together its own outline, and suggested that it might be helpful to Mr. Conron if each of the other organizations did the same. Mr. Conron noted that he would like to see something – perhaps a table – that details the responsibilities of the Guard, the EMC, EPA, and MassDEP. He also acknowledged that a one-page summary from each organization would be a place to start, and added that he'd like to see something that could be understood on a fourth-grade level.

Ms. Grillo noted that because of overlapping roles and certain distinct responsibilities of organizations, the SAR Working Group (which includes Mr. Begley, Ms. Jennings, Mr. Gonser, and COL FitzPatrick) continues to meet regularly. She also noted that Mr. Begley was planning to be at this meeting to be available for the SAR Update, but the meeting is running ahead of schedule and he hasn't yet arrived – otherwise he would have had this opportunity to discuss the EMC's responsibilities. Ms. Grillo stated that it is a cooperative effort, but MassDEP would provide "where we specifically fit in."

Mr. Gonser said that he thinks it would be doable to provide a one-page spreadsheet that lists all the activities, when they would occur, and who would be responsible for them.

Propellant-leaching Assessment Workplan Update

Mr. Gregson stated that, as discussed at the SAR meeting in June, the IAGWSP is embarking on a propellant-leaching assessment to determine appropriate cleanup levels for contaminants seen at the ranges and gun positions – nitroglycerin and 2,4-DNT. He noted that nitroglycerin and 2,4-DNT, which are being seen in shallow soil, are not being detected in groundwater, although the models indicate that they should have reached groundwater by now. He also said that even though there's currently no nitroglycerin or 2,4-DNT contamination in groundwater, it's important to have an understanding of when and if future groundwater problems might occur. And because this particular area of study is limited, the IAGWSP is embarking on its own laboratory study to understand how nitroglycerin and 2,4-DNT behave in the environment.

Mr. Gregson said that it's hoped that the propellant-leaching assessment will answer the following questions: Why aren't we seeing nitroglycerin or 2,4-DNT in groundwater? What levels in soil would result in groundwater contamination above risk-based levels? If nitroglycerin or 2,4-DNT will get to groundwater, how long will it take?

Mr. Gregson reported that the IAGWSP, which has been working with EPA and MassDEP and their consultants to develop a scope of work for the propellant-leaching assessment, will be doing batch and column experiments to determine sorption and desorption rates. He explained that the sorption part of the study will involve mixing contaminated groundwater with clean soil (in batches where the soil and water are mixed together and shaken, and in columns where the water is allowed to dribble through the soil) and determining how much sticks to the soil. The desorption part of the study will involve both batch and column experiments in which clean water is run through contaminated soil to determine whether the contaminants come off of it.

Mr. Gregson also noted that the assessment will look at soil properties such as pH, grain size, and total organic carbon. It may also include looking at how quickly and in what concentration the compounds are released from nitrocellulose, as well as look at biodegradation properties associated with the compounds.

Mr. Gregson stated that the next step in the process is to finalize the draft workplan, which will be provided to the team for review. He said that it's hoped that the laboratory studies will be completed by late 2007/early 2008, and that the information can be used in COL FitzPatrick's work assessing the conditions at the SARs.

Agenda Item #5. Open Discussion

Mr. Gonser said that he wanted to make certain that everyone understands that the proposed J-2 Range groundwater remedy (Alternative 6 Try 6) involves the installation of three extraction wells (425 gpm) for J-2 East and continued operation of the existing J-2 North three-well system. He explained that Alternative 6 Try 6 came about by modifying the J-2 East piece of Alternative 6, and clarified that the proposed remedy does not involve installing an additional extraction well for J-2 North.

Mr. Gonser also referred to Mr. Mullennix's earlier question about the cost of Alternative 6 Try 6 and noted that the capital costs for the J-2 North system were about $3 to $4 million, and the capital costs for the J-2 East system are anticipated to be about $7 to $8 million. The annual O&M costs for J-2 North will be about $250K and for J-2 East about $300K.

Mr. Conron expressed his thanks to the staff who worked on the IAGWSP Plume Book, particularly for the chart on page 7. He also asked what a pie-chart for all the sites might look like, in terms of their total mass, size, or significance. Mr. Gonser replied that looking at mass, which is concentration plus area, would provide an idea of how the plumes relate to one another in terms of significance. Mr. Conron then inquired about the percentage of groundwater at the base that's contaminated. Mr. Gonser noted that the IAGWSP's Kris Curley has looked into this and found that the IAGWSP and Installation Restoration Program (IRP) plumes combined make up about 1% to 2% of the groundwater under the base.

Mr. Conron also asked for some clarification with respect to cleaning up to risk-based concentrations versus background concentrations. Mr. Gonser explained that water from the aquifer is drinkable once it reaches risk-based concentrations. He also said that the first goal is to achieve risk-based concentrations; beyond that, site-specific conditions would be considered. If the wells are pumping clean water, pumping would be discontinued. If some contamination continues to be extracted, however, pumping would continue. Mr. Conron said that he's really trying to understand what is meant by "aquifer restoration" and thinks it would be helpful if that were defined for the public. Mr. Gonser also mentioned that information provided at the IAGWSP booth at last weekend's Air Show was well received. He noted that about 100 people visited the booth.

Mr. Pinaud informed Mr. Conron that the Massachusetts cleanup regulations require responsible parties to clean up to background if technically and economically feasible. If it is feasible, the expectation is that cleanup will be done to background, and the cleanup programs would have to justify why they couldn't do so.

Mr. Schlesinger noted that the IAGWSP Plume Book doesn't show IRP plumes and the IRP Plume Book doesn't show IAGWSP plumes – despite repeated requests by a previous IART member to include all plumes on one map. Ms. Richardson of the IAGWSP noted that a base-wide groundwater findings map was prepared by the Environmental & Readiness Center and released to the public this week.

Mr. Mullennix thanked Ms. Curley for the good work she did in summarizing the sites described in the IAGWSP Plume Book, which he considers to be a great reference material. Ms. Curley acknowledged his comment, but also reminded him that thanks are also due to EPA and MassDEP as the Plume Book was a team effort.

Mr. Murphy thanked Mr. Schlesinger for his ten years of membership on the IART and wished him all the best in the future.

Agenda Item #6. Adjourn

Mr. Murphy noted that the IART would meet next on Tuesday, September 25, 2007 at the Bourne Best Western*. He then adjourned the meeting at 7:35 p.m.

** Please note: the location of the September IART meeting has since been changed to 1803 West Outer Road, Camp Edwards. Please contact Lori Boghdan at 508-968-5635 to obtain a temporary base pass.*

Action Item:

1. Mr. Conron asked to be provided with a document that outlines SAR monitoring and oversight activities by all parties (Army, EPA, MassDEP, and EMC).

Future Agenda Topics*:*

September 25, 2007 – Bourne Best Western:

- Remediation & Investigation Update
- Program Overview & Update
- MEC Dogs Update

Handouts Distributed at the Meeting:

1. Presentation handout: Remediation & Investigation Update
2. Presentation handout: Camp Edwards Tango Small Arms Range Update
3. 7/23/07 EMC letter to Massachusetts Army National Guard
4. 7/23/07 US EPA letter to Massachusetts Army National Guard
5. EPA Audits of Tango Range – Draft Outline – August 28, 2007
6. Presentation handout: Propellant-Leaching Assessment Work Plan
7. MMR Groundwater Findings Map
8. Spring 2007 IAGWSP Overview & Update
9. UXO Discoveries/Dispositions Since Last IART (Ending 8/24/07) All Awaiting CDC
10. News Releases, Neighborhood Notices, and Media Coverage 5/19/07 – 8/24/07
11. IART Meeting Evaluation form