

Upgraded RETOS™: An International Tool to Assess Oil Spill Response Planning and Readiness

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ABSTRACT 299730:

In 2011 the Regional Association of Oil and Gas Companies - Latin America and the Caribbean (ARPEL) developed the “Oil Spill Response Planning and Readiness Assessment Manual” and its assessment tool, the “Readiness Evaluation Tool for Oil Spills (RETOS™)” with the support of regional and international experts from industry and government, including associations such as Clean Caribbean and Americas (CCA), RAC-REMPEITC-Carib, and IMO.

The ARPEL Manual and RETOS™ provide a general guide for industry and governments to assess their level of oil spill response (OSR) planning and readiness management in relation to pre-established criteria. These criteria are commonly agreed upon by the institutions involved in the project and consider international best management practices. The foundation for the ARPEL Manual’s concepts and criteria is the “Assessment of Oil Spill Response Capabilities: A Proposed International Guide for Oil Spill Response Planning and Readiness Assessment”, a guideline developed for the 2008 International Oil Spill Conference.

RETOS™ adapts evaluation criteria according to the type of OSR program to be assessed.

- Seven different scopes from two perspectives (government and industry) are considered, including facilities, companies’ business lines, and government national programs.
- For each scope there are three possible assessment levels for which OSR planning and readiness assessment criteria become increasingly more demanding.
- Each level contains criteria in 10 different categories (topic areas).

Training workshops on RETOS™ were held during 2011 and 2012. Field tests were conducted by experts and surveys were conducted among users including companies, governments and consultants. Feedback from workshops and the practical application of RETOS™ provided recommendations for upgrades that were reviewed by ARPEL. Subsequently, a proposal to upgrade RETOS was made to the IOSC Executive Committee, which decided to support the endeavor. This paper describes the upgraded version of RETOS and its availability.

The upgraded version of RETOS™ has garnered interest from several institutions that contributed to its completion as reviewers: a global Tier 3 organization (OSRL), Caspian and Black Sea’s OSPRI, GI WACAF, and IPIECA. This multi-institutional review increased awareness of these readiness assessment tools, is expected to further expand worldwide awareness of the ARPEL Manual and RETOS™, and provides improved OSR planning and readiness management for industry and

governments alike. A unique tool that is freely downloadable from the internet, the upgraded RETOS™ is being launched at the 2014 IOSC.

INTRODUCTION:

There have been few attempts in the oil spill response community to prepare comprehensive guides for assessment of response capability. Most guidance has focused on the content of OSR contingency plans and, in places around the world, some governments and companies have developed internal guidelines to assess OSR plans and readiness. In 2007, organizers of the 2008 IOSC agreed to support development of general guidance to assess OSR readiness. As part of that development, the 2008 IOSC Workshop Subcommittee prepared a broad suite of planning and readiness assessment elements to encourage improved response capacity. That initial work set a framework to aid development and maintenance of response management systems to improve OSR readiness, documented in the 2008 IOSC Guideline (Taylor et al., 2008a and 2008b).

Subsequent feedback received from the international community recommended transforming the 2008 IOSC Guideline into a more user-friendly management tool, hence leading to the “ARPEL Oil Spill Response Planning and Readiness Assessment Manual” (the “Manual”) and its accompanying assessment tool, the Readiness Evaluation/Excel Tool for Oil Spills (RETOS™). The ARPEL Manual and RETOS™ are intended to help assess OSR planning and readiness and to identify challenges, information needs, and areas for improvement. OSR assessment criteria are the foundation for a consistent approach to gauge the level of OSR planning and readiness and to assist in identifying areas for improvement. The criteria in RETOS™ are not mandatory and are not intended to reflect or add any legal or regulatory requirements. The Manual and RETOS™ are oriented more toward the managing OSR readiness and less toward detailed operational aspects, such as specific amounts or types of equipment.

APPLICATION AND FEEDBACK:

Manual and RETOS™

Users of the Manual and RETOS™ should have working knowledge of the 2008 IOSC Guideline (Taylor et al., 2008b) to gain a clear understanding of the depth of its elements, sub-elements, and components, which represent a comprehensive oil spill readiness and planning management assessment program. The suggested sequence for implementing these tools in the OSR assessment process is depicted in Figure 1. The assessment criteria established in RETOS™ do not represent formal standards for either industry or governments. Most criteria are based on best international practices derived from documents developed by ARPEL, API (American Petroleum Institute), IMO (International Maritime Organization), IPIECA (International Petroleum Industry Environmental Conservation Association), NOAA (National Oceanic and Atmospheric Administration) and other organizations. Assessment criteria are grouped into 10 topic areas for breadth of coverage of a readiness assessment.

RETOS™ has seven scopes or general OSR program areas (Table 1). For each scope a user first selects an assessment level. Assessment levels (A, B or C) do not correspond to spill tiers (1, 2 or 3) in the OSR planning sense. Rather, an assessment level indicates the maturity of a program. For instance, a facility may be well prepared to mount a quick and very effective response to a Tier 1 spill.

In such a case, the assessment Level C would reflect its maturity for a Tier 1 spill response. Alternatively, a national Tier 3 program may be in the early stages of development and implementation, in which case a Level A assessment would be performed.

The criteria progress from fundamental aspects of OSR management capability (Level A) to very complete and/or best international practice (Level C).

- Level A: Preparedness at this level indicates all basic components are in place providing a reasonable OSR management capacity. Contingency plans are in place, approved, and fully implemented.
- Level B: This level applies to programs that have been developed to more rigorous standards. Programs at this level reflect performance gains from earlier feedback and use evaluation processes to improve management capability.
- Level C: Achieving the highest level reflects programs in search of excellence. These are programs that consistently implement feedback and maintain readiness through application of best international practices in OSR concepts.

Testing of RETOS™ and Feedback

Since its development, the Manual and RETOS™ have been utilized by governments and companies alike to perform “gaps analyses”, to generate metrics to align with other governments’ or companies’ readiness assessment efforts, or to internalize them in a broader continuous-improvement process. As part of an ARPEL project outreach program, two regional training workshops were conducted to train professionals from industry and government: in 2011 in Rio de Janeiro, Brazil (notably, the IMO supported the participation of government officials from Argentina, Chile, Peru and Uruguay at this Workshop) and in 2012 in Port of Spain, Trinidad & Tobago. Further, various industry groups have used the ARPEL Manual and RETOS™:

- COCATRAM (Central American Maritime Transport Commission) and RAC/REMPEITC-Carib (Regional Marine Pollution Emergency Information and Training Center for the Wider Caribbean) are presently using the Manual and RETOS™ as tools to assist over 30 countries in the Caribbean and Central America to develop/improve their preparedness. The Manual and RETOS™ help these organizations to harmonize and evaluate improvements and to identify challenges that need to be addressed so that their member countries can achieve higher levels of OSR preparedness.
- In January 2012, experts from OSRL (Oil Spill Response Limited), ITOPF (International Tanker Owners Pollution Federation), IMO/IPIECA GI WACAF (Global Initiative’s West and Central Africa), IPIECA, and OSPRI (Oil Spill Preparedness Regional Initiative for Caspian, Black Sea and Central Eurasia) evaluated the Manual and RETOS™. Collectively, they recognized its value as *“an excellent and comprehensive tool but in its current format is likely to be limited to use by committed, experienced and trained persons.”* These experts made suggestions to help its use within the Global Initiative context.

By early 2013, RETOS™ had been presented and/or used in eight countries to evaluate more than forty OSR programs (Table 2). The ARPEL project team took advantage of each opportunity to learn what improvements were recommended for improved RETOS™ functionality.

RETOS™ ENHANCEMENTS:

Based on reviews and feedback from trial use noted above, there were nine major steps in the upgrade to RETOS™ and its accompanying Manual (ARPEL, 2014). The upgrade team:

1. Identified “critical” criteria (for Level A only) that, if missing or incomplete, would not allow a program to qualify as complete, regardless of scores to individual criteria. Missing or incomplete critical criteria were then included as top priority steps in the Global Improvement Program (GIP) assessment report.
2. Added an institution-specific category with blank criteria rows to allow for up to ten institution-specific criteria to be inserted at any given level.
3. Added RETOS™ functionality for critical and institution-specific criteria such that a N/A, missing, or incomplete/partial score requires an assessor to add Comments and Recommendations.
4. Developed a more robust assessment report, the Global Performance Analysis (GPA), including sub-scores per assessment category, highlighting any categories with missing or incomplete critical criteria, and enabling simple display of results by category in a radar chart or spider-web diagram (Figure 2).
5. Enabled auto-generation of a GIP - Implementation Plan in which critical criteria (rated as either missing or partial) are highlighted and listed as top priorities for improvement, followed by other criteria rated as either partial or missing (Table 3).
6. Added linkages to the GIP Report so that criteria ‘requiring action’ have an added notation to relevant information in the 2008 IOSC Guideline (see right-hand column in Table 3).
7. Updated available literature and guidelines, including links, to supporting information (i.e., the Toolbox) in the Manual, now with over 150 citations.
8. Researched and provided options to further develop RETOS™ into a web- or independent platform application.
9. Upgraded the ARPEL Manual to reflect changes and improvements made to RETOS™.

As noted in the ARPEL Manual, assessments are encouraged to gauge progress in a step-wise manner from Level A (basic) to Level C (best practices). A program should not be assessed at a higher level of competency until it has achieved the lower level. The Manual and RETOS™ are intended to encourage users to address or resolve existing readiness challenges while, at the same time, work towards a higher level of competency (Levels B or C). Upon completion of an assessment, a GIP Implementation report can be generated that is designed to facilitate an organization’s next steps to improve readiness (Table 3).

- A GIP Implementation report lists steps to close out each criterion rated as either missing or partial.
- Priorities for improvement can be challenging to set in advance. To assist the user in this prioritization process, a GIP Implementation Plan lists, as top priority, any critical criteria that are missing, critical criteria with partial rating, and then remaining criteria rated either missing or partial.
- A cross-reference to additional information in the 2008 IOSC Guideline is provided, as are assessment observations and recommendations (written by the assessor) to assist with closing gaps. The ARPEL Manual includes an extensive bibliography to other publically available manuals and documents, in addition to the 2008 IOSC Guideline. Most of these are freely available through a digital object identifier included in the Manual.

FUTURE APPLICATION:

The IMO/IPIECA Global Initiative was designed to implement the OPRC 90 Convention (IMO, 1990) through joint government/industry undertakings. RETOS™ was developed jointly by governments and industry and supports the requirements of the OPRC Convention by:

- fostering the ratification of the relevant international conventions,
- assisting in the development and continuous improvement of national contingency plans,
- supporting the identification of roles and responsibilities for oil spill response,
- promoting exchange and mutual assistance for oil spill response through commonly established criteria,
- encouraging that training and exercise are developed in countries on a regular basis, and
- supporting countries in developing their own national response system.

By incorporating RETOS™ as part of training/assistance of the Global Initiative, Sovereign States will have tools to help accomplish all of the goals mentioned above. Benefits to the Global Initiative include having a harmonized tool to assist Sovereign States in development of their national contingency plans as well as providing a common framework to evaluate readiness and any advances or challenges to attaining higher levels of oil spill preparedness and readiness.

CONCLUSION:

The ARPEL Manual and RETOS™ provide a general guide to industry and governments to assess their level of OSR planning and readiness management in relation to pre-established criteria. These criteria are commonly agreed upon by the institutions involved in the project and consider international best management practices. Other important features of the RETOS™ tool include:

- the flexibility to adapt criteria according to the OSR program being assessed (e.g., facilities, national or corporate programs) including the incorporation of country/company specific criteria,
- a three-level (i.e., Levels A, B and C) approach supporting continuous improvement efforts, and
- functionalities that support an efficient approach to bridge the gaps identified (i.e., the Global Improvement Program Report).

The ARPEL Manual and RETOS™ may complement existing tools that industry or governments use to assess their oil spill preparedness and readiness programs and they can be used as part of procedures in response management systems. The criteria in RETOS™ are not mandatory and are not intended to reflect or add any legal or regulatory requirements. However, the voluntary use of RETOS™ by governments and industry can help guide improvements for management of OSR preparedness and readiness.

RETOS™ provides a unique and robust tool to help with consistency and reproducibility in OSR programs assessments, by:

- evaluating the challenges and highlighting critical criteria to reach to a minimum level of preparedness and readiness,
- providing bibliographic sources with best international practices, and

- encouraging improvement in OSR readiness.

RETOS™ is very easy to use. The Manual and RETOS™ are currently available in English and Spanish and can be downloaded free of charge from the ARPEL web site (www.arpel.org). Translation into other languages may be undertaken with due consideration to copyrights.

REFERENCES:

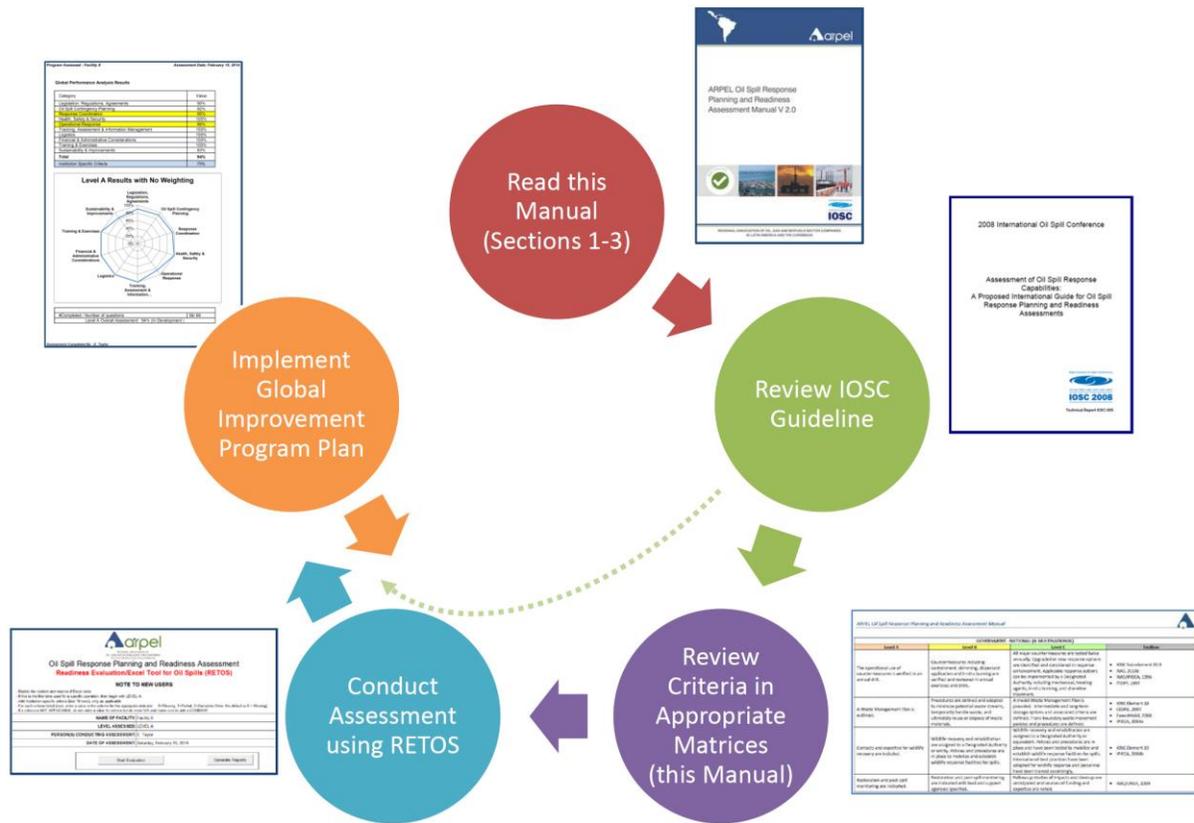
ARPEL, 2014. *Oil Spill Response Planning and Readiness Assessment Manual and RETOS™*. [online]. Regional Association of Oil and Gas Companies - Latin America and the Caribbean. Available from: www.arpel.org [Accessed 3 March 2014]

IMO, 1990. *International Convention on Oil Pollution Preparedness, Response and Co-operation*. [online]. International Maritime Organization. Available from: <http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-Oil-Pollution-Preparedness,-Response-and-Co-operation-%28OPRC%29.aspx> [Accessed 14 February 2014]

Taylor, E., Steen, A., Meza, M., Couzigou, B., Hodges, M., Miranda, D., Ramos, J., and Moyano, M., 2008a. *IOSC Workshop Report: A Proposed International Guide for Oil Spill Response Planning and Readiness Assessment*. Proc. 2008 International Oil Spill Conference, API Publ. I47190, Washington, DC. p. 1-18. [online] Available from: <http://www.ioscproceedings.com/doi/pdf/10.7901/2169-3358-2008-1-1> [Accessed 14 February 2014]

Taylor, E., Steen, A., Meza, M., Couzigou, B., Hodges, M., Miranda, D., Ramos, J., and Moyano, M., 2008b. *Assessment of Oil Spill Response Capabilities: A Proposed International Guide for Oil Spill Response Planning and Readiness Assessment*. Technical Report IOSC 009. International Oil Spill Conference, API. Washington, DC. 70pp. [online] Available from: https://www.arpel.org/library/publications/search/?thematic=&focus_area_1=ParentFocusAreas.p_1&focus_area_2=ParentFocusAreas.p_2&focus_area_3=ParentFocusAreas.p_3&types=&year=&title=RETOS [Accessed 3 March 2014]

Figure 1 Overview on use of the ARPEL Manual and RETOS™ for OSR Program Assessment



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Table 1 OSR Scopes and examples as implemented in RETOS™ and Manual

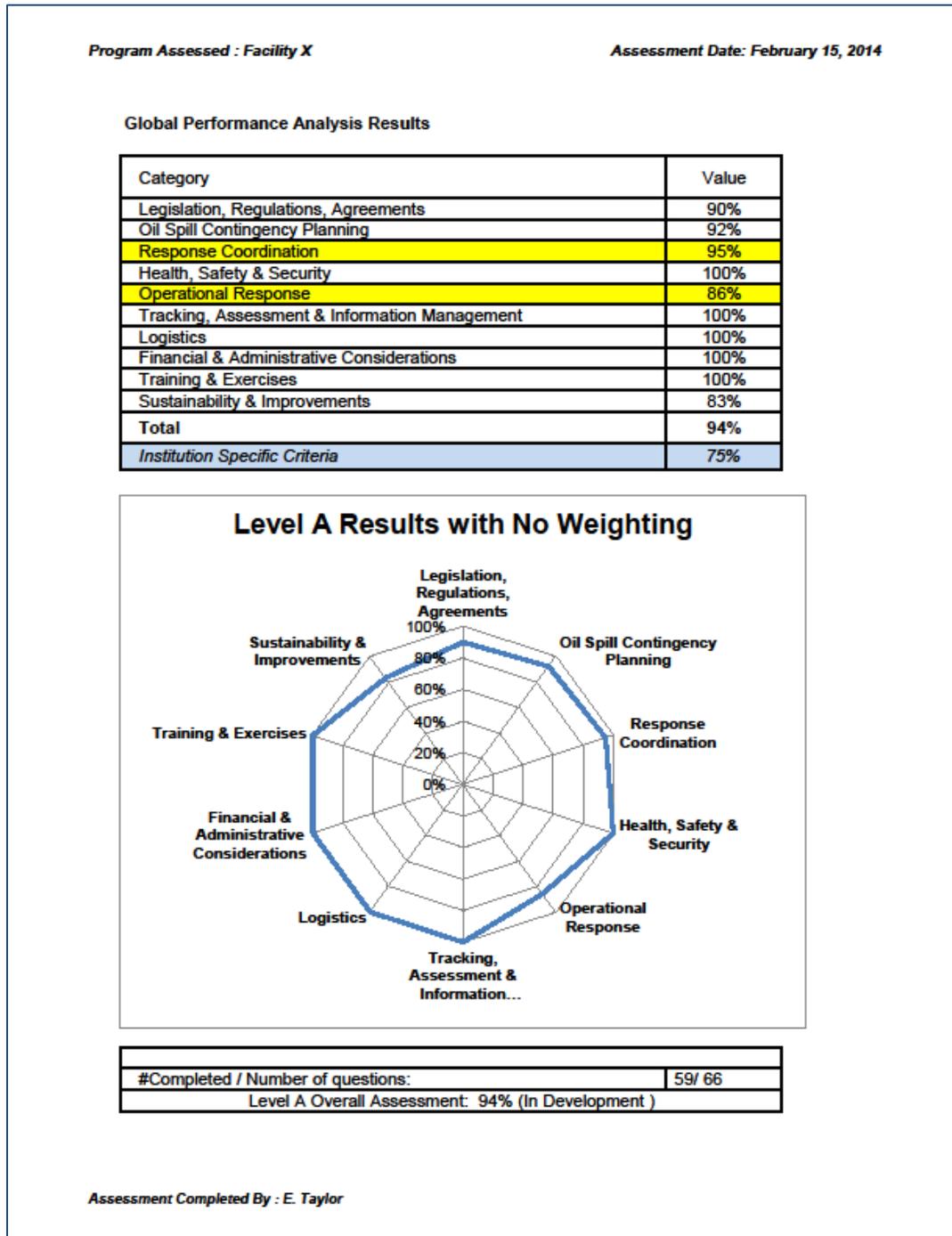
SCOPE	Examples
Industry or Government	
Facility	Refineries, Well or Production Sites, Storage facilities, Tank farms, Floating Storage and Offloading/Floating Production Storage and Offloading, Transfer facilities, Privately-owned port
Multi-Facility / Asset Operations	Pipeline operations, Vessel fleets (tankers, barges), Rail transport, Subsea pipelines and gathering systems
Government	
Port/City/Local	Port facilities, Municipalities
Area (Region, Province, State)	State, Province, Multi-state/provincial
National (& Multi-National)	Country-wide, National, Joint National, Multi-National
Industry	
Country or Business Line	Nation-wide Industry program , Pipelines (comprehensive for multiple operations), Fleets, Production, Drilling & Exploration
Corporate	Company OSR Program, OSR portion of Corporate HSE Programs, OSR programs defined in ISO and adopted international practices

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Table 2 Locations of RETOS™ use and feedback (2011-2013), identified by ARPEL as of February 2013

Countries	Brazil, Colombia, Costa Rica, Ecuador, Kuwait, Peru, Trinidad & Tobago, USA	
Organizations	Caribbean Environment Program (UNEP) Clean Caribbean COCATRAM Ecopetrol ENI EP Petroecuador ExxonMobil IBP IMO – IPIECA	Kuwait Petroleum Corp. Maersk Oil OCENSA Petroamazonas Petrobras Petroperu Recope Staatsolie Trinidad y Tobago Ministry of Energy
Types of Application	Facilities: 12 Multi-facility/Operations: 18 Corporate / Industry : 4 Local Port: 1 National/Multi-national: 3	

Figure 2 Example of a Global Performance Analysis Report¹



¹ Although the minimum percentage to pass from Level A to Level B is 90%, the fact that there are critical criteria partial or missing for Response Coordination and Operational Response categories—in yellow- results in the overall assessment to be shown as “In development”.

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Table 3 Example of a Global Improvement Program Report

Global Improvement Program - Implementation Plan						
Priority	Task (Listed by Element and Criteria)	Comment/Recommendations	Person Responsible	Resources (Human, Physical, Info Sources)	Schedule (indicate Target Completion Date)	IOSC 2008 Guidelines Reference*
Critical Criteria Partial						
2	C6: Incident command is assigned to one or two specific individuals (by name or position) with backups identified.	Need to identify backup personnel.	MM	Management	2014Q2	IOSC Element 10, Sub-element 10.3
	E3: Equipment is properly stored, in good working condition and being properly maintained and inspected.	Recommend boom be placed under shelter-will suffer UV damage if left as is.	ET	Warehouse; possible construction; budgets TBD	2014Q3	
A. LEGISLATION, REGULATIONS, AGREEMENTS						
	Signed agreements for local (within reasonable distance) OSR assistance are in place.	Agreements are verbal only. Recommend more formalized approach.	AES	Management	2014Q4	IOSC Sub-element 23.4
B. OIL SPILL CONTINGENCY PLANNING						
	Species at risk are listed.	Consider cross-reference to Area Plan.	ET	Min. Env.	2014Q2	
E. OPERATIONAL RESPONSE						
	A Waste Management Plan is outlined.	Standard waste plan is used; suggest Plan be reviewed and revised for OSR emergencies.	MM	Waste Group	2014Q3	IOSC Element 18
I. TRAINING & EXERCISES						
	Regular training courses are provided on OSCP to response team personnel.	An initial class was provided to personnel at site at the time of plan rollout. New personnel have not received training on the Plan. Provide for newer personnel.	ET	Training scheduled for 06-2014	2014Q2	IOSC Element 9 and Element 27
J. SUSTAINABILITY & IMPROVEMENT						
	Audits of plans and facilities are conducted annually.	Present audit was first; recommend audit or review be completed annually.	AES	Management	2015Q2	
INSTITUTION SPECIFIC CRITERIA						
	Management documented improvement and milestones for next year.	In progress. Need to finalize.	ET	Management	2014Q2	
	Reviewed By:					
	Approved By:			Date		