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MINUTES AND AGENDA FOR RESTORATION ADVISORY BOARD MEETING HELD 7 APRIL 2011 NWIRP CALVERTON NY 07/20/2011 TETRA TECH NUS



NOR-001166

July 20, 2011

Project Number 112G02045

Reference: Contract No. N62470-08-D-1001 Contract Task Order No. WE08

Subject: RAB meeting Minutes

MEMORANDUM

FOR THE MEMBERS OF THE RESTORATION ADVISORY BOARD (RAB) FOR THE INSTALLATION RESTORATION PROGRAM AT NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP) CALVERTON, NEW YORK

Attached for your review are the minutes from the RAB meeting held on April 7, 2011. The Navy requests that you review the meeting minutes and provide comments that you have to the Remedial Project Manager, Ms. Lora Fly. These minutes will be discussed and approved at the next meeting in November of 2011. If you need additional information, please call Ms. Lora Fly at (757) 341-2012, or email, lora.fly@navy.mil.

Sincerel

David D. Brayack Project Manager NOR-Recipient Organization Date - Page 2

Distribution:

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RESTORATION ADVISORY BOARD MEETING NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), CALVERTON CALVERTON COMMUNITY CENTER, CALVERTON, NEW YORK THURSDAY, APRIL 7, 2011

The thirty-fourth meeting of the Restoration Advisory Board (RAB) was held at the Calverton Community Center. Meeting attendees included representatives from the Navy (Lora Fly), New York State Department of Environmental Conservation (NYSDEC) (Larry Rosenmann, Bill Spitz, and Henry Wilkie), New York State Department of Health (NYSDOH) (Steve Karpinski), RAB Community Members (John Armentano, Sid Bail, Adrienne Esposito, Bill Gunther, and Jean Mannhaupt), Suffolk County Department of Health Services (SCDHS) (Doug Feldman and Andrew Rapiejko), Suffolk County Department of Energy and Environment (SCDEE) (Amy Juchatz), Town of Riverhead (Joseph Maiorana), Tetra Tech (David Brayack, Debbie Cohen, and Robert Sok), ECOR Solutions, Inc. (Al Taormina), and Frank Anastasi (SCA Associates). There was one guest at the meeting. The meeting sign-in sheet is provided as Attachment 1.

WELCOME AND AGENDA REVIEW

The Navy representative, Ms. Lora Fly, welcomed everyone to the RAB meeting and introduced the meeting agenda. The agenda for the meeting is included as Attachment 2.

DISTRIBUTION AND APPROVAL OF MINUTES

Ms. Fly asked whether the RAB members received the November 2010 RAB minutes, which were distributed in March 2011, and asked whether there were questions or comments on the minutes. There were no questions or comments, and the minutes for the November 2010 RAB meeting were approved.

COMMUNITY UPDATE

There was no specific community updates.

TECHNICAL PROGRESS – GENERAL OVERVIEW OF INSTALLATION RESTORATION SITES

Ms. Fly provided some general site information as follows:

- Site 2 investigations will continue outside of the area where munitions were found until the munitions investigation is complete. The work at Site 2 will be coordinated with SCDHS.
- The Site 7 treatment system has not been restarted because the copper power supply wiring that is part of the system was stolen. The wiring has been replaced and system start up is anticipated shortly. The Navy added security measures. The system was shut down in December 2010 for the winter season. Groundwater samples were collected at that time and the results are

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expected soon. The system will be re-started in April 2011. H&S Environmental will be operating the system.

 The Town of Riverhead has asked for bids to install the water supply line that will go to the Peconic River Sportsman Club (PRSC). The Navy will be working with the Town of Riverhead to review bids and expects to award the contract in May 2011. Tetra Tech will design the portion of the line that is on the PRSC property. The PRSC main lodge, activity center, private residence, and the pistol range will all be hooked up to the water line. The public wells will be abandoned. The design is anticipated to be complete by the end of the summer and the Navy is targeting that the water line will be installed and ready for use by December 2011.

TECHNICAL PROGRESS – 2010 GROUNDWATER INVESTIGATION SUMMARY

Mr. Rob Sok, Tetra Tech, provided a presentation on the status of 2010 groundwater investigations and the current understanding of groundwater contamination at NWIRP Calverton. The presentation is included in Attachment 3.

Mr. Sok summarized the work that was conducted in 2010. The Navy conducted a temporary well program consisting of 39 locations and approximately 120 groundwater samples to better define the extent of VOC-contaminated groundwater. Piezometers were installed to confirm the temporary well results and to evaluate groundwater flow to the Peconic River. A bio study and pumping tests were also conducted. The Navy continued the annual facility-wide groundwater monitoring that includes 13 monitoring wells at Site 2 – Fire Training Area, 13 monitoring wells at Site 6A – Former Fuel Calibration Area, 3 monitoring wells at Site 10B – Former Engine Test House, and approximately 37 monitoring wells and piezometers in the Southern Area. Work at the PRSC included four quarters of sampling and continued operation of a treatment system on the PRSC wells. Semi-annual surface water and sediment sampling was conducted at four locations on the Peconic River. In December 2010, the Navy installed temporary wells to define the upgradient extent of VOC-contaminated groundwater near Site 6A. The program included collection of 21 groundwater samples from 7 locations. Also, a piezometer was installed near the FC-MW05 well cluster to allow monitoring of a plume that appears to be flowing between the existing water table well and deeper well.

Mr. Sok reviewed groundwater flow maps for November 2009, April 2010, to September 2010 that showed fluctuations in groundwater flow. Mr. Sok indicated the dynamic flow system reflects varied influence of surface water on the groundwater flow contours. Under dry conditions the river and tributary are recharging groundwater and under wet conditions the river and tributary are discharge areas for groundwater. The April 2010 data were collected after significant rainfall resulting in a higher than normal groundwater table and groundwater flow contours are flatter and more southerly. This southern flow component is towards PRSC. By September 2010, as the groundwater table has returned to more

normal levels, the groundwater flow is more southeasterly and the river and tributary are showing more influence on groundwater contour patterns. Mr. Sok indicated that based on the change in flow patterns found in the 2009 to 2010 data, the Navy is now conducting quarterly water level measurements.

Mr. Sok reviewed the 1,1-dichloroethane (DCA) isoconcentration contour map. This map includes SCDHS data. Based on the data, the plume is very narrow in the northern portion of the plume, near the former source area. The plume then becomes wider in the southern portion. The fluctuations in groundwater flow between southeasterly and southerly have spread the plume out particularly as the plume nears surface water. The change in flow pattern also results in fluctuations in contaminant concentrations in the southern portion of the plume. Data shows shifts in the plume because of influence from surface water and precipitation events. Mr. Sok reviewed data for select locations that the Navy is evaluating to determine whether the concentration patterns reflect fluctuating, increasing, or decreasing trends. For groundwater monitoring locations MW127 and MW131, the Navy is collecting more data to determine whether there is a downward trend at MW127 and an upward trend at MW131. For the concentrations in two piezometers along the Peconic River, PZ118S and PZ124, the concentrations initially appear to increase and then show a decrease. These locations were sampled in March 2011 and the data are being evaluated.

There was some discussion of an area within the plume, along the road where higher concentrations of DCA (500 to 600 ug/L) were previously detected. These DCA detections were in temporary wells sampled by SCDHS. The Navy has not seen similar concentrations in existing nearby wells. An additional investigation was conducted to the north of this area in order to determine whether there are two different plumes or one continuous plume in this area. Current data suggests that there is one plume and that there are seasonal fluctuations in concentrations within the plume. The seasonal sampling will help understand the seasonal fluctuations in concentrations.

Mr. Sok reviewed the temporary and permanent monitoring well network, and reviewed a cross section of the DCA isoconcentration contour map. He noted that not all of the sample points used to develop the extent of the plume are shown on the figure. The data show that as the aquitard drops off, the plume goes deeper.

The groundwater results show that the plume boundary is well defined. Data supports that the southern edge of the plume shifts to the east because of the PRSC pond and tributary influences. The primary VOCs in the plume are DCA, 1,1,1-trichloroethane (TCA), 1,1-dichloroethene (DCE), and chloroethane (CA). North of River Road the plume is thin and narrow. Flow is predominantly to the southeast and has shown a relatively constant flow pattern. South of River Road the plume gets wider and thicker as it

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moves toward the river. Flow is predominantly to the east-southeast, but near PRSC Pond, the flow is also to the northeast and east.

Mr. Sok reviewed the 2011 field activities that include soil vapor intrusion sampling, groundwater sampling in March 2011 and planned groundwater sampling in September 2011. Soil vapor intrusion (SVI) sampling was conducted in February 2011 at PRSC. The preliminary results indicate no vapor intrusion concerns. The sampling included indoor air and sub-slab sampling. Sampling was conducted during the heating season when there is less ventilation and vapor intrusion would be the greatest. Additional piezometers and temporary wells will be installed on county property within the Southern Area when the Navy receives the access agreement from the Park's Department. This activity will be conducted concurrently with the offsite groundwater investigation at Site 2. The Navy indicated that the data from March 2011 is anticipated soon and the Navy will evaluate the data this spring and summer. The data will be presented in a semi- annual report and the preliminary results will be presented at a RAB meeting.

In answer to a question of whether the Navy is planning more sampling based on the results of the March 2011 sampling, the Navy indicated that other than what is already planned for 2011, additional sampling is not anticipated. In answer to a question of whether there were any concerns for removal of plants from the wetlands area to access the area for well installation, the Navy indicated that small-sized equipment is being used so that well installation has not resulted in a significant impact to any of the wetland areas.

TECHNICAL PROGRESS – SOUTHERN AREA CORRECTIVE MEASURES

Mr. Dave Brayack, Tetra Tech, provided a presentation on the evaluation of potential corrective measures for the Southern Area groundwater contamination. The presentation is included in Attachment 3.

As part of the presentation, Mr. Brayack reviewed the enhanced in-situ anaerobic biodegradation pilot test (bio study) results, which is a component of one of the treatment alternatives evaluated in Corrective Measures Study (CMS). Subsequently, Mr. Brayack reviewed the CMS alternatives and path forward for the Southern Area groundwater contamination.

For the Bio Study, the Navy is evaluating the effectiveness of ethyl lactate (EL) injection to accelerate insitu anaerobic biodegradation of the VOC contamination. Monitoring locations for the system were installed in June 2010. Baseline sampling was conducted before injection of the EL, and then EL injection was conducted in July, October 2010, and March 2011. Post-injection sampling was conducted in October 2010, December 2010, and March 2011. Additional injection and sampling are planned for June 2011. Mr. Brayack explained that chlorinated solvents will degrade anaerobically through a sequential dechlorination process. DCA to chloroethane is the most difficult step in the dechlorination

process; therefore, effectiveness is evaluated based on the amount of chloroethane being produced. Mr. Brayack showed some photographs of the bio study injection/extraction system. The results of the study showed that total VOC concentrations were reduced by 30 to 60 percent. The observed reduction could also be from mixing, treatment, and/or variations in natural groundwater flow. He also noted that the only issue during the bio study was that the EL flushed out of the treatment zone more quickly than anticipated. The Navy will need to consider another less mobile food source such as emulsified vegetable oil. Mr. Brayack explained that the groundwater flow is approximately two times faster than expected. Emulsified vegetable oil would not be flushed out as quickly. Based on work conducted at other sites, test results showed that VOCs are initially absorbed by the oil, rapidly reducing the VOC concentration. As the vegetable oil is depleted, there is a release of the VOCs with concurrent biodegradation.

Mr. Brayack reviewed the bio study baseline results for December 2010, which is provided in the draft CMS. The March 2011 data were not available and are not reflected in the draft CMS. The trend figures shown at the RAB meeting include the March 2011 data. The Navy is seeing an increase in chloroethane, which shows that the treatment is effective.

Questions and answers regarding the bio study include the following:

- Is the Navy planning to test emulsified vegetable oil as part of the study? No, at this point the Navy does not want to make a significant change in the bio study. The purpose of the bio study is to evaluate whether enhanced biodegradation would work. If biodegradation is a selected treatment measure, then the Navy would conduct a pilot study to support the design of the treatment system.
- How is the location of the clay layer taken into account in the design of the treatment system if emulsified vegetable oil is used? The treatment system would be design to get the food source to the appropriate treatment zone.
- Will a pilot study delay installation of a treatment system? No. All of the potential remedies would require some additional study to support design of a large-scale treatment system.

Mr. Brayack reviewed the seven alternatives presented in the draft CMS. He explained that there are various combinations of technologies and that the selected remedy could have different combinations of treatment systems for the different portions of the plume to achieve the remediation goals. The evaluation criteria include RCRA and CERCLA criteria. Also, the Navy is required to conduct a life-cycle evaluation (referred to as Site Wise) to evaluation other environmental concerns.

Mr. Brayack explained that the estimate of time frames to achieve treatment goals for each alternative assumes that the source has been removed via soil excavation. If the Navy finds that there is still a source contributing to groundwater contamination, the Navy would remove any residual source that is found. At this point, the Navy believes that over 90 percent of the source has been removed, but is still collecting data to evaluate the effectiveness of the past source removal (as part of the source area remedy). The uncertainty regarding the source removal is considered as part of the evaluation of alternatives in the Southern Area CMS. Mr. Brayack also explained that all of the alternatives, except for No Action, include 5-year reviews. In answer to a question of how the additional data to refine contaminant contours within in the plume will affect evaluation of alternatives, Mr. Brayack explained that the results for the additional data will be available soon and there will be sufficient time to take the results into consideration before selection of a remedial action. If the results show the plume is shifting to the south, it may change how and where the treatment system would be installed. Any cost differences would have relatively the same impact to all alternatives that have treatment systems. The Navy anticipates that the design and implementation of the treatment systems would be staged to allow the Navy to fill data gaps before installing the selected treatment system(s).

The following summarizes the alternatives:

- Alternative 1 No Action. This alternative is required in a CMS as a baseline to evaluate against other alternatives. This alternative would not meet the remediation goals.
- Alternative 2 Land Use Controls (LUCs). LUCs would provide restrictions on land use (including water wells) to reduce exposure to contamination and is a component of all of the other alternatives. This alternative does not include monitoring or treatment.
- Alternative 3 Monitored Natural Attenuation (MNA) and LUCs. This alternative also includes monitoring to determine when remediation goals have been achieved. The estimated time frame to achieve remediation goals on average is 20 years.
- Alternative 4 Air Sparge, MNA, and LUCs. This alternative includes air sparging in the source area and near the river. The air sparging system in the source area would ensure there was no remaining source thereby reducing cleanup time. The river area system would be an air sparge curtain (bubble curtain) to remove VOCs prior to reaching the Peconic River. Effectiveness of the treatment system would be constrained by the geology (silty clay unit) at the fence line and therefore was not considered. The estimated time frame to achieve remediation goals on average is 16 years. The major cost item for this alternative is the electrical costs for operation and maintenance (O&M) of the treatment system. The treatment system would need to be located outside of the wetland area to the extent possible.
- Alternative 5 Anaerobic Enhanced In Situ Biodegradation (EISB), MNA, and LUCs. This alternative includes a series of bio barriers that VOC-impacted groundwater flows through and is

treated. EISB would be used in the source area, fence line, and offsite areas to ensure no remaining source and reduce cleanup time. This alternative does not include a river area treatment system as in Alternative 4. Shifts in the location of the offsite plume could affect the effectiveness of the treatment system or increase costs in this area. The estimated time frame to achieve remediation goals on average is 10 years. Overall costs are estimated to be less than Alternative 4 because of the lower estimated time to achieve remediation goals.

- Alternative 6 EISB, Air Sparge, MNA, and LUCs. This alternative is a combination of Alternatives 4 and 5 that uses EISB to ensure no remaining source and reduce cleanup time and air sparge to remove VOCs prior to reaching the Peconic River. The estimated time frame to achieve remediation goals on average is similar to Alternative 5 (10 years). Estimated costs are greater than Alternatives 4 and 5.
- Alternative 7 Groundwater Extraction, Treatment, and Infiltration Gallery, MNA, and LUCs. This
 alternative uses groundwater extraction along the fence line (onsite portion) and in the river area
 (offsite portion). The extracted water would be treated in a treatment plant located on the Navy
 property. High iron concentrations in groundwater near the river would adversely affect the
 operation of extraction wells and piping and increases operating costs. The estimated time frame
 to achieve remediation goals on average is 16 years. This alternative has the highest estimated
 costs mainly because of the high estimated O&M costs.

There was discussion regarding the various alternative components and considerations during alternative evaluations. Information on considerations for developing the different alternatives is provided in the discussion of alternative development in the CMS.

In regards to whether all of the alternatives were ones the Navy would consider doing, including some of the aggressive treatment deep within the plume, the Navy indicated that except for no action, all of the alternatives in the CMS are ones that the Navy considers potential remedies. The regulators will provide input and identify their concerns for implementing the alternatives. Implementability is an important consideration in the alternative evaluation because of concerns for impacting wetlands. Mr. Rosenmann noted that NYSDEC wetlands personnel would need to provide input on the implementability of any treatment option that could occur in the wetlands area. He explained that NYSDEC may require mitigation measures for any option that would result in unacceptable impacts to the wetlands and this would increase the cost of the option. This type of discussion is part of the draft CMS review stage and revisions to the CMS would be made based on resolution of regulatory comments.

There was some discussion on how iron impacts a pump and treatment system and whether there was some option to combine a pump and treat system with another treatment option for the river area. Mr. Brayack indicated that iron affects the equipment used in the extraction and piping system so that additional maintenance needed for the system increases the operating costs. Also, iron clogs the VOC treatment system components and needs to be removed from the water before this step in the treatment system. A large volume of sludge is generated from the iron removal treatment, which also increases costs significantly. For Alternative 7, the capital costs are similar to the other treatment alternatives; however, the O&M is very high because of considerations for iron in the offsite portion of the plume. Mr. Brayack indicated the offsite portion contributes about 70 to 80 percent of the costs for Alternative 7. Mr. Anastasi indicated that hydraulic and physical properties of the soil will affect the ability to pump contamination effectively and that there are pros and cons for considering pump and treat systems. Mr. Anastasi guestioned whether this alternative and the air sparging options near the river could be moved further from the river to reduce the concerns (e.g., iron and wetlands impact). He noted that an aggressive treatment close to the river may quickly reduce the VOCs entering the river; however, moving treatment further from the river in the plume may make the alternative more implementable and have less cost even though it would allow more VOCs to enter the river in the short term. Mr. Brayack indicated that exact location of the treatment systems was a refinement of the alternative that is more fully developed during the design. Also that access to locations for installation of the treatment system was important consideration in evaluation of alternatives. Ms. Fly explained that it will be more difficult to install active treatment systems on non-Navy property.

Mr. Brayack indicated that the Navy is looking for input from the RAB members to help in the refinement of alternatives. In answer to a question on whether a treatment system could be used to chase the contaminant plume, Mr. Brayack indicated that this was addressed in the draft CMS. Such options and refinements would be conducted in the design phase after a remedy is selected.

Mr. Brayack briefly reviewed the life cycle analysis (Site Wise), explaining that the Navy is required to conduct this analysis as part of the CMS to show the potential impact the alternatives may have on greenhouse gases and other energy use considerations. The Site Wise program generates various tables and graphs based on the input parameters for the different alternatives. The results are an additional consideration when comparing and contrasting the pros and cons related to the various alternatives.

Mr. Brayack discusses the path forward and indicated that the draft CMS report is under regulatory review. The Navy will work with NYSDEC to determine how long they need to complete their review. After the Navy receives regulatory comments, the CMS will be revised. If there are major comments or revisions, the Navy would provide another draft before finalizing the document. If there are minor comments, the Navy could revise the document and submit the document as the final. If there is another alternative that needs to be evaluated, the Navy could provide the evaluation in the responses to comments rather than submitting another draft of the document. NYSDEC will contact the Navy as

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needed during review of the document. NYSDEC and the Navy have had various technical meetings to discuss issues as they have been going through the CMS process; however, a technical meeting to discuss any comments on the draft CMS has not been schedule at this time. NYSDEC needs to talk to their technical reviewers and determine what is needed for discussion and resolution of any NYSDEC concerns. Mr. Brayack also indicated that the other stakeholder comments would be considered during the comment resolution phase and that it would be best to receive comments on the document before trying to resolve comments. After the CMS Report is finalized, the Navy will propose a remedy and prepare a Statement of Basis that is provided for public comment. Selection of a remedy does not occur until after the public comment period. A record of decision and RCRA permit modification would need to be in place before the Navy could begin the remedial design and remedial action.

A request was made for the regulators to provide their comments on the draft CMS as soon as possible and identify any concerns for implementation of a remedy to facilitate the Navy moving forward through the remedial process. Also, a request was made for the regulators to provide their comments to Mr. Anastasi so that he can information the Community RAB members and get their input as needed. The Community RAB members would like community comments and concerns addressed before the public comment period to expedite the process to the extent possible.

CLOSING REMARKS

Ms. Fly indicated that the Navy was determining whether there would be sufficient information to support a RAB meeting the first week of August. The November meeting was set for November 3, 2011. Ms. Fly thanked everyone for coming to the meeting and asked whether the RAB members had any other questions. There were no further questions. The meeting was then adjourned. ATTACHMENT 1

APRIL 7, 2011 RAB MEETING SIGN-IN SHEET

34th RAB Meeting for NWIRP Calverton April 7, 2011 Sign-In List

Name Address (if interested in being on mailing list) Organization How Did You Hear of Meeting? Frank Amaspisi SCA Arsociates Celia Tech avid Bragaci Robert Sol etra Tech TAORMINA ECOR ndrew AD JETKO Scots Wadiwi Miver Guic WILKID NN Scott-5 SDZG Nou

34th RAB Meeting for NWIRP Calverton April 7, 2011 Sign-In List

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	Larry Ros	en men n	NNS	DFC	aeld DIC 5/20/11
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ATTACHMENT 2

APRIL 7, 2011 RAB MEETING AGENDA

Agenda

Restoration Advisory Board Naval Weapons Industrial Reserve Plant Calverton

April 7, 2011 Calverton Community Center, Calverton NY 7:00 p.m.

<u>Welcome and Agenda Review</u> Lora Fly, NAVFAC Mid-Atlantic

> Distribution of Minutes All Members

<u>Community Update</u> Bill Gunther, RAB Co-chair

Technical Progress

General Overview of ER Sites Lora Fly, NAVFAC Mid-Atlantic

2010 Groundwater Investigation Summary Rob Sok, Tetra Tech

Southern Area Corrective Measures Dave Brayack, Tetra Tech

> Closing Remarks Lora Fly

Presenters will be available after the program for questions.

ATTACHMENT 3

NAVY PRESENTATIONS

































































































	Corrective Measures Study							
o Lif	 Life Cycle Analysis (Site Wise) 							
Remedial Alternative	Impact Assessment	Greenhouse Gas Emissions	Criteria Pollutant Emissions	Energy Usage	Water Consumption			
	Relative Impact	Low	Low	Low	Low			
2: LUCs	Primary Impact Drivers	Transportation (Personnel)	Transportation (Personnel)	Transportation (Personnel)	-			
3: LUCs, MNA	Relative Impact	Low	Low	Low	Low to Moderate			
	Primary Impact Drivers	Materials (Steel)	Equipment Use	Materials (Steel)	Materials (Steel)			
	Relative Impact	High	Moderate to High	Moderate to High	High			
4: Air Sparge, MNA, LUCs	Primary Impact Drivers	Electricity Consumption (Air Sparge)	Electricity Consumption (Air Sparge)	Electricity Consumption (Air Sparge)	Electricity Consumption (Air Sparge)			
	Relative Impact	Low to Moderate	Moderate	Moderate	Moderate to High			
5: FISB, MNA, LUCs	Primary Impact Drivers	Materials, Equipment Use	Materials, Equipment Use	Materials (Emulsified Oil), Generators for EISB	Electricity Consumption (EISB)			
	Relative Impact	Moderate to High	Moderate to High	Moderate to High	High			
6: Air Sparge, EISB, MNA, LUCs	Primary Impact Drivers	Electricity Consumption (Air Sparge)	Electricity Consumption (Air Sparge)	Electricity Consumption (Air Sparge)	Electricity Consumption (Air Sparge, EISB)			
7: GW	Relative Impact	High	Moderate to High	High	High			
Extraction, Infiltration,	Primary Impact Drivers	Electricity Consumption (Extraction System)	Electricity Consumption (Extraction System)	Electricity Consumption (Extraction System)	Electricity Consumption (Extraction System)			









