



## **SRS Citizens Advisory Board**

### **Consolidated Incineration Facility Focus Group**

#### **Meeting Summary**

February 21, 2001  
Hampton Inn  
Aiken, SC

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The Consolidated Incineration Facility Focus Group met on Wednesday, February 21, 2001, 5:00 p.m., at the Hampton Inn, Aiken, SC. Attendance was as follows:

#### **FG Members**

Wade Waters, CAB  
Jean Sulc, CAB  
Perry Holcomb, CAB  
Ken Goad, CAB  
Mike French  
Lee Poe  
Doug Leader  
Bill Lawless  
Todd Crawford  
Peter Hudson  
Helen Villasor

#### **Stakeholders**

Rick McLeod, CAB Tech.  
Advisor  
David Ancel  
Brenda Guerry  
Jeff Lalonde  
Henry Houston

#### **DOE/Contractors**

George Mishra, DOE  
Jimmy Guerry, DOE  
Ed Stevens, SRTC  
Marcia Birk, WSRC  
Marshall Looper, WSRC

#### **Regulators**

Crystal Rippy, SCDHEC  
Henry Porter, SCDHEC

Wade Waters opened the meeting promptly at 5:00 p.m. by inviting introductions and thanking everyone for coming.

#### **Public Comment**

There were no public comments.

#### **Regulatory Status of the Consolidated Incineration Facility (CIF)**

Crystal Rippy, South Carolina Department of Health and Environmental Control (SCDHEC) announced that Shelly Sherritt was ill, and Ms. Rippy would be providing the SCDHEC presentation instead of Ms. Sherritt.

Ms. Rippy began her discussion by noting that while CIF continues to be a Resource Conservation and Recovery Act (RCRA)-permitted facility, currently it is in a suspension phase. However, Ms. Rippy emphasized that the permit conditions, which would allow CIF to operate, have been removed. The permit currently contains requirements for the suspension phase (i.e., waste prohibitions, security, and maintenance and inspection requirements); and conditions for restarting CIF (i.e., certification of waste

management facilities, required permits/permit modifications, etc.); conditions for closure; and a schedule (including the date by which the decision must be made to operate or pursue an alternative, dates for submittals/testing to support restart, and dates for the notification of, and completion of closure).

If the decision to restart was made, CIF would have to comply with all applicable RCRA and Clean Air Act permitting requirements including the Maximum Achievable Control Technology (MACT) Standard. SRS would have to obtain all applicable permits and permit modifications from SCDHEC's Bureau of Air Quality (BAQ) and Bureau of Land and Waste Management (BLWM). Ms. Rippy said the specific RCRA requirements would include submittal of a

revised RCRA Part B Permit Application by October 1, 2002. A pre-application meeting would be necessary if the revised Part B contained significant changes, and a revised risk assessment work plan by October 1, 2002 unless it was determined to be no longer necessary by the regulators.

Ms. Rippy said that if the decision to close were made, SRS would have to notify SCDHEC of its decision to close by April 1, 2002 (as the permit is currently written); implement the closure in accordance with the closure plan that is approved at that time and complete all closure activities within 225 days (45 days for notification and 180 days to complete closure) from April 1, 2002; and within 60 days of completion of closure, submit a certification of closure to SCDHEC. The regulators would then have to verify that CIF was closed in accordance with the approved closure plan.

Ms. Rippy closed her presentation by discussing the SCDHEC Response to Comments on the Draft RCRA Permit. Focusing on the extension for closure, Ms. Rippy said South Carolina Hazardous Waste Management Regulations (SCHMWR) allow for an extension to the deadline to closure with sufficient justification provided that there is a reasonable possibility that the facility could receive hazardous wastes in the future and that the facility has taken all steps to prevent threats to human health and the environment. It was by this provision that SCDHEC could allow a suspension phase rather than requiring CIF to close within the 180 days specified in the SCHMWR. Currently, Ms. Rippy said, SCDHEC believes that there is sufficient justification to allow the suspension phase until April 1, 2002, at which time, SRS would have to notify SCDHEC of its decision to restart or close. However, if prior to April 1, 2002, there is sufficient justification to further extend the deadline, SRS can submit a permit modification request for an extension.

The discussion evoked several questions from the attendees. For example, if an alternative technology had been identified but not available by the April 1, 2002 decision date, would it be possible to go through a re-permit process and then be on a dual track? Ms. Rippy said that SRS would have to submit sufficient justification if a viable technology had been found, but in either case, SRS would have to submit a permit modification. Lee Poe reminded the group that in his review of the safety documentation related to the suspension, he did not see any reference to permit requirements in the documentation.

Other questions regarding the budget for CIF were asked, i.e., would SCDHEC require SRS to initiate the dismantlement of CIF if it is not restarted and have these actions been budgeted? In response, Mr. Waters reminded the group that the SRS Citizens Advisory Board was holding a combined committee meeting on February 27 and that this would be an opportunity for Focus Group members to question the budget since the combined meeting was being devoted to budget review.

Lee Poe asked about the strategy for dealing with CAB Recommendation 133, "Consolidated Incineration Facility (CIF) RCRA Part B Permit Modification". Mr. Poe noted that this recommendation would have to be closed if the CAB was satisfied with the response. If the CAB is not satisfied then it should seek an alternative recommendation. It was suggested that this topic be included on the agenda for the next CIF Focus Group meeting to be held on March 14, 2001.

#### **PUREX Stabilization NOCHAR Study**

Marshall Looper introduced the PUREX waste stabilization study by first identifying the stabilization objectives, which are to comply with environmental standards and requirements to protect human health and the environment and meet disposal site radionuclide acceptance criteria (based on Performance Assessment). Mr. Looper also reviewed the disposal options, which include disposal at SRS or at the Nevada Test Site (NTS).

Mr. Looper said that the stabilization research and development program includes the identification of potential stabilization technologies for both the aqueous and organic phases of PUREX. Because the Focus Group had asked to hear more about stabilization as one of the technologies being studied, Mr. Looper introduced NOCHAR. NOCHAR technology has been used commercially by the petro-chemical industry for organic liquid treatment and by the Mound Site to treat tritiated waste oil. The Mound waste was accepted for disposal at NTS.

Passing samples of NOCHAR A610 and A660 around the room for the members to see and feel, Mr. Looper said that the Solid Waste Division and Savannah River Technology Center Alternatives Research and Development team evaluated the PUREX/Stabilization media to determine formulation mixture ratios and wasteform performance (i.e., RCRA's Toxicity Characteristic Leaching Procedure (TCLP), Radiation Stability, Temperature/Pressure/Vibration, etc.).

Mr. Looper said that NOCHAR technology bench-scale stabilization (beaker tests) for both the aqueous and organic were completed successfully. In the radiation stability tests, simulant wasteforms were irradiated with Cobalt-60 and showed only a slight change in wasteform grain boundaries and color. The results to date also show that the wasteform passes the TCLP. To further illustrate the beaker tests, Mr. Looper showed photographs of both PUREX organic and aqueous waste samples that were taken from Tanks 33 and 35. The photographs of the organics showed a wasteform that looked much like a "crumb cake." In the aqueous photos, the wasteform appeared not to bind up as much as the organics.

In closing, Mr. Looper said that the path forward is to perform evaluations of other potential stabilization technologies to compare them with NOCHAR. However, the team will still continue to evaluate NOCHAR in order to determine process optimization (formulation, mixing, etc.) and wasteform durability testing (i.e., temperature, pressure, vibration, microbial degradation, etc.). Mr. Looper was asked why NOCHAR had been selected over the other stabilization technologies. In response, Mr. Looper said NOCHAR was only one of a partial list in order to perform the typical "shake and bake" test first. The list of all stabilization technologies is still emerging and other screening criteria such as a water test may also be applied as the team continues its evaluation process. Mr. Looper said that no comparisons of similar products have occurred yet; however, the team is hoping to identify three or more alternatives. Bill Lawless asked if the team was still on track to obtain these comparisons before October 2001, since the timeframe the team is working toward would only be five months away from the decision date of April 1, 2002.

Several questions concerning NOCHAR were raised by the Focus Group. For example, when asked about the mixture ratio, Mr. Looper said that to one 55-gallon drum of PUREX, it would take approximately one drum and a half of NOCHAR for stabilization, with a weight ratio of 4:1. In terms of product cost, Mr. Looper said the cost is approximately \$10.00 per pound, and when asked further about a "back of the envelope" calculation, Mr. Looper said NOCHAR appears to be a cost effective treatment method since it would cost approximately \$5-10M to treat the current legacy stock of PUREX.

The question of regulatory acceptance and permitting of this treatment technology was also raised; however, it was noted that most likely more data would have to be collected before approaching the regulators to discuss the stabilization process. Some members of the group expressed opinions that stabilization is not as much a concern as is disposal of the wasteform in terms of stewardship. Therefore, in comparing the process with incineration, the outlook becomes much clearer since disposal from incineration is not a problem. In addition, incineration has regulatory approval while stabilization may have future impacts concerning regulatory issues. It was suggested that the regulators be provided with an opportunity to begin looking at a SRS plan to demonstrate technical acceptability of this alternative technology.

## PUREX Alternative Treatment Option Evaluation

Peter Hudson provided a briefing on PUREX alternative treatment option evaluations by first discussing how the systems evaluation approach operates. For example, Mr. Hudson said alternative PUREX treatment options were identified; evaluation criteria and weighting was established; and evaluations using the team approach were performed. Two evaluations were conducted; one for organics and another for the aqueous phase.

### PUREX Treatment Options:

1. CIF Optimized Treatment	Aqueous/Organic
2. Stabilization	Aqueous/Organic
3. Tank 47/HLW Evaporator	Aqueous
4. ETF – Rad Pretreatment	Aqueous
5. ETF – No Rad Pretreatment	Aqueous
6. Tank 50/Saltstone	Aqueous
7. Offsite Commercial Treatment – Rad Pretreatment at SRS	Organic
8. Onsite Commercial Treatment – Small Mobile Treatment Process	Aqueous Organic
9. New Canyon Stabilization Process	Aqueous

### PUREX Evaluation Criteria:

Safety	
Release potential	5%
Worker potential exposure	5%
Process	
Operational flexibility	10%
Availability	10%
Risk	
Regulator acceptance	5%
Stakeholder acceptance	5%
Schedule risk	10%
Technical maturity	15%
Cost	
Lifecycle cost	30%
Product	
Final waste form	<u>5%</u>
Total	100%

Mr. Hudson then provided the following scoring for the stabilization process:

<u>Criteria</u>	<u>Weight %</u>	<u>Organic Score</u>
Release potential	5	100 (no energy sources)
Worker exposure	5	60 (simple, but manually intensive)
Operational flexibility	10	80 (no long lead time for startup or shutdown)

Availability	10	80 (no complex unit operation)
Regulatory acceptance	5	60 (need to re-permit, disposal-regulatory issue)
Stakeholder acceptance	5	50 (scrutinized by stakeholders)
Schedule risk	10	80 (not a problem to meet STP by 2009)
Technical maturity	15	50 (commercial use but not full rad production)
Lifecycle cost	30	60 (middle range of \$5-10M)
Final waste form	5	50 (work needed to prove wasteform suitable)

For the PUREX organic results, Mr. Hudson said the following four options met the criteria defined in the initial screening process:

<u>Option</u>	<u>Score</u>
1. Offsite Commercial Treatment (Rad pretreatment at SRS)	65.5
2. Stabilization	65.5 Above the line
3. Onsite Commercial Treatment (Small mobile treatment)	51.0 Below the line
4. CIF Optimized Treatment	33.5

For the PUREX aqueous phase results, the following eight options met the criteria defined in the initial screening process:

<u>Option</u>	<u>Score</u>
1. Tank 47/HLW Evaporator	88.0
2. Tank 50/Saltstone	85.0
3. ETF – No Rad Pretreatment	82.5
4. Stabilization	82.0
5. New Canyon Stabilization Process	79.5
6. ETF Rad Pretreatment	77.5 Above the line
7. Onsite Commercial Treatment (Small mobile treatment)	60.5 Below the line
8. CIF Optimized Treatment	44.5

The discussion evoked several comments from the group. Lee Poe suggested that SRS stop all efforts now and go back to Option 1. Some members agreed that with the ranking criteria that had been presented, CIF does not come above the cutline. It was also suggested that the information provided on the ranking process is misleading because CIF is basically a "sunk " cost. Still, others recommended that SRS consider a combination approach by removing the Tank 47 aqueous, which is a half of the legacy waste and use CIF for the organics. Mr. Hudson clarified that the information being provided was not a final answer, he said that the team is still in the process of selecting a short list, with much work still to be done.

As a path forward, Mr. Hudson emphasized that the next step is to investigate the remaining options in detail. However, some members of the Focus Group expressed concern that as the work continues, there is less than eight months left before the final closure plan is due and there might not be enough time left to make the SRS budget process. The question was raised as to why SRS is not now involved in the process of making plans to get CIF funding into the budget process. This led the group to a discussion of requesting information on an implementation schedule since raw data still needs to be collected and evaluated, peer review will be required, and all assumptions will need to be proven. Mr. Hudson responded by noting that between now and December, SRS will not have enough cost information available.

### **Group Discussion**

Several suggestions for meeting topics were discussed, including a presentation on the technical plan for the acceptance of putting the aqueous in Tank 50; a discussion on the long-term stability of the stabilization process wasteform; Steve Piccolo, High Level Waste Division discuss the waste tanks; DOE-HQ's response to the letter sent to David Huizenga on January 29, 2001; a new technology demonstration; Jim Buice discuss the CIF budget; and SRS's closure plan including stabilization of CIF.

Wade Waters announced that Helen Belencan of DOE-HQ will be presenting a review of the development of the implementation plan in response to the Blue Ribbon Panel recommendations on alternatives to incineration.

### **Public Comment**

There were no public comments.

Wade Waters adjourned the meeting at 7:30 p.m.

***Meeting handouts may be obtained by calling 1-800-249-8155.***